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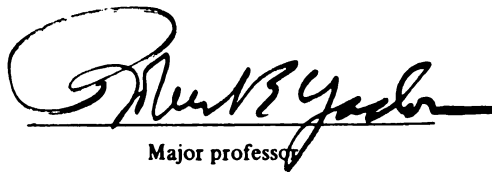
TELEVISION MARKETS

presented by

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Major professor

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FIFTY TELEVISION MARKETS

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A THESIS

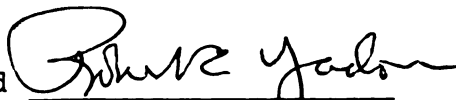
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ABSTRACT

POTENTIAL REVENUE IN THE TOP
FIFTY TELEVISION MARKETS

By

Denis C. Katell

This thesis seeks to initiate the use of potential revenue for the purposes of television market analysis. The term potential revenue is the product of a computed analytic constant multiplied by total retail sales of a television market (ADI).

The study addresses itself to the purpose of predicting potential revenue in each of the top fifty television markets, and to a lesser extent, economic viability of markets as it relates to entry of new television outlets. The potential revenue concept may be able to provide broadcasters, media specialists, brokers, and researchers with a measuring device which ascertains the financial and economic health of a particular top fifty market. A formula produced by this study could very well become an important tool in decision making for market television, including but not limited to: new entry, transfer of license, cable expansion, and operating expenditures.

Denis C. Katell

It is anticipated that this study will provide a base upon which an additional body of knowledge about television's market share of advertising revenue can be formulated.

ACKNOWLEDGMENTS

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LIST OF SYMBOLS

ADI	-	Area of dominant influence.
E	-	The dependent variable Entry (see Equation (5))
IMI	-	Individual market index (see Equation (1))
K_{pr}	-	Analytic constant (.0047)
R_p	-	Variable defined by Equation (2)
R_p^{+2}	-	High potential revenue (see Equation (3))
R_p^{-2}	-	Low potential revenue (see Equation (4))
R_t	-	Total television revenue (see Equation (1))
TRSADI	-	Total retail sales for the ADI
UHF	-	Ultra High Frequency
VHF	-	Very High Frequency

CHAPTER I

INTRODUCTION

Because the number of television outlets in America have been increasing, and the available channels have been decreasing to a fewer number of Ultra-High Frequency (UHF) allocations in several markets, analyses of television markets have become a necessity for decision making. Whether it be a decision concerning construction, purchase, or capital improvements to existing properties, the gathering of necessary and relevant market data should be a prerequisite to any action.

When commercial television stations were first licensed in the pre-war 1940s and then again in the post-war period of that decade, several economic problems presented themselves. Major obstacles surrounded the absence of television receivers and a "built-in" audience ready to utilize the new medium. Other problems included, but were not limited to, inexperienced personnel, finding sources of programming, and developing a strategy for selling the medium to advertisers who committed a tremendous portion of their advertising budgets to print and radio media. It was the advent of television itself which had to create a

demand for the medium in order for it to become as productive and profitable as its predecessor, the radio broadcasting industry.

As it turned out, television caused alarming social and economic waves across the country by the late forties.

Restaurants and night clubs felt the impact. A variety series starring Sid Caesar and Imogene Coca, launched in 1949--later titled "Your Show of Shows"--became a Saturday terror to restaurants. It made people rush home early. Television had briefly drawn people to taverns, but now home sets kept them home. Cities saw a drop in taxicab receipts. Jukebox receipts were down. Library circulations and book store sales were down. Radio listening in television cities were off; the Bob Hope ratings dropped from 23.8 in 1949 to 12.7 in 1951. The freeze kept sponsors on hand but the omens were frightening.¹

The film world also felt the impact of television, and the 1948 Supreme Court decision to break up theater ownership of the large Hollywood studios added immensely to the economic upheavals relating to entertainment industries. Hosts of artists, assuming New York would be the capital for video production as it was for radio, headed eastward. Joining the migration were numerous fugitives from other media--newspapers, magazines, theaters, nightclubs, lecture halls.² It seems as though they were all struggling for footholds in the new medium. It was a time for trial and error, success and failure. Amid a confusion of migrations and an atmosphere of upheaval, program experiments came and went.³

Although television outlets were new and unpolished, the medium quickly took hold of the public, and the

prestige of set ownership facilitated a tremendous volume of receiver sales.⁴

Yesterday, the business was more of an art. Today, it is more of a science relying heavily on audience, technical, and economic research. The industry has become a highly refined entity, and several of the economic concerns have a new complexion. But for the most part, in the early days of television not many assumptions about the market had to be made. As long as the city slated for a new television outlet had a relatively large population and little or no competition from existing television facilities, viability was practically a certainty.

Today, with the industry concretely established, and restrictions (both economic and regulatory) on new entry, the collection, processing, and analysis of market data are unavoidable for satisfactory managerial decision making. In light of rapidly advancing technology, the perplexities of television economics continues its evolutionary path.

When television began its growth, at the end of World War II, there were only 8,000 households with receivers. Twenty-eight years later, television could be seen in over 68 million homes; 45 percent of those homes had two or more sets, and 70 percent of all homes had color sets.⁵

Since the modern era of television began in the middle of the past decade, several significant events

appeared. All Very-High Frequency (VHF) allocations in the one hundred largest television markets have been taken, so new stations must operate in the UHF band.⁶ In the mid-1970s the American Broadcasting Company, for years viewed as being a "weak sister, third network," has reached the number one rating position on a continuing basis. The network economic gap has been closed, and competition among the networks is at its keenest point in history.⁷ The operation of independent television outlets have become more efficient as evidenced by recent annual financial reports by the Federal Communications Commission. Cable proliferation has become an increasing annoyance to broadcasters, and the advent of satellite distribution of video have caused new concerns.⁸

TABLE I
GROWTH OF TELEVISION HOUSEHOLDS
(in millions)

Year	TV Homes	Year	TV Homes
1949	1.6	1962	49.0
1950	5.9	1963	51.3
1951	12.4	1964	52.6
1952	17.3	1965	53.8
1953	23.4	1966	54.9
1954	28.2	1967	56.0
1955	32.3	1968	57.0
1956	36.7	1969	58.5
1957	40.3	1970	60.1
1958	43.0	1971	62.1
1959	44.5	1972	64.8
1960	45.2	1973	66.2
1961	46.9	1974	68.5
		1975	69.6

Source: Broadcasting Yearbook (Washington, 1976), p. C-300.

But the biggest economic gamble for television broadcasting continues to be construction of new stations in the larger markets.

Adding to the present anxiety of several telecasters is the Office of Telecommunication Policy's VHF drop-in plan. The FCC has been requested to explore the possibility of permitting short spaced, lower powered VHF assignments in 70 markets.⁹ It is not clear yet as to the value of such facilities.

The television industry is average sized.¹⁰ But, in the aggregate it looks lucrative to investors and potential owners. Even cliches such as, "a television license is a permit to print money," are commonly heard.¹¹ However, in 1975 the network's 15 owned and operated television outlets alone captured 18.5 percent of the 669 commercial stations revenue.* Large market VHF stations tend to make handsome profits, yet 14 percent of all VHF and 49 percent of all UHF operations lost money that year.¹²

To the late comer, it is difficult to break into a highly competitive television market. Not only does the artificial scarcity of VHF assignments, cable penetration, and other technological aspects have impact on new entry viability, but also, and perhaps more importantly, economic room in the market to support an additional outlet must be a major concern.

*Although 711 stations operated only 669 reported financial data.

TABLE II
COMMERCIAL TELEVISION STATIONS
IN OPERATION

Year	Total	VHF	UHF
1945	6	6	-
1950	97	97	-
1955	439	294	117
1960	573	441	76
1965	586	487	99
1970	690	508	182
1971	696	511	185
1972	699	510	189
1973	700	511	189
1974	705	513	192
1975	711	513	198

Source: Broadcasting Yearbook (Washington, 1976), p. A-7.

The proper evaluation of current market conditions is necessary for future television broadcasting growth, if not for the pure economics involved, then for the consideration of possible economic injury to existing stations caused by new entry.

Economic success becomes increasingly dependent upon accurate evaluation of market conditions. This is particularly true with expansion into markets where competition with an existing station or stations could raise the question of economic injury. Precedent established for future Commission action on this matter is found in *Carroll Broadcasting Company v. Federal Communications Commission*:

The Court of Appeals for the District of Columbia rejected the FCC's interpretation of the Supreme Court's 1940 decision in the *Sanders Brothers*

case and made it mandatory for the Commission to consider economic injury protests when potential competition seemed likely to affect the public interest adversely.¹³

In the related area of financial support for a new licensee, the Commission may have been too zealous in the hopes of providing maximum choice for the public. As the table on the previous page shows, there was a drop in the number of operating UHF stations between the years 1955 and 1960. The most significant cause for the decrease was, perhaps, the general lack of receivers equipped to tune the higher band of frequencies.

As may be implied from the Communications Act of 1934 and the FCC's rules and regulations, there is a positive burden of proof on every applicant to show that he has the financial resources to build and operate a station. Although an ill chance of successful operation of a new entry may be less critical than over burdening a market with extra competitors, the Commission does not disqualify applications in cities where there is obviously a lack of market characteristics to insure the probable success of the new entry. This, in part, explains why there are a number of stations which report losses year after year and still remain on the air. This may also be the most significant cause for outlets to go "dark." In our free enterprise system, companies are lead by the profit motive. There may always be hope that the market characteristics will become more favorable and holding a license guarantees a place in the future

market, but a disregard for market data compounds the financial dilemma of struggling stations. The most advantageous time for an application to be filed with the Commission is at the point in time where the market appears that it can support additional service. However, this may not be the best time because there is a strong chance of competing applications in a market whose time has come.

This project will attempt to provide an extra body of knowledge which can be used for the calculation of the potential revenue of a top fifty market, and in addition to other uses, it is hoped that determining when entry should be made can be reduced to a systematic process.

Purpose of the Study

This study will attempt to investigate relationships between various financial, economic, and market characteristics and the potential revenue for each of the top fifty television markets in America. It is anticipated that this investigation in addition to generating potential revenue data, will provide a reliable means of predicting whether or not new television service (most likely to be UHF) can be successfully sustained by the economic climate in each of the top fifty markets. But since the UHF handicap is eroding and the possibility of VHF drop-ins is increasing, this study will not discriminate against the type of transmission, but will focus on economic conditions and characteristics.

In recent years, the analysis of total market revenue and the economic strength of radio markets have been enhanced by the use of a new term, potential revenue, a projection of the available revenue in a given market.

To generate potential revenue as a variable, it is first necessary to select an index of relative market strength, and then to examine its relationship to existing revenue data.¹⁴

In his thesis, Financial Behavior of Oklahoma Single Station Markets in 1973, Robert Yadon selected total retail sales as an indicator of market activity. The other criterion variable was revenue data per radio market published by the Federal Communications Commission. Yadon tested a random sample (N=30) of the top 300 radio markets and predicted that 95% of the nation's radio markets fell within two standard errors of the potential revenue index (Kpr") mean of .0039. A range of the potential was then formed between the two parameters; Kpr High = .0044 and Kpr Low = .0034.¹⁵

Potential revenue is the produce of a market's total retail sales multiplied by "Kpr," which is developed by dividing total market revenue by total retail sales. Reduced to simple terms, "Kpr" is the mean of percentages of total retail sales represented by the total market revenue.

Studying the ground work done by Yadon and its adaptation by broadcast investment experts including Paul

Kagan, have made a convincing argument that a study of potential revenue in television markets would be a worthwhile undertaking.¹⁶

This thesis project will address itself to the purpose of attempting to predict potential revenue, and to a lesser extent, economic viability for new entry into each of the top fifty television markets in America. Although "Kpr" is a variable which will be a rudimentary calculation for the purposes of this study, the main concern will be distinguishing the best combination of variables to predict potential revenue for the various markets.

"Kpr" in itself is somewhat powerful in providing a range in which a majority of markets are included. However, the range is not sufficiently narrow to prevent substantial discrepancies in the larger markets. It is the refinement of techniques for predicting potential revenue for television markets which this study hopes to accomplish.

Although the "Kpr" and potential revenue concepts for radio are new and have not been commonly put to use in the industry, a study for television concerning their uses should be completed as soon as possible, so if similarities in both mediums are detected, simultaneous refinements in the scope and use of such techniques can be undertaken.

Several related, but fundamental, measurements and analysis tools will be utilized, with the following objectives in mind:

1. To establish the relationship between total retail sales and existing total market revenue.
2. To establish the amount of potential television revenue in a market as a function of a specific variable or group of variables.
3. To project these findings as independent variables in order to indicate the probable economic viability of a market to the dependent introduction of a new television outlet.
4. On a comparative rank basis, how do the markets relate among themselves.
5. Does an increase in market size make it less likely for existing stations to capture the untapped potential revenue due to availabilities, time sales marketing, etc.?
6. To identify individual and groups of variables which merit more detailed analysis in the balance of television markets.

Scope of the Study

This study will be bound by some specific limitations which should be brought to light at this time: first, because of the investigative nature of the study, there should be no application of the findings contained in the research to additional markets without further testing in the balance of the television markets. The universe of the research shall remain the top fifty television markets.

Second, this study does not attempt to define the "overall" success of any particular television market. The study will be primarily quantitative in nature, and in no way will account for all the qualitative aspects of some of the variables included.

Finally, being a preliminary investigation, the study will be descriptive in nature. That is, the study will describe the existing covariations, but will not, for the most part, attempt to test hypothetical relationships among the variables.

Hopefully, this study will reveal quantitative indications of market performance compared to an established potential for the individual markets. "Kpr" certainly has the potential of becoming a welcomed accessory to the current devices used in financial decision making as it relates to market television.

Terminology

The following terms used in this study may require some additional classification:

1. Area of Dominant Influence (ADI). An exclusive geographic area consisting of all the counties in which the home market stations receive a preponderance of total viewing hours.
2. Designated Market Area (DMA). Similar to the term ADI in that it is an exclusive geographic area in which the home market stations receive a preponderance of total viewing time. However, DMA is calculated by slightly differing criteria.
3. Efficiency Index (EFFIDX). A generated index which describes how close a market's actual revenue is to its potential revenue.

4. Individual Market Index (IMI). A calculated market index which gives, in percent form, the portion of total retail sales in the market which were spent on television advertising.
5. Potential Revenue Index ("Kpr"). A generated constant created by the mean of IMIs in each year the study covers.
6. Potential Revenue (Rp). A calculated amount of revenue which the market is capable of receiving relative to economic conditions and market characteristics.

FOOTNOTES

¹Erik Barnouw, Tube of Plenty (New York: Oxford University Press, 1975), p. 114.

²Ibid., p. 115. ³Ibid., p. 115.

⁴Leo Bogart, The Age of Television (New York: Ungar, 1956), pp. 90-91.

⁵Ward L. Quall and James A. Brown, Broadcast Management 2d ed. (New York: Hastings House, 1976), p. 135.

⁶Stanley M. Beson, The Value of Television Time and the Prospects for New Stations (Santa Monica: Rand, 1973), p. 1.

⁷Broadcasting (1978). "Special Report," January 2, 1978, pp. 28-29.

⁸Broadcast Management/Engineering (1976). "Satellites: Growth Competitor To Land Lines and Air Freight," October 1976, 12:10, p. 56.

⁹Broadcasting., op. cit.

¹⁰Federal Communications Commission (1075). "Broadcast Financial Data--1975," Public Notice 68100 August 2, 1976.

¹¹Quote attributed to Lord Thompson of Fleet.

¹²Federal Communications Commission (1075)., op. cit.

¹³Frank J. Kahn, Documents of American Broadcasting (New York: Appleton-Century-Crofts, 1968), p. 516.

¹⁴ Robert E. Yadon, "Financial Behavior of Oklahoma Single Station Markets in 1973" (M.S. thesis, Oklahoma State University, 1975), p. 28.

¹⁵ Ibid., p. 39.

¹⁶ Broadcast Investor (1976). (Rockville Centre, New York: Paul Kagan Associates, Inc., September 1976), p. 3.

CHAPTER II

A REVIEW OF LITERATURE

Background of Television's Growth

Television would be a more ordinary business if it were not for the fact that it makes use of the electromagnetic spectrum to transmit its signals.¹ In 1927, Congress nationalized the spectrum, and ever since it has been regulated by Federal authority. License to operate a broadcast facility is awarded and renewed by the Federal Communications Commission. The licensing power of the FCC controls all activities of television stations. Even advertising prices are indirectly regulated by virtue of the FCC's power to control entry and the number of competitors.²

Government policy toward television has shaped the performance of the industry. The number of stations that are available to American communities, although greater than the number available anywhere else in the world, is smaller than the number that both advertisers and viewers would be willing to pay for.³

The scarcity of television channels is due, basically, to the fact that TV broadcast service must share a finite spectrum of usable frequencies. Furthermore, no

two transmissions, whether of the same or different kinds, can use the same frequency simultaneously in the same geographic region. Consequently, one of the most fundamental functions of the Federal Communications Commission is to assign the allocations of frequencies and bands of frequencies to various types of service using over the air transmission of signals.

The amount of spectrum space required by any type of electronic transmission is determined by the amount of information which is carried. In the United States, each television channel is allocated a channel width of six megahertz. In comparison to the standard broadcast band, one television channel represents nearly six times the amount of spectrum space used by the entire AM radio service.

Therefore, the limitation of providing a relatively small number of operating frequencies for television has caused the creation of a market structure in which a small number of firms supplies the major portion of the industry's output. Since the resource of spectrum space is relatively limited and because the government controls spectrum management among the several communication services, broadcasting has become an oligopoly.

The television broadcast industry is similar to other oligopolistic industries in that in the absence of high barriers to entry, high profits among existing firms should cause new firms to enter the industry. On the other hand, it is different from oligopolistic manufacturing industries in that under current regulation

by the FCC new firms cannot enter any market without a license from the Commission and existing firms typically cannot expand their quantity of output in response to rising demand.⁴

Economists agree that prices in oligopolistic industries generally fluctuate less widely than those in more competitive industries. Each seller in the market will resist lowering prices because his few competitors will immediately match the cuts, leaving each with essentially the same share of market and lower profits. Because of time limitations (24 hours per day) and a regulated limit to the amount of commercial time per hour, many more units of advertising may not be sold in relation to the new lower price. Because the price of advertising is not permitted to fluctuate freely, and since it cannot rest on the equilibrium point of the supply and demand curves, a number of advertisers will opt to place their promotional expenditures in other media or not at all.

Because of this and the Federal Communication Commission's policy of not publishing individual station financial data, attempts to analyze economic and financial behavior of television broadcast stations or television markets present unusual peculiarities not encountered in free (unregulated) enterprise systems. In competitive industries, entry of new firms take place until excess profits are reduced to zero, and only sufficient profits are earned to market price of capital and other inputs.⁵ In television, Commission decisions about spectrum allocation have

prevented entry from reducing profits in this way. Consequently, a television license is an extremely valuable asset, particularly in the larger markets.

The television industry quickly became a viable medium as a carry over from the prior development of radio in the realm of a commercial structure. By the end of 1950, the television industry as a whole became profitable.⁶ By the end of 1953 television earnings equaled those of radio and have shown an almost unbroken advance thereafter.⁷

TABLE III
TELEVISION FINANCIAL DATA
(in millions)

Year	Revenues	Expenses	Income
1952	\$ 324.2	\$ 268.7	\$ 55.5
1954	592.9	502.6	90.3
1956	896.9	707.3	189.6
1958	1,030.0	858.1	171.9
1960	1,268.6	1,024.5	244.1
1962	1,486.2	1,174.6	311.6
1964	1,793.3	1,377.7	415.6
1966	2,201.0	1,710.1	492.9
1968	2,520.9	2,026.1	494.8
1970	2,808.2	2,354.4	453.8
1972	3,179.4	2,627.3	552.2
1974	3,776.3	3,039.2	737.1

Source: FCC Annual Reports for each year listed.

During the early 1950s radio earnings were being divided among an ever increasing number of standard broadcast stations, whereas television's growth, considering its potential, was much slower. The slow "closed market"

growth of television enhanced earnings for those fortunate enough to hold permits to operate stations in the late 1940s and early 1950s.

One of the most significant causes in holding down competition and growth was the so-called "freeze" of television applications from 1948-1952.⁸ By the fall of 1948, the Federal Communications Commission became increasingly aware of the following conditions:

First, the current allocation plan, adopted before much was known about VHF propagation, caused interference between stations; second, the twelve channels then allocated to television would prove to be entirely inadequate to take care of the demand for stations. Furthermore, the color system question, which had clouded the issue all along, had become more and more pressing as the technology of the medium progressed.⁹

The maximum number of stations permitted to operate was arbitrarily fixed at 108. During the "freeze" the Commission stopped processing applications for television construction permits, and allowed only those stations already authorized to broadcast or build a facility to continue operations.

Throughout the "freeze" television receiver sales expanded at a rapid rate. The number of sets rose from a quarter million to over 15 million.¹⁰ Holding the number of outlets constant and increasing the number of potential viewers by enormous proportions has an extraordinarily large positive economic impact on the industry.

The following summary clearly states what effect the "freeze" had on the development of television:

The patterns of ownership and control that developed among the first 108 pre-freeze television licenses set the trends for ownership in the ensuing post-freeze television proliferation. These lucrative stations were owned, for the most part, by radio licensees, including many of the early radio pioneers, publishers, electronics firms, and motion picture interests. The high cost and high return of the pre-freeze television stations encouraged the rapid growth of television group owners. The group owner developed out of successful broadcasting ventures financing new broadcast investments; the profits from the first television station paid for more television stations. These patterns of ownership, among the very profitable major market television pioneers, set during the freeze, began a process of television ownership concentration that continued.¹¹

The Federal Communications Commission held hearings, intermittently, until the later part of 1951, to settle the engineering and policy questions that had brought on the "freeze." On April 14, 1952, the Commission issued the historic Sixth Report and Order.¹² The new rules provided for 82 television channels. At the same time, the Commission issued a table of channel assignments which made available more than 2000 TV channels in almost 1300 communities throughout the United States, its territories, and possessions.¹³ In addition to the 12 VHF channels between 54 and 216 megahertz which were already in use, the FCC assigned 70 new UHF channels between 470 and 890 megahertz, opening a new frequency band for the expansion of the television industry.

However, there are some inherent short comings in the transmission of UHF signals. Probably the greatest limitation is the reduced coverage area of UHF, requiring

additional antenna height and radiated power several times greater than VHF transmission to obtain equal coverage.

Another problem is the significant additional cost of electrical energy to power high output UHF transmitters, which tend to be considerably less efficient than transmitters of lower frequency bands. Also, not to be overlooked, is the purchase of UHF transmission equipment which can cost in excess of 100 percent of the price for a VHF system.

Little was known about UHF propagation characteristics in the early days. Additionally, little was known about the construction of UHF transmitters or high quality receivers of such high frequencies. However, since there was a need for UHF apparatus and a seemingly growing market for such equipment, manufacturers, especially RCA, were quick to produce acceptable products. But, UHF transmitters capable of supplying enough power to create millions of watts through high gain antennas were not available until the late 1950s and the early 1960s.

The refining and upgrading of transmission equipment made and continues to make great strides in providing broadcasters more efficient, better quality transmitters. The weak link was and continues to be receiving equipment.

The biggest drawback, in the fifties and most of the sixties, was an absence of receivers capable of tuning the new UHF channels. TV set manufacturers, because of the low demand for UHF reception, continued to build VHF only

receivers long after UHF was introduced. If viewers wanted to pick-up the higher channels, they had to buy separate tuning converters. It was not until 1964, when an act of Congress went into affect, that manufacturers were required to supply VHF and UHF tuning capability with every TV set manufactured in the United States or imported into this country for sale.

Several organizations, comprised primarily of UHF broadcasters, have lobbied the FCC for stronger regulations in the manufacturing standards of television sets with respect to UHF reception. The Commission has taken steps to further erode the UHF handicap including the allocation of money to develop a tuner with UHF/VHF parity. Other recent actions by the FCC including a relaxation of UHF spacing will continue to erode the handicap. By the mid-1980s UHF will probably be equal to VHF in tuning acceptability.¹⁴ Lately, Texas Instruments, a diversified electronics company, has built a single UHF/VHF tuning unit which is currently being tested by the FCC.¹⁵ It is not unlikely that similar advances will occur in receiving antennas and lead in wire.

Although the Sixth Report and Order provided much needed ground rules for the expansion of the industry, it contains a colossal misjudgement concerning ease of entry for new stations in most television markets. Dr. Allen B. DuMont, who headed a short lived fourth inter-connection service, the DuMont Television Network, made the

most cogent plea during the hearings process of the "freeze."¹⁶ He argued that, insofar as possible, VHF and UHF channels should not be "intermixed"--that is, some areas should be assigned all VHF channels, while others should be assigned all UHF channels. DuMont wanted to eliminate the unnatural advantage enjoyed by the older VHF frequencies and provide equality among all channels in a given area, permitting the growth of four networks with equal access to the public.

DuMont's plan would have forced 12 pre-freeze VHF facilities to move to the upper band to accomplish non-intermixture.¹⁷ These twelve outlets were pioneers who embraced television when others were belittling it, and they felt they should not be penalized by being banished to higher, and at that time unknown frequencies. Had the Commission adopted the DuMont plan, the economic and financial aspects of television markets would compare strongly to that of the radio industry today, even though radio at one time had a group of disadvantaged outlets in the Frequency Modulated (FM) band.¹⁸ Moreover, the DuMont plan would have more than likely, better facilitated the FCC's hope for increasing the number of television stations in order to expand the range of choices available to the viewers in every locality.

Although the remaining available allocations are UHF channels, and are presently less desirable than VHF frequencies to most potential investors, the Commission

has always hoped for an expansion of service in local communities. This is the reason the Commission rejected one of DuMont's alternative plans to license a number of super high powered VHF stations to cover vast expanses of the United States with one transmitter site in each of a small number of geographic regions.

For many years the Federal Communications Commission has attempted to increase the number of television stations in the United States in order to expand the range of choices available to viewers. Within the constraints imposed by the requirement that television stations serve local communities, the Commission has sought in various ways, to improve the prospects for new stations. The policies pursued or considered have included limitations on the development of cable television as a potential competitor to local broadcasting, the promotion of legislation to require that all television receivers be capable of receiving UHF stations, and various attempts to change the frequency allocation plan to reduce the handicap that new stations would face.¹⁹

The struggle for "nonintermixture" of television markets has continued without much success since the "freeze" ended in 1952. On August 10, 1953, the FCC's table of TV allocations was upheld by a Court of Appeals decision.²⁰ In May of 1954, a Senate subcommittee heard pleas from UHF operators, who asked for a "hiatus" in the granting of VHF permits, and other relief, including "deintermixture."²¹ However, the FCC defended the status quo and no action was taken. During the following year, the Commission did consider the "deintermixture" of Hartford, Peoria, Evansville, Indiana and Madison, Wisconsin, to make them all UHF only markets.²² Today, only the

Peoria television market of the four listed above is an all UHF market.

The latest quest for "deintermixture" was launched in late 1977.²³ The licensee of WCOV-TV, Montgomery, Alabama has petitioned the FCC to rewrite the "tortured history" of Alabama television. The plan would change the one commercial VHF allocation in Montgomery, the state capital, to UHF, and the adjacent market of Columbus, Georgia would become an all VHF market capturing the reallocated Alabama VHF channel.

The major contention of the WCOV-TV plea is that the sole VHF station in the market has an unfair competitive advantage over the two commercial UHF outlets. According to the petition, the commercial VHF station accounts for 92 percent of the market's total income for television.

Judging the Commission's track record, it is unlikely action will proceed past the hearing stage. However, it could possibly receive a fair review if WCOV-TV filed their complaint with the Federal Court. The common FCC practice is to recognize economic injury cases only in the awarding of construction permits for markets showing substantial loss of income.

Robert E. Lee, the most senior of the Federal Communications Commissioners, initially appointed in 1953, has been a champion in the UHF development campaign. In the fall of 1975, Commissioner Lee proposed the relaxation

of the multiple ownership and duopoly rules so that one licensee could operate two channels in one market, if at least one channel is UHF.²⁴ In his estimation, implementation of such a rule relaxation would create more interest in the UHF band where there are 800 unused channels, just as FM was stimulated in the 1940s and 1950s by major AM stations. Today, FM radio has become very profitable and show signs of becoming more popular than the AM radio service.

Eventually, when UHF is recognized as an attractive investment, new interest will be encouraged and diverse ownership will be realized in the long run.

Related Studies

Up to this point in time the most extensive study which considers viability of markets and their viability of supporting new entry is the Rand study Projecting the Growth of Television Broadcasting: Implications for Spectrum Use, 1976.²⁵ Although the study was geared toward suggesting ways in which the Federal Communications Commission could better manage and allocate UHF frequencies, the report of necessity dealt with market by market economic considerations to predict UHF expansion and further non-television encroachment on assignments of frequencies. The so-called "viable stations model" based on estimates of relationships between the number of UHF stations operating in 1974 and the independent variables consisting of market

size, market number of VHF stations, UHF penetration, wealth of the market, and competition from out market stations was the major research considerations.

The only basic financial consideration made was the use of a variable termed, market wealth (retail sales per household). There were three separate attempts to use individual station financial data without success. The Rand report proposed to use profitability as an indicator of economic viability. The first attempt was drawn from the FCC's work statement in its request for proposals, which suggested the estimation of television station revenues, partitioning these among market stations, and subtracting estimated expenses to arrive at profit predictions. The second method involved direct estimates of profits. The third, focused on station behavior, and contended that a station chooses its expenditure level to maximize profits.

None of these methods did a very good job and were dropped from the study. But, even good profit projections would have most likely been dubious indicators of viability, since there are a number of stations which report losses year after year and still remain on the air. It is unfortunate that the financial methods failed. Had they produced useful results, we would not be privy to how economic factors affect decisions to construct and operate new television stations.

Station financial data would be a tremendous input to this project, if it were accurate. The major difficulty is that the financial data supplied to the FCC by stations are simple unreliable.²⁶ General and administrative expenses are particularly susceptible to wide variations in accounting treatment. Since the FCC has no way to cross-check the statements against income tax returns, the seriousness of the problem cannot be assessed. Briefly the lesson learned from the Rand report concerning FCC financial reports is:

The large variation observed in the profits of apparently equally situated stations suggests that financial data filed by individual stations have little usefulness for policymaking purposes. . . . comparisons of individual station performance are questionable because of differences in station operating modes and other factors that cannot be systematically taken into account.²⁷

The lesser, but only true alternative method for exploration, would be extensive use of market financial data. This method would be congruent with the widely accepted axiom--"When you buy (build) a station, you are buying (getting) a market."

Douglas W. Webbink used analysis of variance rather than regression to predict new entry in his study entitled "Regulation, Profits and Entry in the Television Broadcasting Industry."²⁸ Analysis of variance was used because Webbink classified entry as a discrete variable which only takes on a limited number of values over limited time such as +2, +1, 0, -1.

Webbink's model assumed that each firm including any new entrant obtains an equal share of the market. He also assumed that all firms have equal operating costs, viewing audience, revenue, and profits. Analysis of variance was performed on the means of five market variables including, net income, revenue divided by number of stations plus one, revenue over costs, total households divided by number of stations plus one, and total households over number of television stations. The independent variables consisted of four groups of markets representing the number of entrants with the values mentioned above.

Even though the model is naive in that it assumes equal share of market for each station and equal costs, audience, revenue, and profits, it does fairly well in explaining the conditions necessary for entry.

The main conclusion drawn by Webbink is that entry of television stations is strongly affected by certain economic variables, particularly expected audience viewing size and therefore expected profits. He points out that the major markets where there are few if any allocations unused are the markets which can support and benefit from additional service. On the other hand, new entrants find it difficult at best to become viable in smaller markets where there are many open channels. Therefore, it seems that the evidence shows that the FCC is mismanaging the allocation of television channels.

TABLE IV

ANALYSIS OF VARIANCE FOR ENTRY IN 103 MARKETS WITH THREE
OR MORE COMMERCIAL TELEVISION STATIONS, 1966-68

Variable	n = - 1 (n=3)	n = ± 0 (n=76)	n = + 1 (n=18)	n = + 2 (n=6)	F
y	37.88 (72.61)	148.9 (470.3)	759.7 (1227.2)	1501.1 (944.4)	10.11**
$\frac{R}{n+1}$	1103 (543)	1609 (1544)	3591 (3743)	4685 (1934)	7.67**
$\frac{R}{C}$	1.244 (0.130)	1.343 (0.258)	1.465 (0.280)	1.879 (0.176)	8.94**
$\frac{T}{n+1}$	67.99 (24.91)	123.9 (82.6)	225.6 (198.7)	233.2 (79.8)	5.83**
$\frac{T}{n}$	82.65 (32.88)	160.66 (103.70)	283.14 (234.45)	302.02 (104.13)	6.08**

Source: Regulation, Profits, and Entry in the Television
Broadcasting Industry.

** Indicates that the means differ at a 0.01 level of significance. The numbers in parentheses are standard deviations of the means. n = change in the number of commercial stations on the air from 1966 to 1968.

n = number of commercial stations on the air
in 1966.

R = 1966 market revenue of commercial stations
in \$ thousands.

C = 1966 market expenses of commercial stations
in \$ thousands.

T = 1966 television homes in thousands.

$$y = R/n+1 - C/n$$

Using published market data for markets in which there
were three or more operating television stations provided
Stanley M. Besen and Paul J. Hanley in "Market Size, VHF

Allocations, and the Viability of Television Stations" with a regression model predicting the number of television households needed to support a number of stations.²⁹

The model started with the number of television stations in an all VHF market with unlimited allocations being a function of television households. Since all markets have only a limited number of VHF allocations the path changes to a lower curve where the number of homes in the market equals the number which exhausts the VHF allocations.

James G. Saunders and Arthur R. Till conducted research in the mid-sixties which investigated the relationships between various station, market, and ownership characteristics and the financial behavior of those stations. Although their report was focused on individual stations rather than markets as a whole, they did suggest some interesting possibilities for market exploration including:

The correlation matrices resulting from this analysis should be used as raw data for studies using factor analysis and multiple regression. Detailed investigation should be continued to determine the optimum competitive situation in markets of varying characteristics. From such studies it might be possible to define the maximum amount of broadcast service that might be expected by various kinds of communities, and what kinds of economic returns might be anticipated by broadcasters providing these services.³⁰

Much can be said for the usefulness of market data. On one hand, it is the character of the market which will determine whether or not there is economic room for new entry. Market data is an aggregate of individual station

data. The Rand study points out, " . . . comparisons of individual stations are questionable but overall figures are useful." Stations and their individual audiences tend to fluctuate over time, but market size of audience is relatively stable. In The Determinates of Television Station Sales Prices, by Robert T. Blau et al., Indiana University, the findings showed that a station's sales price is primarily dependent on the level of annual net broadcast revenue.³¹ Saunders and Till found that correlations between audience size and the financial variables were high.³² We can conclude that it is primarily the recent ratings of a station that dictate recent revenue. This, of course, would be subject to fluctuation and change over time. The Rand report points out that the price of an audience is due almost entirely to its size. They have found:

That we can explain 75 percent of the variance in "price" of audience, strongly confirms the importance of persistent market effects. In fact, it turns out that "price" of audience is sufficiently stable from year to year that one can do a pretty good job of predicting it by simply assuming that it is a constant in each market over time.³³

Of course, it is not absolutely constant over time, but the above statement does indicate the stability and probably validity of market data.

The relationship between viewership and the number of local outlets is quite interesting and deserves attention in this project. Noll, Peck, and McGowan presented a regression that implied:

A single affiliate will attract between 42 and 45 percent of the potential viewers in its market. In a market with two stations, the total audience would be between 55 and 58 percent of the total potential, depending on the affiliate status of the stations. Finally, in a market with an affiliate of each network, the total audience is 60 percent of potential.³⁴

What, in fact, the finding is stating above is, that for each increase in service an unequal (diminishing) amount of audience is added. This would seem to be one of the most important considerations to remember when contemplating the application for a construction permit to build a station.

In summary, we conclude that market revenue is determined in part by audience size and that audience size does not change substantially from year to year. Since the audience size does not tend to fluctuate, changes in market revenue from year to year are controlled to a larger extent by other market characteristics.

Various handbooks published by the U.S. Government including the Commerce Department, indicate that generally the most effective statistics to use in market research are population, income, sales, and employment data. Outlined in the next chapter are several independent variables which provide rather inclusive treatment of the above listed suggestions.

As a preliminary to hypothesis testing in scientific research, the author seeks to discover significant variables and how they relate to the balance of the variables, then lay the ground work for future testing of hypotheses.

FOOTNOTES

¹Bruce M. Owen, Jack H. Beebe and Willard W. Manning Jr., Television Economics (Lexington, Massachusetts: D.C. Heath and Company, 1974), p. 10.

²Ibid.

³Roger G. Noll, Merton J. Peck and John J. McGowen, Economic Aspects of Television Regulation (Washington, D.C.: The Brookings Institution, 1973), p. vii.

⁴Douglas W. Webbink, "Regulation, Profits and Entry in the Television Broadcasting Industry," Journal of Industrial Economics, XXII (1973), p. 167.

⁵Bruce M. Owen et al., Television Economics, p. 11.

⁶Sidney W. Head, Broadcasting in America: A Survey of Television and Radio, 3rd ed. (Boston: Houghton Mifflin Company, 1976), p. 209.

⁷Ibid.

⁸Ibid.

⁹Ibid.

¹⁰Ibid.

¹¹Lawrence W. Lichty and Malachi C. Topping, American Broadcasting (New York: Hastings House, 1975), p. 146.

¹²Sixth Report and Order, Federal Communications Commission 17 Fed. Reg. 3905-4100, May 2, 1952.

¹³Ibid.

¹⁴Rolla Edward Park, Potential Impact of Cable Growth on Television Broadcasting (Santa Monica: Rand Corp., 1970), p. 77.

¹⁵Broadcasting (1977). "Lee Sees TI Tuner As Spectrum Saver," December 12, 1977, p. 60.

¹⁶Johnathan C. Crawford, "Long Range Effects of the Television Freeze," unpublished paper, Cincinnati, 1977, p. 4.

¹⁷David Lachenbruch, "The 3-Billion Dollar Gamble," TV Guide, November 1, 1975, p. 5.

¹⁸Charles Michaels, "A Study of Selected Radio Markets," unpublished paper, Athens, Ohio, 1971, p. 9.

¹⁹Stanley M. Besen, The Value of Television Time and the Prospects for New Stations (Santa Monica: Rand Corp., 1973), p. 1.

²⁰Broadcasting (1970). "A Play-by-Play Retrospective," November 2, 1970, p. 114.

²¹Ibid., 116. ²²Ibid., 118.

²³Broadcasting (1978). "Musical Chairs in Alabama," January 9, 1978, p. 37.

²⁴Robert E. Lee, Television/Radio Age (1976). "The Drop-in Proposal: Let's Drop the Matter and Give UHF a Chance," March 15, 1976, p. 57.

²⁵Rolla Edward Park, Leland L. Johnson and Barry Fishman, Projecting the Growth of Television Broadcasting: Implications for Spectrum Use (Santa Monica: Rand Corp., 1976).

²⁶Ibid., p. ix. ²⁷Ibid., p. ix.

²⁸Douglas W. Webbink, op. cit.

²⁹Stanley M. Besen and Paul J. Hanley, "Market Size, VHF Amocation, and the Viability of Television Stations," Journal of Industrial Economics XXIV (1975), pp. 41-54.

³⁰James G. Saunders and Arthur R. Till, An Investigation of Possible Correlations of the Financial Behavior of Broadcasting Stations (Athens, Ohio: Ohio University, 1966), p. 32.

³¹Robert T. Blau, Rolland C. Johnson and Kenneth J. Ksobiech, The Determinants of Television Station Sales Prices: 1968-1973 (Bloomington: Indiana University, 1975).

³²Saunders and Till, op. cit.

³³Rolla Edward Park, op. cit.

³⁴Roger G. Noll, op. cit.

CHAPTER III

METHODOLOGY

Since this study will be strictly ex-post-facto in nature, the data used will be taken from or generated from recorded economic, financial, and market statistics.

Fred N. Kerlinger defines this type of research as, "systematic empirical inquiry in which the scientist does not have direct control of the independent variables because their manifestations have already occurred."¹

Data relating to the variables will be compiled from various published sources including the Federal Communications Commission, U.S. Department of Commerce, U.S. Department of Labor, American Research Bureau, A.C. Nielsen Company, and the Standard Rate and Data Service, Inc. A relatively large number of variables will be employed based on the recommendations and findings of Saunders and Till in 1966.² A few new variables, not included in the Saunders and Till study, will also be introduced.

The Variables

For the purpose of this analysis, elements which are thought to influence total television revenue and the

potential revenue of individual markets will be classified as economic, financial, or market characteristics. Variables fitting the economic category will include total retail sales, consumer spendable income, buying power index, unemployment figures, and individual market index.

Financial variables will include revenue, expense, income, and percentage of spot revenue of stations in each market plus per station revenue, per station income, potential revenue, and an efficiency index.

Market characteristics will include the variables important for market analysis but which do not fall under the previous categories. These variables are households using television, persons viewing television, number of television stations, number of independent television stations, cable television penetration, and number of television households.

Except for the financial variables broadcasters have little if any effect on the last two classifications of variables. The economic and market variables, however, dictate to a very large degree the values of the financial variables. Although broadcast stations may improve revenue through management and sales techniques and income through management and efficiency techniques, the greatest impact will be expressed by economic and market characteristics.

1. The Financial Variables

- a. Total Television Revenue

Total television revenue for each market is the total time sales of all television stations in the market less commissions to advertising agencies, representatives, and brokers, plus the sales of programs, materials, facilities, and services, plus other broadcast income.

This is perhaps the most important variable for consideration because it is the absolute gauge of television sales activity in a market. Collectively, it will represent the total gross return less commissions on investment and operation of television broadcasting stations in a market.

Total television revenue will also be instrumental in generating individual market indices. Divided by a market's total retail sales it will produce an index that will eventually be tallied across all markets in the top fifty each year to create a "Kpr" the mean of individual market indices. "Kpr," the average percentage of total retail sales in terms of total television revenue.

A market efficiency index can also be generated using total television revenue divided by potential revenue and will show on a comparative

basis how well a market does in trying to capture its potential in financial terms.

Like the other published financial variables, total television revenue will be taken from annual financial reports available from the Federal Communications Commission.

b. Network Revenue

Network revenue is the amount of compensation the stations receive from networks for transmitting programs from the network which include commercial messages sold by the network. Since the amounts of compensation received by stations from networks is for the most part determined systematically it should be a good indicator of market strength.

c. Spot Revenue

Spot revenue consists of national and regional advertising dollars which buy time on individual stations. This revenue figure does not include commissions to agencies, representatives or brokers.

Advertising agencies take into account a number of market characteristics when devising their national or regional advertising campaigns. It generally reflects a systematic method of expenditure dictated by market size and other market characteristics.

d. Local Revenue

Local revenue represents the amount of commercial time sold by stations to advertisers situated in the market itself. This figure also does not include commissions to agencies, representatives, and brokers.

Local revenues are more elastic than network or spot revenues. Since local sales represent approximately 40 percent of total television revenue in 1975 nationwide, the amount of local revenue can indicate certain characteristics in markets including, but not limited to, competition from other media for local advertising dollars and sales management ability of local stations.

e. Total Expenses

These are the costs of doing business including technical, programming, selling, and general and administrative expenses. The amount of expenditure usually differs according to size of market, competition, and commitments to public service.

f. Total Operating Income

Total operating income is the difference between total television revenue and total expenses and is figured before federal income tax. This in essence is the profit companies seek in a free enterprise system. Financially successful markets

would tend to have a relatively high total operating income. A variable such as this could be useful in classification of markets as well as other statistical purposes.

g. Potential Revenue Index

A constant used to determine the potential revenue in each of the top fifty television markets. "Kpr" as it is abbreviated, is the mean of individual market indexes and when multiplied with a markets total retail sales produces the potential revenue for that particular market.

h. Percentage of Spot Revenue

Since there seems to be a systematic method in the placement of spot advertising dollars, the amount a market receives in respect to the total amount for the top fifty markets may reveal a partial explanation for the level of total television revenue in each market.

i. Efficiency Index

The product of total television revenue divided by potential revenue is an index of a markets financial efficiency. The index can easily be changed to a percentage by moving the decimal point two places to the right, and shows how well a market did in meeting or exceeding the potential revenue of the market.

j. Per Station Revenue

Although individual station data will not be used in this study, an estimate of revenue per station can be made to show the effects of the number of locally operating stations with respect to total television revenue.

k. Per Station Income

Again, individual station data will not be used, but a useful estimate of per station operating income can be made to show the effects of the number of locally operating stations with respect to total operating income in each market for each year.

2. The Economic Variables

a. Individual Market Index SMSA

The individual market index (SMSA) is the percentage of total retail sales in the SMSA assumed by the variable total television revenue. As explained above, the index from all markets within a year create the constant value "Kpr," which will later be used to generate specific potential revenues for each of the individual markets.

b. Individual Market Index ADI

Same as above except that total retail sales are from the ADI rather than SMSA.

c. Buying Power Index

Each year Sales Management Magazine list the relative buying power of SMSAs. By its very nature BPI is classified as an external market indicator. It is obtained by weighting the three factors of population, effective buying income (same as consumer spendable income), and retail sales and converting them into a measurement of a market's ability to buy, and then expressing this as a percent of the nation's total buying power.

d. Unemployment in Percent

Assuming a market is plagued with high unemployment, total retail sales and other economic and financial variables could be adversely affected. The percentage figure rather than real numbers will be used since it is easier to manipulate an index than real numbers when the base (in this instance--population) changes from market to market.

e. Total Retail Sales SMSA

This variable represents all sales and receipts of all retail establishments. Retail establishments are primarily engaged in selling merchandise for personal, household, or farm consumption.

Yadon, as noted before, used total retail sales as an index of relative market strength with constructive results. Both Yadon's study and this

study extracted retail sales data from Standard Rate and Data Service's spot rate books.

f. Total Retail Sales ADI

Same as above except data includes SMSA plus the balance of counties comprising the ADI. Data for this variable comes from Spot Television published by the Standard Rate and Data Service, Incorporated.

g. Consumer Spendable Income SMSA

Consumer spendable income is similar to the Department of Commerce term "disposable personal income," which is income remaining to persons after deductions of personal tax and non-tax payments to the federal, state and local governments. Data is for the SMSA and the source is Spot Television.

h. Consumer Spendable Income ADI

Same as above except data includes all counties in the ADI.

3. The Market Characteristic Variables

a. Households Using Television

Households using television is the percentage of market households in the market with a television set turned on. In this study figures of HUT are for the Nielsen definition of market (DMA) which in most cases parallel the American Research Bureau definition.

b. Persons Viewing Television

Persons viewing television is the actual estimated number of viewers watching. Both HUT and PVT will be taken from the July rating books of the A. C. Nielsen company for each market and year. July books are chosen to eliminate climatic differences in the various regions of the United States, since northern snow bound months tend to artificially raise viewing.

c. Number of Television Stations

Taken from the Broadcasters Yearbook, this variable not only accounts for the competition in a market but is also a relative indication of ability to support a number of television stations.

d. Number of Independent Television Stations

From the same source as the above variable, this variable is descriptive in terms of a market's ability to attract television service supplemental to the three network affiliates.

e. Television Households

The variable in which size and rank order of size is determined. It also indicates the potential audience of a market. Taken from ARB data.

In this initial investigative study, there will be no attempt to include individual station characteristics. Perhaps at a later date, with the knowledge spawned by this

research, individual station characteristics may be helpful to investigate. For the purposes of this study the variables listed above should prove to be fairly broad and relatively exhaustive.

Research Method

Each of the basic research objectives outlined in Chapter I will employ statistic tests which will be processed on the Michigan State University CDC 6500 computer system using various subprograms of the Statistical Package for the Social Sciences created by Norman H. Nie et al.³

Coefficients of Correlation

To establish the relationship between total retail sales and existing total television revenue in each market, two statistical techniques will be employed. First, coefficients of correlation will be computed to describe the degree and direction of the relationship. The Pearson product-moment coefficient of correlation (r) will be used for this purpose. Second, an analysis of variance will be used to determine the significance of the relationship from year to year across the six years 1970-1975, and the significance of the relationship considering the size of market.

Multiple Regression

For the task of establishing the amount of potential revenue in a market as a function of a specific variable or group of variables, multiple regression will be employed.

With multiple regression the researcher is allowed to study the collective and separate contributions of two or more independent variables to the variation of a dependent variable. As such, the two large purposes of multiple regression analysis are prediction and explanation, where prediction is really a special case of explanation.⁴

The stepwise method of multiple regression will be used because it yields the best prediction equation when all variables are entered into the equation. It also orders variables with respect to their contribution in explaining the variation of the dependent variable. Regression coefficients reported in this study will be expressed in standardized form. This will make it possible to specify percent changes in the dependent variable which can be attributed to percent changes in each of the independent variables.

The output of the multiple regression subprogram to be used in this study is designed to supply regression beta weights (b) which serve as a means to identify the relative contribution of independent variables to a dependent variable.

Once this reduction is complete, multiple regression analysis will be used in the prediction of potential market revenue, when only the select independent variables are known. This is accomplished by using the regression

coefficients to generate a formula that will estimate potential market revenue.

Discriminant Analysis

Discriminant Analysis will be used to indicate the probably economic viability of a market to the dependent introduction of a new television station. This type of analysis begins with the need to statistically distinguish between two or more groups of cases. In this study two groups, entry and non-entry will be considered for discriminant analysis. The complete list of variables listed above will be used as discriminating variables in this subprogram.

The mathematical objective of discriminant analysis is to weight and linearly combine the discriminating variables in some fashion so that the groups are forced to be as distinct as possible.⁵ In other words, the objective is to discriminate the entry group from the non-entry group in the sense of being able to tell them apart.

No single discriminant variable whether financial, economic, or market characteristic is expected to perfectly differentiate between the group of markets which had entry and the group which did not. But, by taking several variables and mathematically combining them, it becomes reasonable to hope that there would be a single dimension on which entry markets are clustered at one end and non-entry markets at the other.

Since there is such a large number of variables in this study, perhaps more discriminating variables than are necessary to achieve satisfactory discrimination, the stepwise procedure will be adapted. Variables will be selected for entry into the analysis on the basis of their discriminating power using Rao's "V" method. "V" is a general distance measure and should provide the greatest overall separation of groups.

The output of the subprogram will contain weighted coefficients which can be interpreted in the manner of factor analysis or multiple regression coefficients.

Hopefully, it will be possible to determine the variables which best identify the markets, in this study, which are suitable for new entry. Comparing these markets with the 17 markets which in fact had entry should add validity to the use of potential revenue in determining when new entry should occur and prove that a discriminant analysis is useful in establishing the criteria necessary for new entry.

Once it is recognized that certain financial, economic, and market variables can, in a systematic way, aid in the selection of markets which are ready for expanded service, the decision making process for investors seeking a market will be made more objective in nature.

FOOTNOTES

¹Fred N. Kerlinger, Foundations of Behavioral Research 2nd ed. (New York: Holt-Rinehart-Winston, 1973), p. 379.

²James G. Saunders and Arthur R. Till, An Investigation of Possible Correlations of the Financial Behavior of Broadcasting Stations (Athens, Ohio: Ohio University, 1966).

³Norman H. Nie et al., Statistical Package for the Social Sciences 2nd ed. (New York: McGraw-Hill, 1975).

⁴Fred N. Kerlinger and Elazar J. Pedhazur, Multiple Regression in Behavioral Research (New York: Holt-Rinehart-Winston, 1974), p. 3.

⁵Norman H. Nie et al., op. cit., p. 23.

CHAPTER IV

RESULTS

Introduction to Potential Revenue

Prior to the initial construction of a correlation matrix, additional variables need to be generated and tested. In order to weigh the economic strength of an existing market, parameters must be established. In this case, it became necessary to examine the economic viability of the market against some measure of potential revenue.

To generate such a variable, it is first necessary to select an index of relative market strength, and then examine its relationship to existing revenue data. One well-known barometer of market activity is the variable total retail sales, as used by Yadon in his aforementioned study of radio markets. The other criterion variable, revenue data of the top fifty television markets from 1970 through 1975, is published by the Federal Communications Commission. Therefore it is possible to establish a relationship between total retail sales (TRS) and the financial variable total television revenue (R_t) within each top fifty market across the six years of the study.

TABLE V
CORRELATION MATRIX

	TOTAL REV	NET REV	SPOT REV	LOCAL REV	TOTAL REV	INCOME	IMI-SMSA	IMI-ADI	HUT	PVT	BPI	UNEMP	# OF TV STA.	# IND. STA.	TRIS-SMSA	TRIS-ADI	CSI-SMSA	CSI-ADI	CABLE PEN	TVHH	ENTRY	KPR	POT REV	EFFIDX	PSR	PSI	% SPOT
TOTAL REV	.53	.25	.46	.53	.49	.09	.03	.56	.50	.47	.01	.31	.32	.38	.55	.51	.57	-.08	.98	.04	.01	.56	.03	.47	.37	.24	
NET REV	.53	---	.42	.80	.94	.91	.13	.08	.95	.94	.91	.03	.65	.70	.72	.97	.94	.97	-.14	.52	.11	-.05	.96	.08	.88	.75	.40
SPOT REV	.25	.42	---	.41	.45	.43	.05	.17	.43	.35	.42	.01	.38	.40	.35	.44	.44	.44	-.16	.23	.04	.08	.44	.16	.39	.33	1.0
LOCAL REV	.46	.80	.41	---	.94	.88	.10	.27	.85	.87	.80	.08	.82	.85	.80	.90	.89	.86	-.18	.41	.12	-.08	.89	.28	.80	.67	.39
TOTAL REV	.53	.94	.45	.94	---	.95	.13	.20	.96	.95	.92	.06	.79	.83	.80	.98	.97	.97	-.17	.50	.12	-.04	.98	.21	.89	.75	.43
INCOME	.49	.91	.43	.88	.95	---	.14	.26	.90	.90	.89	.03	.75	.78	.76	.93	.93	.91	-.20	.47	.13	-.05	.93	.27	.89	.87	.41
IMI-SMSA	.09	.13	.05	.10	.13	.14	---	.38	.09	.08	-.03	-.02	.12	.16	-.05	.09	.01	.10	-.05	.08	.06	-.02	.09	.39	.10	.11	.05
IMI-ADI	.03	.08	.17	.27	.20	.26	.38	---	.07	.06	.12	.12	.19	.33	.19	.08	.13	.08	-.29	.00	.07	.09	.08	.99	.26	.34	.17
HUT	.56	.95	.43	.85	.96	.90	.09	.07	---	.98	.94	.03	.72	.74	.75	.97	.94	.97	-.11	.55	.11	.00	.97	.07	.85	.70	.42
PVT	.50	.94	.35	.87	.95	.90	.08	.06	.98	---	.91	.07	.70	.71	.74	.97	.93	.96	-.09	.49	.04	-.08	.96	.07	.81	.67	.33
BPI	.47	.91	.42	.80	.92	.89	-.03	.12	.94	.91	---	.01	.72	.75	.75	.91	.93	.90	-.13	.45	.11	.01	.92	.12	.84	.72	.41
UNEMP	.01	.03	.01	.08	.06	.03	-.02	.12	.03	.07	.01	---	.06	.08	.54	.04	.06	.05	-.03	.00	.01	-.12	.04	.14	.05	.01	.00
# OF TV STA.	.31	.32	.38	.82	.79	.75	.12	.19	.72	.70	.72	.06	---	.86	.67	.76	.78	.72	-.13	.31	.13	-.02	.73	.20	.49	.41	.36
# IND. STA.	.32	.70	.40	.85	.83	.78	.16	.33	.74	.71	.75	.08	.86	---	.70	.76	.78	.72	-.16	.32	.20	-.01	.76	.35	.66	.55	.39
TRIS-SMSA	.38	.72	.35	.80	.80	.76	-.05	.19	.75	.74	.75	.54	.67	.70	---	.78	.82	.77	-.21	.38	.09	-.07	.78	.21	.72	.59	.33
TRIS-ADI	.55	.97	.44	.90	.98	.93	.09	.08	.97	.97	.91	.04	.76	.76	.78	---	.97	.99	-.15	.53	.11	-.06	1.0	.08	.89	.74	.42
CSI-SMSA	.51	.94	.44	.89	.97	.93	.01	.13	.94	.93	.93	.06	.78	.78	.82	.97	---	.97	-.17	.48	.11	-.02	.97	.14	.88	.74	.42
CSI-ADI	.57	.97	.44	.86	.97	.91	.10	.08	.97	.96	.90	.05	.72	.72	.77	.99	.97	---	-.14	.55	.12	-.05	.99	.08	.88	.72	.42
CABLE PEN	-.08	-.14	-.16	-.18	-.17	-.20	-.05	-.29	-.11	-.09	-.13	-.03	-.13	-.16	-.21	-.15	-.17	-.14	---	-.08	.06	-.08	-.15	-.27	-.21	-.24	-.17
TVHH	.98	.52	.23	.41	.50	.47	.08	.00	.55	.49	.45	.00	.31	.32	.38	.53	.48	.55	-.08	---	.02	.03	.54	.00	.45	.36	.22
ENTRY	.04	.11	.04	.12	.12	.13	.06	.07	.11	.04	.11	.01	.13	.20	.09	.11	.11	.12	.06	.02	---	-.08	.54	.00	.45	.36	.22
KPR	.01	-.05	.08	-.08	-.04	-.05	-.02	.09	.00	-.08	.01	-.12	-.02	-.01	-.07	-.06	-.02	-.05	-.08	-.08	-.09	---	-.04	.00	-.09	-.08	.09
POT REV	.56	.96	.44	.89	.98	.93	.09	.08	.97	.96	.92	.04	.73	.76	.78	1.0	.97	.99	-.15	.54	.11	-.04	---	.08	.88	.74	.42
EFFIDX	.03	.08	.16	.28	.21	.27	.39	.99	.07	.07	.12	.14	.20	.35	.21	.08	.14	.08	-.27	.00	.09	.00	.08	---	.27	.35	.15
PSR	.47	.88	.39	.80	.99	.89	.10	.26	.85	.81	.84	.05	.49	.66	.72	.89	.88	.88	-.21	.45	.09	-.09	.88	.27	---	.91	.37
PSI	.37	.75	.33	.67	.75	.87	.11	.34	.70	.67	.72	.01	.41	.55	.59	.74	.74	.72	-.24	.36	.09	-.08	.74	.35	.91	---	.32
% SPOT	.24	.40	1.0	.39	.43	.41	.05	.17	.42	.33	.41	.00	.36	.39	.33	.42	.42	.42	-.17	.22	.04	.09	.42	.15	.37	.32	---

The top fifty markets were studied in light of internal properties inherent to the largest markets. Factors such as number of stations per market, and in turn the corresponding increase in competition, suggest that total revenue in these markets is nearly identical to the total potential revenue available.

In select cases, total television revenue will exceed potential revenue at the expense of some other medium. Likewise, in some markets, the inverse would be true. However, considering the independent nature of each individual market and expecting a normal distribution, those markets exceeding the potential revenue available would tend to cancel those markets generating less revenue.

The correlation coefficient between total retail sales for the ADI and total television revenue ($R=.98$), indicates a relationship that is positive, strong, and very dependable. In addition, the coefficient is significant at the .001 level, with over 95 percent of the common variance accounted for ($r^2 = .96$). The correlation coefficient between total retail sales for the SMSA and total television revenue was considerably less ($r = .80$) and was dropped from this analysis.

The correlation coefficient for the top fifty television markets is slightly higher than what Yadon found in his sample of radio markets ($N = 30$) of 1972. This could be due to the fact that television time is bought more systematically by national advertisers and tends to be more

of a national advertising medium than local such as radio in most cases. This would tend to make television markets slightly more homogeneous in the respect that economic data and market characteristics influence to a large extent, the buying schedules of national advertisers and the amount of network compensation allotted by the commercial television networks.

The other possibility of higher correlation might be attributed to this study's use of data over a six year period rather than for one single year as in Yadon's study. It is highly unprobably that the correlation coefficient was higher because of this study being a population study. Yadon's sample results were significant at the .001 level. A greater than chance relationship 999 time in 1,000.

Appendix B enumerates the individual market index (IMI), or in other words, the percentage of total retail sales assumed by the variable total television revenue, for each of the top fifty television markets.

$$\text{Individual Market Index (IMI)} = \frac{\text{TRS}}{R_t} \times 100 \quad (1)$$

Given the nearly one-to-one linear relationship of the two criterion variables, total retail sales and total television revenue, it is possible to project these findings to any of the top fifty television markets with the generation of a constant. The new variable, average potential revenue index ("Kpr"), is the mean of the individual market

indexes for all fifty markets each year. By using the new constant ("Kpr") in a top fifty market it is possible to generate a dollar-figure for average potential revenue (R_p) available.

$$\text{Average Potential Revenue } (R_p) = \text{TRS} \times "K_{pr}" \quad (2)$$

If the potential revenue index (" K_{pr} ") is a measure of normality, then the potential revenue theory may be expanded to include the two outer parameters, high and low potential revenue expectation.

Both the high and low potential revenue parameters equate to two standard deviations about the mean (K_{pr}). When a sample survey is used, rather than a population study, the outer parameters equate to the standard error of the mean. At two standard errors ($2SE_M$), one can be 95 percent confident that all members in the population will fall between the two outer parameters. In a population study there is no standard error of the mean to consider because each and every case in the population (universe) has been tested. But, the standard deviation (SD), a measure of the variance about the mean is useful in ascertaining the dispersion of cases. The interval of the two outer parameters is equal to two times the square root of the mean of the squared deviation scores about the mean of the distribution.

$$\text{High Potential Revenue } (R_p + 2) = \text{TRS} \times (K_{pr} + 2SD) \quad (3)$$

$$\text{Low Potential Revenue } (R_p - 2) = \text{TRS} \times (K_{pr} - 2SD) \quad (4)$$

Only 12 cases of the total 300 (50 markets x 6 years) fell outside two standard deviations of the mean. In a sample, with the two outer parameter interval equal to two standard errors of the mean (referred to as the 95% confidence level) this would permit a total of 15 cases to fall outside the interval.

It would be more advantageous to use a single "Kpr" for all years than a separate value for each year. Doing so would make future market studies using the "Kpr" concept more simple to manipulate and analyze, especially if trends across years is involved. To prove that it would be statistically acceptable to reduce the constants from each year into a single constant, it must be proven that the value of "Kpr" does not change significantly from year to year.

TABLE VI
VALUES OF "Kpr" PER YEAR

1970 - .004666	1972 - .004818	1974 - .004578
1971 - .004660	1973 - .004722	1975 - .004628
mean = .004679 standard deviation = .000083		

As shown in Table VII, there is no significant difference in the value of "Kpr" from year to year.

TABLE VII
ANALYSIS OF VARIANCE BETWEEN THE
CONSTANT "Kpr" AND YEAR

Source	df	Sum of Squares	Mean Squares	F-ratio
Between Groups	5	1.41^{-4}	2.82^{-5}	.103 p = .991
Within Groups	294	1.49^{-7}	5.07^{-10}	
Total	299	1.49^{-7}		

Therefore, it is possible to use the mean of the six generated "Kpr" values in future market studies. To distinguish the new variable from its yearly values the quotation marks will be dropped. Thus, Kpr refers to the grand constant, which when rounded is equal to .0047. In other words, Kpr represents slightly less than one half of one percent of a market's total retail sales.

It was also necessary to test the significance of "Kpr" across markets to insure that one calculated "Kpr" value per year did an acceptable job in establishing a reliable indication of potential revenue for each market in the top fifty. To facilitate the use of analysis of variance, markets one through 25 were placed in one group and markets 26 through 50 were placed in a second group for each year.

For each of the years between 1971 and 1975, there was no significant difference in the values of "Kpr" for the first twenty-five and second twenty-five markets. Only

the year 1970 produced a significant difference in "K_{pr}" between the two groups. A summary table of the results of these tests can be found in Appendix D.

In summary, K_{pr} (.0047) has been found acceptable to use in potential market revenue analysis for years 1971 through 1975. Although there was no significant difference in K_{pr} across years, the variance among the markets in 1970 suggest one "K_{pr}" is not an acceptable average among markets for that particular year. Perhaps two or three "K_{pr}"s should be calculated for the differing sizes of markets in the top fifty for that year.

For the purposes of this study, it was decided to abide to the predetermined methodology plan and use separate "K_{pr}" figures instead of the grand constant ($K_{pr} = .0047$) with respect to multiple regression and discriminant analysis. Since this is a preliminary investigative study, the use of separate "K_{pr}" figures for each year should produce slightly more accurate results.

As for the year 1970, only three markets fell outside two standard deviations of the mean ($\bar{x} = .0047$, $s = .00076$). It was also decided to maintain the use of the 1970 "K_{pr}" for the sake of consistency of analysis across the years. The affects of a slightly larger variance in the variable for 1970 will be substantially reduced in analysis across years.

Further investigation of the variance in individual market indexes for 1970 produced interesting results. For

instance, when a mean was calculated for each groups of ten markets in descending order, markets 1 - 40 produced no significant difference. The fifth group of ten markets (41 - 50) had a mean significantly lower than the other four groups.

Also to be considered is the fact that markets high on the list of the top fifty tend to remain there. The last ten or so markets on the list tend to change from year to year. If this study recognized any market which happened to occupy a position in the top fifty markets across the years instead of using the 1975 list of markets, results may have turned out to be more favorable. However, such a plan would omit data from the markets under consideration for at least part of the six years covered by this study. It is more useful to trace the performance of the present top fifty, even though markets such as Salt Lake City, Norfolk, and Wilkes Barre-Scranton changed positions on the list in a significant way, or did not appear at all in previous years.

Even with the small disparity of 1970, using the six separate " K_{pr} " figures produced gratifying results. The variable potential revenue was generated by multiplying each market's total retail sales for the ADI with the " K_{pr} " calculated for the corresponding year. This produced a dollar figure of potential revenue for each market (see Appendix C).

Potential revenue correlated very highly with both total television revenue and total retail sales for the ADI. The coefficient of correlation between potential revenue and total television revenue equalled .98, showing a positive, strong, and very dependable relationship. Over 95 percent of the common variance was accounted for ($r^2 = .96$). Because of the way potential revenue is calculated it can be considered a function of total retail sales for the ADI. The correlation between the two variables equal .9998 and share .9996 of the variance. This finding very convincingly establishes the K_{pr} concept as an indicator of potential revenue. The rounding of financial data to the nearest thousand dollars probably accounts for the correlation not reaching the point of unity (1.0).

A definitely strong and reliable relationship has been established between total retail sales of the individual ADIs and total television revenue. It has also been confirmed that potential revenue is a function of total retail sales in each of the top fifty markets. Thus, it is possible to gauge the potential of each individual market in financial terms.

Further Development of the K_{pr} Concept

The stepwise method of multiple regression was used for the purpose of trying to produce more accurate estimates of potential revenue in the several markets. Regressions including all the listed and generated variables, and

regressions using only a select number of variables showing very little covariance were processed through the computer.

Prior to running the first regression a scattergram (a graphic representation of two variables) plotting total television revenue against total retail sales was analyzed. The scattergram showed the top three markets to be skewed broadly and away from the balance of markets. It was then decided that in addition to a grand equation for all the markets, several equations for the various sizes of markets should be considered. The markets cases were segmented into five groups in light of how their plots grouped on the scattergram.

None of the regression models added to the power of total retail sales to predict either total television revenue or potential revenue. All the equations were similar. Total retail sales entered first and showed an average coefficient of correlation higher than .99 with potential revenue and .97 with total television revenue.

TABLE VIII

REGRESSION COEFFICIENTS OF SELECT MARKET VARIABLES
(ALL CASES INCLUDED) PREDICTING THE DEPENDENT
TOTAL TELEVISION REVENUE

Source	df	F-ratio	b Values
Total Retail Sales	1	5668.30 (p < .0001)	.9907656
TV Households	1	6.33 (p < .012)	-.0307794
% of Spot Revenue	1	3.10 (p < .079)	.01326610
Unemployment	1	1.63 (p < .202)	.02021246
Mean			.29795875

Total retail sales was the only variable with an extremely high F-ratio. The other three variables were either slightly significant or not significant at all. In addition the other three variables shared very negligible covariance with the dependent variable.

Since total retail sales for the ADI by itself accounts for a high correlation ($r = .98$) with total television revenue, and because over 95 percent of the variance is accounted for, it was not too disappointing that the regressions did not add any predictive power to the concept.

To increase the accuracy of potential revenue estimates it may be necessary to include per station data to the general analysis. The normal set of market characteristic variables could not do a very good job in supplementing total retail sales for the ADI. The correlation matrix at the beginning of this chapter shows a large amount of covariance among the variables one would assume to have the best possibilities in qualifying the market in terms of financial success and the ability to ascertain the possibilities of having entry occur.

It is surprising to learn that the variable television households shares relatively little variance with other variables that would seem to be very dependent on the number of homes in the market. For instance, the number of television stations and the number of independent outlets as well as households using television and financial

variables correlated surprisingly low with television households. This is of special concern because the number of TV homes is the current way market size is measured. Perhaps television markets should be ranked by a variable or variables other than total television households.

The remaining variables chosen for the regressions, percentage of spot revenue and unemployment, offered no significant support to the equations. Percentage of spot revenue correlated highly with the spot revenue variable, but correlated low with all of the other variables. For those reasons it was a likely candidate for inclusion in the regressions using the reduced set of variables.

Unemployment seemed at first to be worthy of inclusion, but added the least to the equations. Except in selected markets, unemployment does not have a meaningful impact on other economic variables in the market. This is probably due to various social programs which provide assistance to those out of work. Even in markets where there was a record of high unemployment, total retail sales, consumer spendable income, and market financial variables were not greatly affected.

Total retail sales for the ADI, by itself, is a powerful indicator of potential revenue. This is probably due to the large amount of variance it shares with many of the other variables under study. It correlated very high with all the financial variables except for spot revenue

where there was a moderate covariance. Economic variables also correlated highly with total retail sales. Even the number of television stations and the number of independent outlets correlate fairly high with the level of retail sales. The analysis of these relationships are, in themselves, noteworthy.

Discriminant Analysis of Entry

Discriminant Analysis was used to ascertain how effective several of the independent variables were in classifying the markets into those which had entry and those which had no new entry during the six years covered by the study. Instead of this subprograms usual application, that of predicting which group of several differing groups each unknown case would fall into, it was used to compare a market's ability to support new entry and the instances in which entry actually occurred.

Since not much was known about the several independent variables and their predictive or discriminating ability, no prior stipulations were entered into the program. It was decided to allow the prior probabilities to be equal. That is, a case's probability of falling into one or the other group (entry or no entry) was equal. For maximum separation in the distinction of groups Rao's V method was used. This provided a general distance measure based on the largest changes in "V."

The results were very encouraging. Although the analysis output advised there were five instances where entry should not have occurred, understanding some of the peculiarities of entry can explain the output in a manner which could not be considered by the computer program. Table IX shows the number and percentage of actual and predicted group membership.

TABLE IX
PREDICTION RESULTS OF DISCRIMINANT ANALYSIS

Actual Group Membership		Predicted Group Membership	
Name	Cases	Group 1	Group 2
Group 1 No Entry	283	231 81.6%	52 18.4%
Group 2 Entry	17	5 29.4%	12 70.6%
Group 1 centroid = .08841		Group 2 centroid = 1.27748	
81.0 percent of known cases correctly classified			
Chi-square = 115.320		p < .001	

Discussion of the Select Variables

The variables which provided the most discrimination were (1) number of independent outlets, (2) potential revenue, (3) total expenses, (4) local revenue, and (5) total retail sales for the ADI. The top discriminators include variables from each of the three variable categories outlined in chapter three.

The market characteristic, number of independent outlets, is the best discriminator variable. The markets which in reality have the most entry are the larger markets which already tend to have one or more independent television stations. During the six year period 13 new stations were constructed in the top 25 markets and only four were built in the second 25 markets. Of the 13 markets in the top 25 only Kansas City and Sacramento showed no previous entry activity. The other four markets which were in the second 25 showed no prior entry activity.

Potential revenue was found to be the second best discriminator. But, since the term is expressed in dollars which is dependent on the size of the market and not solely on the ability to permit entry, a better way of analyzing potential revenue is in terms of an index.

The efficiency index is an indicator of how far above or below a market is to the potential revenue estimated for that market. The index mean for all cases is .9986, meaning on the average markets are slightly below their potential. The index mean for non-entry markets is .9947, a modest decline from the mean for all cases. On the other hand, the index mean for markets with entry is 1.0636, an appreciable increase over the average.

Therefore, markets which tend to exceed their potential are more likely to have entry than markets which fall below their potential. This is an indication that an entrepreneur would rather enter a market with excess

television advertising dollars and try to cut himself in for a share of the revenue currently flowing into the market, rather than enter a market which has untapped revenue.

The proven success of a market appears to have more appeal to those who construct new stations than markets which seemingly have uncommitted advertising dollars. If this is true, and new stations are not constructed in markets with low efficiency indexes, there would be few, if any, actual observations available to see if a new entrant can actually capture the supposed untapped revenues.

Total expenses, is more difficult to explain than the previously mentioned discriminators. Although all expenses of operating television outlets in a market are not fixed, in a broad sense, they can be thought of as approaching the behavior of fixed expenses. The costs of doing business, discounting inflation, do not change substantially from year to year. Costs in larger markets tend to be higher, but the revenues are also higher. However, there tends to be a leveling off of expenses, and a situation of increasing returns takes place.

This is most likely why per station income seems to systematically increase as the markets become larger. Income data pertaining to a market selected for analysis prior to considerations for new entry is always studied closely. Markets below their potential most probably show

income levels below their potential, and in turn, discourage development of new outlets. Not only does this account for new entry occurring in high efficiency index markets, but also in part explains why the larger markets are more favorable for new stations.

Local revenue and total retail sales for the ADI complete the list of the best discriminating variables. Both variables are, to a great extent, proportional to the size of the market they represent in each case. Since it has already been established that larger markets are most likely to experience new entry through analysis of the aforementioned variables, it is not surprising that these two variables rated as high as they did.

Since all new entrants in the top fifty markets could not obtain affiliation with an established television network, it would of necessity make them independent outlets. Since network compensation would be omitted from the categories which comprise total revenue, local revenue becomes increasingly important to the entrant. Historically, independent operations have depended heavily on local advertising revenue to sustain their operation.

It has been only recently, with the sharply rising network rates and spot costs of large affiliated stations that national advertisers have seriously looked at the field of independents for increased placement of spot advertising. Even with the dispersion of spot dollars it

will be quite some time before independents can rely less upon the local advertising commerce.

So, it would seem likely that potential entrants would look very closely at the amount and quality of local advertising in the perspective market. Although television is generally viewed as a national advertising medium, independent stations are more like the radio broadcasting industry, in that local sales are extremely important for survival.

Total retail sales for the ADI is a direct factor in calculating each market's individual market index. It also, in a more indirect way, is heavily responsible for each market's efficiency index. As a gauge of relative market strength, retail sales becomes an important consideration to investigate before plans to enter are made.

TABLE X

DISCRIMINANT COEFFICIENTS AND AMOUNT OF RAO'S V
FOR SELECTED DISCRIMINANT VARIABLES

Variable	Coefficient	Rao's V	Significance
N of Ind. Sta.	-1.146960	11.7739	.001
Potential Rev.	.293097	6.1909	.013
Total Expenses	-.022648	3.2534	.071
Local Revenue	.099270	2.6654	.103
Total Retail Sales	-.001011	2.4735	.116
Constant	-1.572800		
Group 1 centroid = .08841		Group 2 centroid = -1.27748	

Prediction of the dependent variable, entry, is not possible through utilization of the unstandardized discriminant function coefficients for the three independent variables, and the constant, in a weighted equation. Consider the possibility of expressing entry (E) as a function of the independent variables where

$$\begin{aligned}
 E = & -1.5728 + (\text{number of independent station } x - \\
 & 1.14696) + (\text{potential revenue } x .293097) + (\text{total} \\
 & \text{expenses } x - .022648) + (\text{local revenue } x .09927) \\
 & + (\text{total retail sales } x - .001011)
 \end{aligned}
 \tag{5}$$

Application of this formula for any market in the top fifty television markets should provide a reasonable estimate of market readiness for entry. The closer the dependent variable (E) approaches -1.27748, the centroid for the entry group, the closer a market comes to the criteria needed for entry.

It should be stated again, that this formula considers the economic room in a market for new entry. In no way can the use of this formula insure successful financial operation of a new television broadcasting station.

Discussion of the Discriminant Findings

In this analysis 52 market cases were categorized as being eligible for entry. Of this group 12 markets actually did have entry. But, five markets had entry when, according to the discriminant analysis, they were not statistically eligible.

There are several reasons why actual entry was not nearly as high as the predicted entry. First, since the study covers six years, there were several instances when a market was repeatedly eligible for entry year after year. For example, San Francisco was sited in four of the six years for new entry. If a station went on the air early in the six year period, the change in the variable number of independent television stations may have kept the market from reappearing in subsequent years. If a market had no new entry the probability for entry in subsequent years would be higher with all other variables held constant. Second, some markets such as San Francisco, have no TV channel allocations which are unused, or in the case of other markets the only allocations remaining are very high on the UHF band. Finally, certain qualitative reasons such as competing applications could account for markets having no entry in the year or years new entry was predicted.

In the market cases which shouldn't have had entry but did, rational explanations can explain why they should not be considered as market cases in default. The markets Baltimore and Indianapolis both had new entry in 1971. In that year both markets were predicted to have no new entry. However, Baltimore and Indianapolis were selected by the computer for entry the year before. Considering the lag in applying for a broadcasting license and the problems

inherent in building a station, we can assume the default was caused by unforeseen time delays.

The Grand Rapids/Kalamazoo market was never slated for entry by the analysis. However, in 1971 a new entry occurred in Battle Creek, a city of considerable size adjacent to the other two cities. In the case of markets which have stations in more than one city, special considerations must be made for new entry. The reasons would appear to be more qualitative than quantitative. Since allocations for television channels are on a city not market bases, expansion is likely to occur in instances where there is more than one major city in the market. In this particular case, the new entrant was able to obtain a network affiliate contract from ABC, although there already is an ABC affiliate in the market.

Houston and Orlando had new entry in 1971 and 1974 respectively. Houston was slated for new entry twice, in 1974 and 1975. Orlando was never predicted to have entry. Both markets however, are in tremendous growth areas. Since it is an acceptable practice to anticipate the time when a market will be ready to support a new television station, it is not uncommon for an enterprise to construct an outlet early to avoid competing applications for a specific channel.

Such could very well be the case for both Houston and Orlando. The two growth markets undoubtedly will be able to support the entrants at some future time.

Another aspect to this consideration is that the early entry of a station will most likely cause a delay in the time when another entry can be warranted, and thus, ward off potential future competition.

With a bit of rational explanation, the markets with unpredicted entry can be accounted for satisfactorily. It should be stressed that the explanations above do not completely justify entry in those markets. They were offered as post analysis considerations. If it was fairly uncomplicated to enter specifications for several qualitative considerations into the computer program, the number of unpredicted entry cases would be reduced.

An overall efficiency index analysis shows that larger markets in the top fifty are more likely to meet or exceed potential revenue projections. Furthermore, markets at the lower end of the list seem to do fairly well with the exceptions of a few markets such as Providence, Memphis, Greenville-Spartanburg-Ashville, Grand Rapids-Kalamazoo-Battle Creek, Charleston-Huntington, Harrisburg-York-Lancaster-Lebanon, Wilkes Barre-Scranton, and Norfolk-Portsmouth-Newport News-Hampton. It appears that hyphenated markets are the ones most likely to experience a hardship in capturing untapped revenues.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this exploratory study was to help determine which independent variables were the best possible indices of potential revenue in the top fifty television markets. Of necessity the relationship existing between total retail sales and total revenue in the radio study done by Yadon was adopted for use in this television study. Another purpose of this investigation was to see how accurately a discriminant analysis of market variables could predict markets eligible for new entry.

In addition, it was possible to develop a formula, through discriminant techniques, to predict the economic room available in markets as it relates to new entry when certain select financial, economic, and market characteristics are known.

The problems of determining potential revenue and ascertaining which markets were eligible for new entry relied solely on the use of market data. Specific station data cannot be obtained from the Federal Communications Commission. An extremely high voluntary compliance rate

from individual stations to the authors request for financial data was not expected, so there was no attempt to include such data in the study.

This is probably due to various reasons which are not necessarily shared among the specified markets. In Greenville-Spartanburg-Ashville and Harrisburg-York et al. there are five network affiliated stations. With only three commercial television networks available, duplication in affiliated outlets occurs.

The reason for duplication may be due to wide geographic separation of cities within the market. In addition the combining of several SMSAs into a single market produces a heterogeneous ADI in respect to retail trade and other economic aspects. It is usually the case, that one or two VHF stations cover the entire market. The outlets that do not cover the entire area, are usually located at the fringe of the market area. Thus, the disadvantaged stations cannot charge advertising rates commensurate with the ADI total retail sales, population, television households, or other economic indicators.

So there are basically two factors which are easily recognizable in hyphenated markets. The first is wide geographic dispersement of cities within the ADI, the second concerns the age old problem of intermixture of VHF and UHF services.

Since the markets which had low efficiency indexes were not the larger markets, it is almost impossible to

determine if big markets need new entry to capture untapped revenue. The only top ten market with a serious deficiency was New York City. In the case of only one market, station data would be needed to supplement market data for an analysis. The limitations of this study precludes further inquiry in this area of analysis.

It was found that total retail sales for the ADI was the best predictor of potential revenue. An almost linear relationship exists between the two variables. Total television revenue was found to be only slightly less linear than potential revenue with the variable total retail sales.

In an attempt to use multiple regression to aid the prediction of potential revenue, other variables included in the model did not supplement the power of total retail sales. Therefore, without the input of per station data, total retail sales alone can be used to predict potential revenue with 96 percent of the variance explained.

Conclusions

Unlike Yadon's study which suggests that the larger a market gets, the less likely existing stations are to assume the potential revenue available, larger television markets do very well in meeting, and in most cases, exceeding the markets potential.

This is perhaps due to the fact that radio is more of a local advertising medium and television relies heavily

on national advertising dollars and the benefits of network programming. Another possibility is the scarcity of television allocations (particularly VHF) making the supply of programming short relative to demand. Radio services also operate at differing power levels (local, regional, and clear channel) whereas television service is limited to a much more narrow range of power. Perhaps cable television proliferation in the future will make up for this difference between the two mediums.

Although television is classified as a national advertising medium, local market conditions were found to influence, to some extent, the market financial variables. Particularly affected were network compensation and to a lesser extent spot revenue. Known test market cities and some areas of the sun belt, where there is less viewing of television, tend to receive an abnormally high percentage of spot dollars. Atlanta, Miami, Phoenix, and others tend to attract more than their share of spot business based solely on market characteristics considered in this study. Other than these special cases the percent share of spot revenue follows a systematic decline as the markets get smaller. But, even with this slight inconsistency, the potential revenue concept using K_{pr} gives fairly good estimates of how much a particular market should be billing.

Discriminant analysis also did a good job in predicting the markets economically eligible for new entry. Although a small number of markets were wrongly predicted

by the computer program, these instances, for the most part, could be explained away. If certain qualitative factors could be entered into the program, fewer errors in prediction would be expected.

This research has made it possible to include several new aspects in decision models as they pertain to constructing new television stations in the top fifty markets. The use of total retail sales, potential revenue, and the coefficients produced in the discriminant analysis can add significant new light to television market analyses.

Recommendations

Based on the results of this study, the author recommends that the top fifty television markets be evaluated using the potential revenue concept and by applying the formula constructed through the use of discriminant analysis. The constant, K_{pr} , should be updated annually to insure accuracy, and the amount of viewership should be studied in depth for possible inclusion in general analysis of markets.

This exploratory study indicated that audience data influence, considered on a per market basis, produced inconclusive results relating to the dependent variable. It is therefore recommended that further study be made of the relationship between per station audience data and the financial characteristics of markets where such information is readily available. Such a detailed investigation is

recommended and seems necessary to describe optimum competitive standards between stations in markets of varying characteristics, and in different regions of the country.

It is further recommended that detailed analysis of hyphenated markets be made to ascertain the reasons why they tend to differ so dramatically from single city markets. Perhaps the task would be made easier if per station financial data were made available.

The use of per station ARB data in connection with per station financial data should be studied to determine if the correlation between the two are sufficiently high, so that rating books can be used more extensively in market analysis.

Finally, since this study of the top fifty markets only covers a fraction of all the television markets it is suggested that analysis be carried out on the balance of television markets, or at least the next fifty. Perhaps similarities can be spotted among various markets and categorized for simplifying future studies. For instance, the groups may consist of hyphenated markets, growth markets, superconurbation markets, and less urban markets.

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APPENDICES

APPENDIX A

THE TOP FIFTY TELEVISION MARKETS IN 1975

APPENDIX A

THE TOP FIFTY TELEVISION MARKETS IN 1975

1. New York
2. Los Angeles
3. Chicago
4. Philadelphia
5. Boston
6. San Francisco
7. Detroit
8. Washington, D.C.
9. Cleveland
10. Pittsburgh
11. Dallas-Ft. Worth
12. St. Louis
13. Minneapolis-St. Paul
14. Houston
15. Miami
16. Atlanta
17. Tampa-St. Petersburg
18. Seattle-Tacoma
19. Baltimore
20. Indianapolis
21. Hartford-New Haven-New Britain-Waterbury
22. Milwaukee
23. Kansas City
24. Portland, Oregon
25. Sacramento-Stockton
26. Cincinnati
27. Buffalo
28. Denver
29. Providence
30. Nashville

31. San Diego
32. Columbus
33. Charlotte
34. Memphis
35. New Orleans
36. Greenville-Spartanburg-Ashville
37. Phoenix
38. Louisville
39. Grand Rapids-Kalamazoo-Battle Creek
40. Dayton

41. Oklahoma City
42. Charleston-Huntington-Ashland
43. Albany-Schenectady-Troy
44. Orlando-Daytona
45. San Antonio
46. Harrisburg-Lancaster-York-Lebanon
47. Wilkes Barre-Scranton
48. Norfolk-Portsmouth-Newport News-Hampton
49. Syracuse
50. Salt Lake City

APPENDIX B

INDIVIDUAL MARKET INDEXES

APPENDIX B

INDIVIDUAL MARKET INDEXES

	<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
1.	NYC	.45	.41	.42	.43	.40	.41
2.	LA	.55	.56	.58	.57	.55	.57
3.	CHI	.53	.49	.51	.51	.50	.50
4.	PHIL	.47	.43	.43	.42	.40	.43
5.	BOS	.49	.48	.52	.52	.50	.49
6.	SF	.53	.54	.58	.58	.56	.50
7.	DET	.46	.47	.46	.48	.45	.44
8.	WASH	.45	.42	.43	.43	.51	.47
9.	CLE	.47	.46	.45	.45	.42	.45
10.	PIT	.46	.47	.48	.47	.50	.54
11.	DAL	.51	.51	.51	.47	.44	.49
12.	ST L	.49	.44	.45	.45	.45	.46
13.	MINN	.50	.49	.51	.48	.49	.46
14.	HOU	.57	.58	.63	.62	.59	.56
15.	MIA	.51	.52	.57	.57	.54	.54
16.	ATL	.53	.55	.56	.60	.55	.53
17.	TAM	.42	.41	.43	.40	.37	.40
18.	SEA	.44	.44	.42	.40	.40	.45
19.	BAL	.59	.59	.57	.56	.51	.53
20.	IND	.52	.47	.49	.49	.48	.46
21.	HART	.54	.52	.48	.47	.44	.44
22.	MIL	.46	.45	.47	.48	.45	.43
23.	KC	.48	.46	.49	.46	.50	.48
24.	PORT	.45	.46	.45	.40	.39	.40
25.	SAC	.42	.45	.50	.45	.44	.47
26.	CIN	.51	.52	.51	.48	.45	.48
27.	BUFF	.61	.70	.69	.77	.72	.71
28.	DEN	.55	.55	.63	.57	.61	.61
29.	PROV	.37	.34	.37	.35	.33	.33
30.	NASH	.37	.39	.38	.38	.38	.35

	<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
31.	S DI	.39	.38	.56	.55	.57	.57
32.	COL	.51	.51	.55	.53	.50	.56
33.	CHAR	.45	.48	.50	.44	.45	.49
34.	MEM	.40	.40	.40	.39	.39	.38
35.	N O	.65	.67	.64	.65	.58	.57
36.	GV/S	.35	.36	.37	.30	.38	.37
37.	PHO	.57	.58	.60	.61	.58	.57
38.	LVIL	.49	.49	.49	.47	.44	.47
39.	GR/K	.37	.38	.40	.41	.37	.37
40.	DAY	.47	.49	.48	.48	.45	.45
41.	OK	.43	.43	.46	.45	.48	.45
42.	CHAS	.37	.36	.38	.37	.33	.36
43.	ALB	.44	.44	.47	.47	.44	.48
44.	ORL	.37	.38	.38	.37	.35	.37
45.	S A	.41	.44	.50	.48	.44	.45
46.	HAR	.28	.29	.30	.31	.28	.29
47.	WB/S	.30	.32	.27	.29	.28	.31
48.	NOR	.45	.44	.41	.40	.38	.39
49.	SYR	.52	.44	.47	.52	.43	.41
50.	SLC	.41	.45	.47	.42	.45	.45

APPENDIX C

POTENTIAL REVENUES AND EFFICIENCY INDEXES
FOR THE TOP 50 MARKETS

APPENDIX C

POTENTIAL REVENUE AND EFFICIENCY INDEX OF THE TOP 50 MARKETS (Potential Revenue in \$millions)

<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
01 New York	158.976 .960	158.793 .883	184.409 .865	190.709 .909	200.175 .883	210.636 .893
02 Los Angeles	99.356 1.189	92.428 1.195	105.615 1.207	111.160 1.206	119.554 1.192	125.193 1.229
03 Chicago	78.181 1.140	78.666 1.062	92.067 1.055	95.302 1.075	102.011 1.087	109.912 1.071
04 Philadelphia	62.182 .901	62.150 .923	70.272 .899	73.686 .896	77.407 .875	82.680 .927
05 Boston	46.216 1.036	45.844 1.031	51.816 1.082	52.460 1.109	57.041 1.091	59.254 1.064
06 San Francisco	45.753 1.140	42.249 1.150	47.917 1.201	50.840 1.226	55.405 1.217	58.718 1.215
07 Detroit	44.631 .983	42.600 1.008	49.453 .958	50.773 1.026	55.451 .991	58.801 .950
08 Washington, D.C.	34.769 .970	35.219 .902	42.243 .889	46.159 .907	49.432 .927	52.794 1.012
09 Cleveland	36.236 1.009	34.614 .991	39.558 .930	41.205 .955	45.516 .926	48.734 .982

<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
10 Pittsburgh	25.332 .999	25.642 1.004	28.207 .993	30.106 1.005	30.560 1.082	32.875 1.166
11 Dallas-Ft. Worth	27.535 1.110	27.091 1.091	32.134 1.061	35.119 1.004	38.597 .971	41.165 1.049
12 St. Louis	23.135 1.042	23.826 .938	27.801 .925	29.236 .958	31.150 .991	35.006 1.001
13 Minneapolis-St. Paul	23.522 1.047	21.905 1.116	25.671 1.069	27.898 1.023	30.435 1.060	34.192 1.001
14 Houston	18.935 1.212	18.966 1.237	22.612 1.314	24.807 1.318	28.572 1.279	32.714 1.215
15 Miami	19.944 1.086	20.808 1.116	24.038 1.180	27.006 1.197	31.548 1.189	33.351 1.157
16 Atlanta	18.679 1.129	18.820 1.181	22.874 1.158	24.527 1.271	28.410 1.197	31.526 1.137
17 Tampa-St. Petersburg	14.286 .904	15.373 .880	18.262 .901	22.621 .837	27.056 .811	27.540 .868
18 Seattle-Tacoma	20.875 .936	19.203 .948	24.131 .866	26.212 .841	27.553 .868	29.857 .978
19 Baltimore	16.706 1.269	16.911 1.265	20.267 1.178	21.344 1.184	23.783 1.106	25.878 1.145
20 Indianapolis	16.929 1.107	18.403 .999	21.458 1.012	23.269 1.029	24.912 1.058	28.318 .990

<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
21 Hartford-New Haven	16.852 1.163	17.007 1.108	20.265 .997	21.369 .998	24.940 .882	25.212 .959
22 Milwaukee	17.377 .977	16.682 .964	19.278 .984	20.527 1.007	22.005 .992	25.598 .931
23 Kansas City	15.334 1.036	15.896 .991	18.458 1.022	20.051 .980	21.628 1.081	23.598 1.046
24 Portland	14.250 .960	13.670 .980	16.559 .938	18.930 .850	20.944 .854	23.449 .866
25 Sacramento	16.391 .891	15.323 .957	17.375 1.029	19.051 .963	20.187 .971	21.316 1.012
26 Cincinnati	15.354 1.098	15.151 1.112	17.412 1.058	18.588 1.025	20.804 .978	21.566 1.042
27 Buffalo	16.192 1.312	15.410 1.387	17.560 1.426	16.653 1.626	18.089 1.569	19.081 1.539
28 Denver	13.576 1.169	14.110 1.188	16.202 1.305	20.061 1.204	21.849 1.326	24.454 1.311
29 Providence	14.178 .802	14.437 .738	15.808 .775	17.245 .734	18.376 .719	19.824 .714
30 Nashville	11.586 .798	11.445 .842	13.732 .787	14.923 .809	16.635 .823	19.249 .754
31 San Diego	11.642 .836	10.979 .921	12.651 1.030	13.882 1.175	15.075 1.245	16.578 1.221

<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
32 Columbus	13.017 1.097	13.021 1.094	13.480 1.145	14.951 1.127	16.581 1.098	17.115 1.205
33 Charlotte	10.299 .971	10.766 1.040	12.516 1.041	14.107 .939	15.477 .992	15.909 1.066
34 Memphis	12.031 .878	11.961 .868	14.302 .838	15.532 .835	16.978 .841	18.621 .815
35 New Orleans	9.212 1.398	9.561 1.441	11.651 1.335	12.350 1.382	13.709 1.257	15.904 1.240
36 Greenville- Spartanburg- Ashville	9.085 .752	9.214 .775	10.967 .762	14.331 .633	13.096 .822	14.108 .805
37 Phoenix	11.021 1.224	11.254 1.247	13.068 1.237	14.981 1.287	16.800 1.259	17.489 1.231
38 Louisville	9.654 1.043	10.200 1.062	12.223 1.023	13.230 .989	14.940 .965	16.030 1.011
39 Grand Rapids- Kalamazoo Battle Creek	12.378 .800	11.996 .821	13.538 .822	14.331 .861	15.568 .810	16.349 .804
40 Dayton	10.898 1.008	10.477 1.044	12.296 .990	12.749 1.016	14.620 .975	16.105 .968
41 Oklahoma City	9.705 .927	10.221 .950	12.076 .956	13.254 .964	13.913 1.040	15.864 .979

<u>Market</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
42 Charleston-Huntington	9.167 .792	9.440 .763	9.752 .790	10.361 .774	11.958 .715	12.608 .781
43 Albany	10.769 .933	10.282 .944	11.490 .967	11.738 1.004	13.215 .962	13.091 1.047
44 Orlando	8.638 .789	9.027 .824	11.490 .779	13.402 .782	15.824 .763	16.179 .798
45 San Antonio	9.301 .874	9.076 .946	10.130 1.047	11.112 1.021	13.194 .970	14.472 .977
46 Harrisburg-York-Lancaster-Lebanon	12.168 .606	12.165 .613	12.865 .633	13.684 .659	15.029 .617	16.466 .620
47 Wilkes Barre-Scranton	7.425 .650	7.099 .696	9.383 .564	10.313 .620	11.154 .617	11.471 .677
48 Norfolk-Portsmouth-Newport News	8.402 .937	8.706 .946	10.437 .862	11.708 .853	12.478 .830	12.978 .850
49 Syracuse	10.121 .922	9.407 .943	9.630 .968	9.377 1.102	11.913 .936	12.878 .897
50 Salt Lake City	9.065 .884	9.046 .964	10.107 .972	12.281 .897	13.009 .973	13.972 .976

APPENDIX D

ANALYSIS OF VARIANCE FOR THE UPPER AND LOWER 25 MARKETS
IN THE TOP FIFTY MARKETS PER YEAR

APPENDIX D

ANALYSIS OF VARIANCE FOR THE UPPER AND LOWER 25 MARKETS IN THE TOP FIFTY MARKETS PER YEAR

Year	Source	df	Sum of Squares	Mean Squares	F-ratio
1970	Between Groups	1	3.13×10^{-6}	3.13×10^{-6}	6.70 p < .05
	Within Groups	48	2.24×10^{-7}	4.67×10^{-9}	
	Total	49	2.56×10^{-7}		
1971	Between Groups	1	6.35×10^{-6}	6.35×10^{-6}	2.21 (n.s.)
	Within Groups	48	2.43×10^{-7}	6.38×10^{-9}	
	Total	49	3.06×10^{-7}		
1972	Between Groups	1	8.18×10^{-6}	8.18×10^{-6}	1.44 (n.s.)
	Within Groups	48	3.37×10^{-7}	7.02×10^{-9}	
	Total	49	3.47×10^{-7}		
1973	Between Groups	1	8.15×10^{-6}	8.15×10^{-6}	1.52 (n.s.)
	Within Groups	48	3.10×10^{-7}	6.46×10^{-9}	
	Total	49	3.92×10^{-7}		
1974	Between Groups	1	8.47×10^{-6}	8.47×10^{-6}	1.58 (n.s.)
	Within Groups	48	2.75×10^{-7}	5.73×10^{-9}	
	Total	49	3.60×10^{-7}		
1975	Between Groups	1	8.71×10^{-5}	8.71×10^{-5}	1.32 (n.s.)
	Within Groups	48	3.16×10^{-7}	6.58×10^{-9}	
	Total	49	3.24×10^{-7}		

APPENDIX E

LIST OF MARKETS QUALIFYING FOR NEW ENTRY BY YEAR

APPENDIX E

LIST OF MARKETS QUALIFYING FOR NEW ENTRY BY YEAR

1970 N=12 New York City Los Angeles *Chicago San Francisco Detroit Washington, D.C. Baltimore Indianapolis *Kansas City *Buffalo Phoenix Dayton 1971 N=17 New York City Los Angeles San Francisco Detroit Cleveland *Atlanta *Tampa-St. Petersburg Seattle-Tacoma Hartford-New Haven Kansas City San Diego Charlotte Phoenix *Louisville Dayton San Antonio Norfolk 1972 N=3 New York City *Los Angeles Charlotte	1973 N=8 Los Angeles San Francisco Detroit Pittsburgh Dallas-Ft. Worth Sacramento Charlotte Phoenix 1974 N=12 *New York City Los Angeles Detroit Dallas-Ft. Worth Houston Indianapolis *Sacramento Buffalo Charlotte Phoenix Harrisburgh-York Norfolk-Portsmouth 1975 N=9 New York City Los Angeles *San Francisco *Detroit Houston *Miami Indianapolis Charlotte Norfolk-Portsmouth * Signifies actual entry
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