AN ANALYSIS OF THE FACTORS CONTRIBUTING TO THE SUCCESSFUL LOCATION OF MAJOR LEAGUE BASEBALL FRANCHISES

Dissertation for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
CHARLES LOUIS ALDINI
1977

This is to certify that the

thesis entitled

AN ANALYSIS OF THE FACTORS
CONTRIBUTING TO THE SUCCESSFUL
LOCATION OF MAJOR LEAGUE BASEBALL

presented by

CHARLES L. ALDINI

has been accepted towards fulfillment
of the requirements for

Doctor of Philosophy degree in Resource Development

Lewis W Moore

Major professor

Date May 19, 1977

O-7639

ABSTRACT

The primary objective of this study is to delineate those variables which influence the location of professional baseball franchises and to match those variables with elements of particular clubs to be located. A further objective is to rank and measure the relationship of each variable to the presence or absence of major league teams in a particular area. Another objective is to determine prime potential Standard Metropolitan Statistical Areas (SMSA's) for future league expansion or franchise relocation.

This study concentrates on paid attendance. Since profit maximization is the objective function of most major league baseball franchise owners, this study focuses upon the only available and representative component of the economic infrastructure of these franchises--paid attendance. A model was built to predict this paid attendance. The model identified five variables which significantly contributed to an explanation of paid attendance. The resultant regression equation accounted for approximately 74 percent of the variation in paid attendance, and a consequently much more unified and systematic overview of the role of paid attendance within the infrastructure of major league baseball franchises.

The final task of this study was to construct attendance projections for non-franchised SMSA's within the parameters of the study. Upon completion of this task, 10 SMSA's emerged as potentially strong major league baseball franchise locations. From this total only three

SMSA's were deemed ideal future locations in that only they suggested the potential to compete successfully in the market place. These three SMSA's were Tampa-St. Petersburg, Newark and Miami.

A basic outgrowth of the model is that the general market place for major league baseball franchises in the United States is extremely limited. Thus, given such a saturated market, there is only one way for future franchise location to turn in our mass society. It must develop critical mass by expanding major league baseball to international markets. The recent awarding of a major league baseball franchise to Toronto, Ontario, Canada was a reaffirmation of this fact. This was a conscious and much considered decision based upon the initial location of the Montreal Expos in Canada in 1969, and should be seen as a harbinger of future international expansion to such areas as Mexico, Central America and Japan.

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by

Charles Louis Aldini

A DISSERTATION

Submitted to

Michigan State University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

Department of Resource Development

1977

ACKNOWLEDGMENTS

Projects such as this are seldom completed without a tremendous amount of cooperation and support from others. This was no exception. I would like to thank my dissertation committee for their guidance and consideration; my family for their confidence and concern; my friends for their gentle prodding and selfless assistance. This project is as much theirs as mine, for it would never have reached completion without their cooperation and support.

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CHAPTER ONE

INSTITUTIONAL AND HISTORICAL BACKGROUND

During the last quarter-century the professional sports industry in the United States has risen to the status of "big business." Striking players, multimillion dollar contracts, and lawsuits are as much a part of professional sports as championship play-offs. Basic decisions about franchises are being made for reasons of profit maximization. Winning is no longer the objective function of the owner-manager. Of the nation's 100 major league teams, no more than 12 are owned and managed by individuals whose principal business interest is that particular sport franchise (Durso, 1971).

Alan Cohen, operating head of Madison Square Garden and managing director of the New York Knickerbockers of the National Basketball Association (NBA) and New York Rangers of the National Hockey League (NHL) recently stated, " . . . if it's a choice between the Knicks winning and the corporation making money, I want the corporation to make money," (Koppett, 1974). The basic decisions about franchise location, league composition and television policies are being made for reasons consistent with profit maximization, but not necessarily consistent with the provision of providing a better product.

Major League Framework and Structure

Major league classification is confined to those clubs which field teams of "major league" quality in any of four sports: baseball,

football, basketball and hockey. The generally accepted criterion for major league status in each of the above sports is membership respectively in either the National or American League of Professional Clubs (NL and AL), the National Football League (NFL), the National Basketball Association (NBA), or the National Hockey League, (NHL) or World Hockey Association (WHA). The two leagues in major league baseball are united by the Major League Agreement and for the purposes of analysis will be considered a single league. In hockey, however, the two leagues are economic competitors and considered separate leagues (Demmert, 1973).

Operation of Team Sports

As Noll points out in his text, Government and the Sports Business, a professional sport league is essentially a cartel with the purpose of restricting competition and dividing markets among firms in the industry. Each league has three types of restrictions, one dealing with interteam competition for players, another with the location of team franchises and a third with the sale of broadcasting rights.

Just as league rules limit competition in the acquisition of players so, too, do they limit competition in selling the product of the industry. Teams have three important sources of income: admissions, broadcasting rights, and concessions. In all three areas, teams are essentially monopolistic: for each sport only one team in any city has the right to sell tickets to major league professional contests, to offer broadcasts and sell food, beverages and souvenirs to those in attendance at its games.

Each professional sport has rules governing the location of teams in the league. Although the rules vary among the leagues, the general

effect is to prohibit a member team from locating in a city that another team has already designated as its home, unless the latter gives its approval. Thus each team has exclusive rights to sell admissions to major professional sports contests in its home territory.

Leagues also control the movement of existing franchises to cities without teams. A team wishing to relocate its franchise must obtain the approval of most other teams in its league. Established teams control the addition of new teams to the league by requiring not only that new teams pay multi-million dollar fees to join the league, but that they also locate in areas approved by the established teams.

The exclusivity of franchise rights is threatened only by the emergence of a new league and in time by the existence of inter-league competition, and even this threat is minimal. Only the New York Jets of the now defunct American Football League survived the competition in the home city of an established team. Nevertheless, commercialized professional team sports are a thriving enterprise and one of the most successful and expanding industries in the United States.

The following table illustrates the tremendous growth achieved by the four major professional sports over the 25-year period between 1950-1975.

TABLE 1

MAJOR LEAGUE FRANCHISE EXPANSION
1950 - 1975

Major League Franchises	Year	Number of Teams
Football	1950	10
	1975	26
Basketball	1950	8
	1975	28
Baseball	1950	16
	1975	23
Hockey	1950	6
	1975	24

As Table 1 indicates, since 1950 the number of major league football franchises has increased from 10 to 38, but with the failure of the World Football League (WFL) in 1974, the number of franchises stabilized at 28 for the 1976 season. Professional basketball expanded from 10 franchises to 34, however, this number also decreased to 28, with the failure of the American Basketball Association at the conclusion of the 1975-1976 season.

Professional baseball's expansion has been the most conservative, only 10 franchises have been awarded in the 25 year period, all of which are still operating, though several have relocated. Professional hockey has had the most dramatic increase of all professional sports since 1950. With National Hockey League (NHL) expansion coupled with the creation of the World Hockey Association (WHA) the number of teams rose to 32 before finally reaching equilibrium at 24. The number of major league sport franchises existing in the United States in 1976 was 100.

Franchise Failures: Limits to Growth

Is there a limit to the number of major league team sport franchises our society is willing and able to support? It would seem so. The inflationary rush of new teams and leagues combined with the generally poor economic conditions of the early 1970's has left many teams and several leagues steeped in debt.

No fewer than 29 major league franchises have failed since 1970. Professional football has lost 12, Basketball 7, and hockey 8. A recent Louis Harris survey showed a 2 percent decline in fan interest in both basketball and football since 1973. The same survey indicated that baseball dropped 4 percent and hockey 6 percent. Of the 12 sports investigated only tennis and horse racing showed an increase in fan interest (Durso, 1974).

Not all major league franchises are successful, as evidenced by the 29 failures previously mentioned. A primary reason for this is that the cost to acquire and subsequently maintain a professional team has increased dramatically over the years. These costs continue to constantly rise. The chief cost increase has occurred in the area of player's salaries. Coaching, administrative and scouting salaries have also risen. The largest non-payroll expense is the amount paid visiting teams. Generally speaking major league franchises usually forward 30 percent of their total attendance revenues to league administration offices to pay for the salary and expenses of the Commissioner's Office. The stadium owner in turn collects a percentage of each gate and this percentage varies according to individual contractual arrangements.

Football

An American Football League (AFL) franchise cost $25,000 in 1960. Both Tampa and Seattle are paying $16,000,000 for their franchises in the NFL. Furthermore, twelve NFL teams lost money during the 1975 season, including Washington and Philadelphia which each lost approximately $500,000, while selling every ticket for each home game.

Basketball

Of the four major professional sports, basketball is the least profitable. In the National Basketball Association (NBA) the franchise price has increased from the $2 million paid by the Kansas City owners to $6.15 million remitted by the New Orleans organization. In 1967, five NBA teams had salaries below $200,000, in 1974, 17 players earned amounts greater than $200,000. Average player salaries of $90,000 are a major reason that in 1974 only Milwaukee, New York, and Los Angeles earned a profit in the 17 team NBA (Noll, 1974).

Hockey

The enormous increase in the number of professional hockey teams began late in the 1960's with NHL expansion. It continued with the formation of the WHA, and seems to have a much sounder economic justification than the growth of professional basketball which preceeded it. Although the cost of an NHL franchise has risen to over $6 million almost all of the sixteen teams are generating a profit. The California Golden Seals appear to be the only non-profitable franchise in the NHL. Owner Charles Finley stated that the Seals lost $1 million in 1972 and have never generated a profit (Rothenberg, 1975).

Baseball

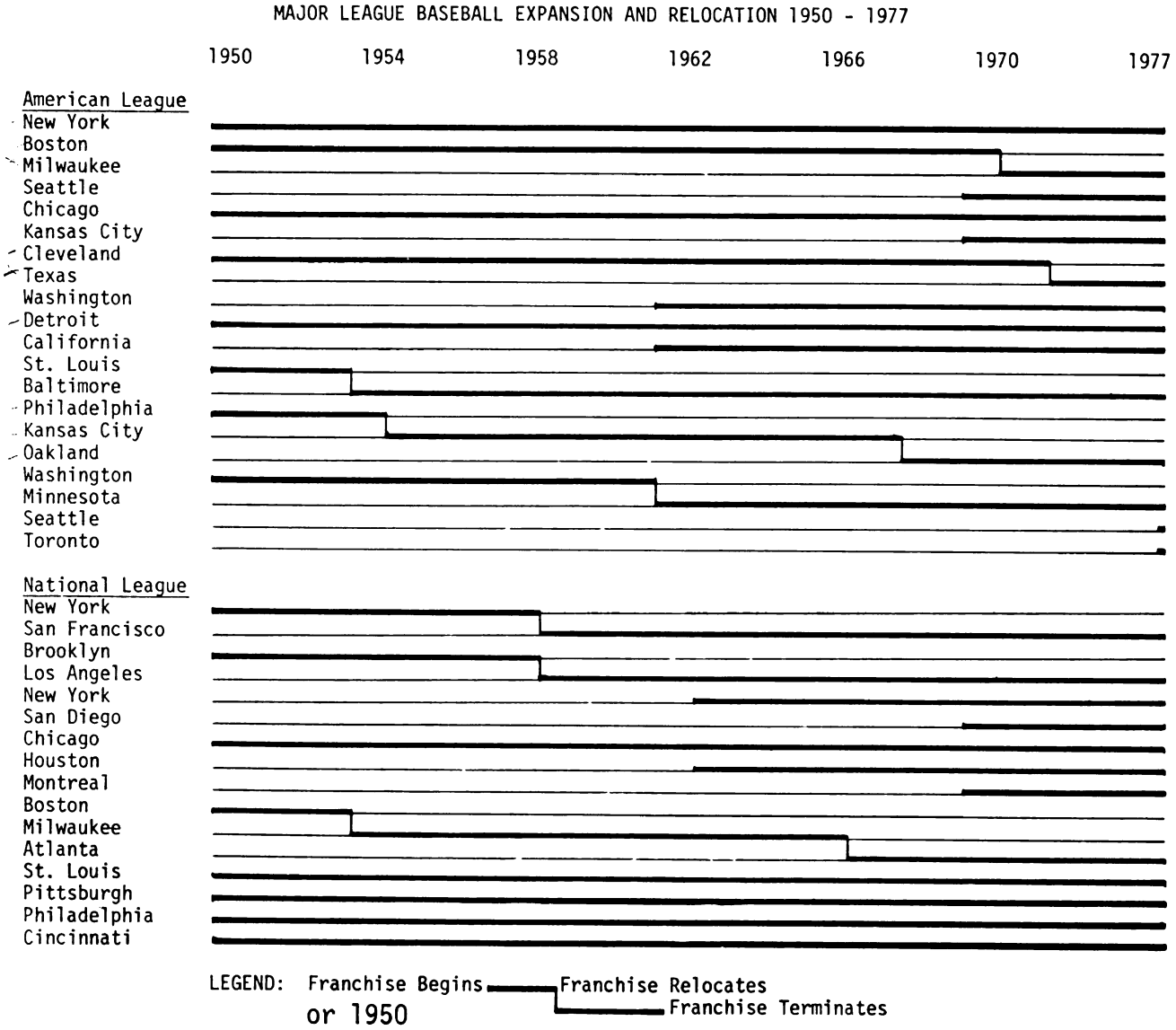
Baseball franchise costs have also risen dramatically. Montreal, and San Diego, the league's most recent expansion teams, paid $10 million for the privilege of National League affiliation. The two most profitable baseball franchises are the New York Mets and the Los Angeles Dodgers. Both teams consistently attract over two million fans in paid attendance. An interesting aspect of the financial situation of baseball is the overwhelming dominance of the National League: in the early 1970's the six presumably most profitable were National League team members.

Franchise Stability

Baseball

The best example of franchise stability occured in baseball between 1903-1953, when the league consisted of 16 teams in fixed locations. In 1953 the league experienced its first franchise shifts when the Boston Braves moved to Milwaukee and the St. Louis Browns relocated in Baltimore (Figure 1). In 1954 the Philadelphia Athletics transferred to Kansas City. The most devastating franchise relocation took place in 1958 when two New York franchises, the Giants and Dodgers, migrated to San Francisco and Los Angeles respectively. This was followed in 1961 by the departure of the Washington Senators from the nation's capital to Minneapolis-St. Paul, Minnesota. The league's first expansion took place in 1961 with the addition of two teams to the American League, Washington and California. The National League added two additional franchises in 1962, one each in New York and Houston. In 1966 the nomadic Braves moved from Milwaukee to Atlanta, followed in 1968 by Kansas City's transfer to Oakland. Further expansion took place in

FIGURE 1


MAJOR LEAGUE BASEBALL EXPANSION AND RELOCATION 1950 - 1977
1950
1954
1958
1962
1966
1970
1977
American League
New York
Boston
Milwaukee
Seattle
Chicago
Kansas City
Cleveland
Texas
Washington
Detroit
California
St. Louis
Baltimore
Philadelphia
Kansas City
Oakland
Washington
Minnesota
Seattle
Toronto
National League
New York
San Francisco
Brooklyn
Los Angeles
New York
San Diego
Chicago
Houston
Montreal
Boston
Milwaukee
Atlanta
St. Louis
Pittsburgh
Philadelphia
Cincinnati
LEGEND:
Franchise Begins or 1950
Franchise Relocates
Franchise Terminates

1969 with franchises being located in Seattle, Kansas City, San Diego and Montreal. In 1970 Seattle moved to Milwaukee and in 1972 Washington relocated in Arlington, Texas. In 1977 franchises were awarded to Seattle and Toronto bringing to an end an era of expansion and franchise relocation.

Football

In 1950 the NFL was comprised of 12 teams. Franchise relocation began in 1951 when the New York Yanks moved to Dallas (Figure 2). The following year that same team moved to Baltimore. In 1960 the Chicago Cardinals migrated to St. Louis and Dallas was granted an expansion franchise. A year later Minnesota also received rights to an NFL expansion team. In 1966 with the AFL merger (Figure 3) and expansion in Atlanta the number of NFL teams increased to 24. In 1967 an expansion franchise was awarded to New Orleans and in 1968 another to Cincinnati. The league remained stable until both Seattle and Tampa were brought into the NFL for the 1976 season.

Basketball

The NBA was comprised of ten clubs in 1950 most of which were confined to the nation's northeast quadrant. In 1953 the Tri-Cities franchise shifted to Milwaukee (Figure 4). With the failure of both Indianapolis in 1953 and Baltimore in 1954 the league decreased to eight clubs. Milwaukee transferred to St. Louis in 1955 where they remained for 13 years before finally settling in Atlanta. A move to larger cities began in 1957 when Fort Worth shifted to Detroit. Rochester moved to Cincinnati in 1958 and Minneapolis to Los Angeles in 1959. The league's first expansion franchise was awarded to Chicago in 1961, the club remained there only two seasons before moving to Baltimore in 1963, finally settling in Washington D.C. in 1974. The

FIGURE 2

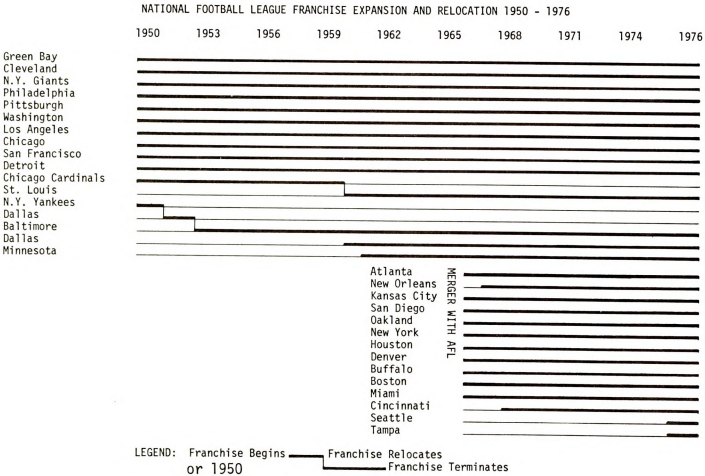

NATIONAL FOOTBALL LEAGUE FRANCHISE EXPANSION AND RELOCATION 1950 - 1976
1950
1953
1956
1959
1962
1965
1968
1971
1974
1976
Green Bay
Cleveland
N.Y. Giants
Philadelphia
Pittsburgh
Washington
Los Angeles
Chicago
San Francisco
Detroit
Chicago Cardinals
St. Louis
N.Y. Yankees
Dallas
Baltimore
Dallas
Minnesota
Atlanta
New Orleans
Kansas City
San Diego
Oakland
New York
Houston
Denver
Buffalo
Boston
Miami
Cincinnati
Seattle
Tampa
MERGER WITH AFL
LEGEND: Franchise Begins or 1950
Franchise Relocates
Franchise Terminates

FIGURE 3

AMERICAN FOOTBALL LEAGUE FRANCHISE EXPANSION AND RELOCATION 1959 - 1966

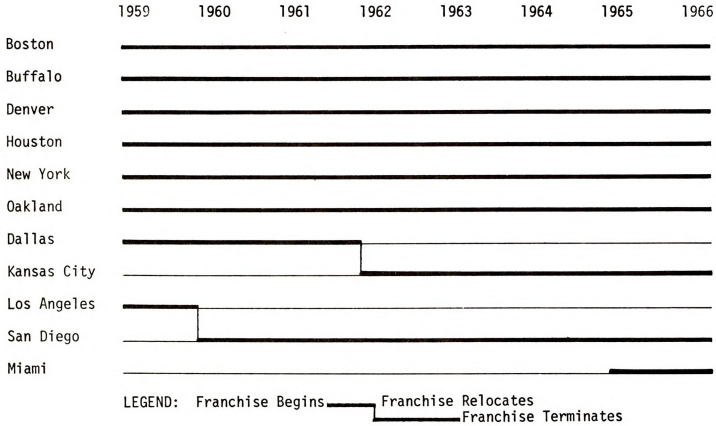
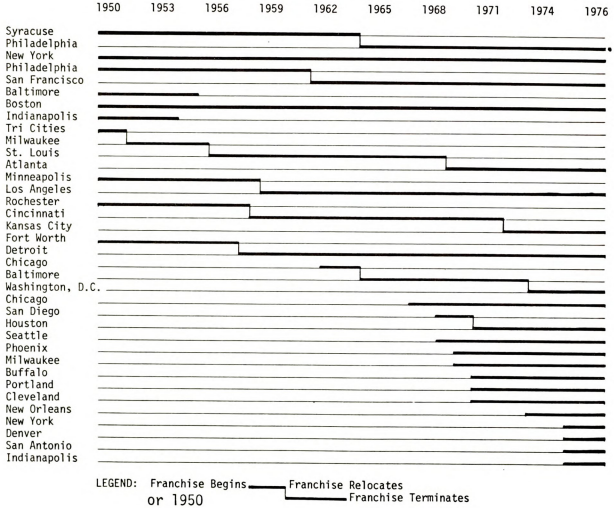


FIGURE 4

PROFESSIONAL BASKETBALL EXPANSION AND RELOCATION 1950 - 1976



Philadelphia franchise moved to San Francisco in 1962. The shift of established franchises to larger cities was completed in 1963 when Syracuse relocated in Philadelphia.

The NBA began an expansion program in 1966 which was to continue on into the 1970's. Chicago was added in 1966. Both Seattle and San Diego were awarded franchises in 1967 with San Diego relocating in Houston in 1970. Phoenix and Milwaukee were brought into the league in 1968, with Buffalo, Portland and Cleveland following in 1970. Cincinnati shifted to Kansas City in 1972. New Orleans received an expansion franchise making a total of eighteen clubs in 1974. With the merger of the NBA with the rival ABA in 1976, four new teams, New York, Denver, San Diego, and Indiana, were brought into the league, increasing the total NBA membership to 22.

Hockey

The National Hockey League completed the most dramatic expansion plan in the history of professional sports in 1967, when they successfully added six franchises and doubled their size (Figure 5). The league expanded again in 1969-1970 when the Buffalo club joined the league. In 1972 two cities were awarded franchises, Atlanta and New York City. Both Kansas City and Washington, D.C. gained league acceptance in 1974. Presently the NHL has fifteen franchises in United States cities, and it is interesting to note that relocation has not occurred, and location decisions have been determined only through expansion.

The WHA was formed in 1972 (Figure 6), and has not been as stable as the older NHL. The league was originally comprised of eight United States based clubs and four located in Canada. Relocation began almost

FIGURE 5

NATIONAL HOCKEY LEAGUE FRANCHISE EXPANSION AND RELOCATION 1950 - 1976

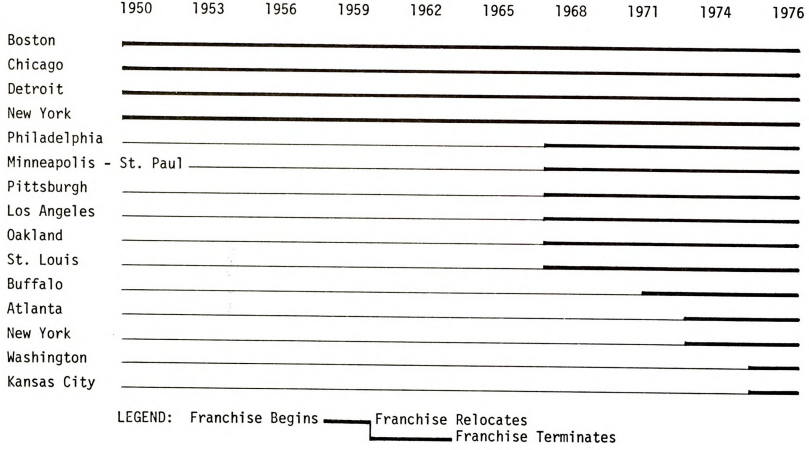
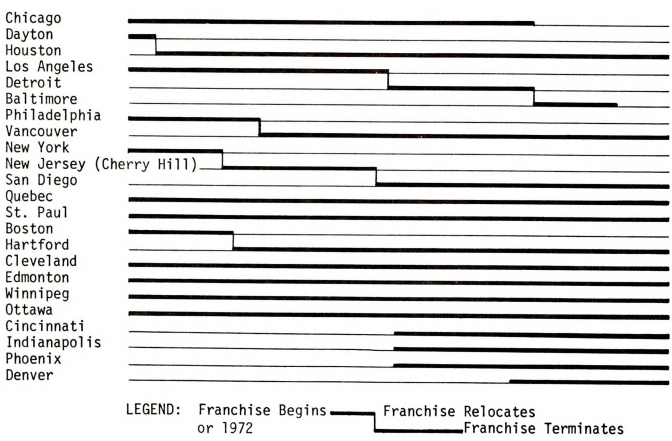


FIGURE 6

WORLD HOCKEY ASSOCIATION FRANCHISE EXPANSION AND RELOCATION 1950 - 1976



immediately with the Dayton club shifting to Houston. The Los Angeles franchise moved to Detroit in 1974 before folding in Baltimore during the 1975-1976 season. The Philadelphia organization relocated in Vancouver in 1973. New York shifted for one season to Cherry Hill, New Jersey, before settling in San Diego. New England, which originally chose Boston as its home, relocated in Hartford in 1973. The WHA began an era of expansion in 1973 adding three clubs: Cincinnati, Indianapolis and Phoenix. In 1975, Denver, the league's most recent club, was granted a franchise. It failed shortly thereafter as did the Minnesota franchise midway through the 1976-1977 season.

Geographical Distribution of Major League Franchises

Table 2 depicts the geographical distribution of professional sport franchises in the United States. Nearly all of the 35 most populous metropolitan areas in the United States have at least one professional club, and 75 percent of the first 20 have at least three.

The geographical diversity apparent from Table 8 has not always been the case. During the past 20 years, the industry has expanded and simultaneously shifted its geographical center westward and to the south. Prior to 1958, there were a total of only 41 major professional team sport franchises in 10 cities stretched along the population belt from the Great Lakes to the northeastern seaboard. By 1973 the industry had expanded to 106 clubs distributed throughout most of the United States and Canada, and the number of scheduled professional athletic contests had risen from fewer than 2,000 to more than 4,000 per year.

TABLE 2

GEOGRAPHICAL DISTRIBUTION OF MAJOR LEAGUE FRANCHISES

	Baseball	Basketball	Football	Hockey	Total
New York	2	1	2	2	8
Chicago	2	1	1	1	5
Los Angeles	1	1	1	1	4
Philadelphia	1	1	1	1	4
Detroit	1	1	1	1	4
San Francisco - Oakland	2	1	2	1	6
Washington, D.C.	x	1	1	1	3
Boston	1	1	1	1	4
Dallas - Ft. Worth	1	x	1	x	2
St. Louis	1	1	1	1	4
Pittsburgh	1	x	1	1	3
Houston	1	1	1	1	4
Baltimore	1	x	1	x	2
Cleveland	1	1	1	1	4
Minneapolis - St. Paul	1	x	1	1	3
Atlanta	1	1	1	1	4
Anaheim	1	x	x	x	1
San Diego	1	x	1	1	3
Milwaukee	1	1	1	x	3
Seattle	1	1	1	x	3
Cincinnati	1	x	1	1	3
Denver	x	1	1	1	3
Miami	x	x	1	x	1
Buffalo	x	1	1	1	3
Kansas City	1	1	1	1	4
Tampa - St. Peters-burg	x	x	1	x	1
Indianapolis	x	1	x	1	2
Phoenix	x	1	x	1	2
New Orleans	x	1	1	x	2
Portland	x	1	x	x	1
San Antonio	x	1	x	x	1
Louisville	x	1	x	x	1
Green Bay	x	x	1	x	1
Columbus, Ohio	x	x	x	1	1
Hartford	x	x	x	1	1

Problem Statement

As previously stated there are 100 professional major league sport franchises located within the United States. The NFL and NBA have recently completed expansion with the addition of two and four franchises respectively for the 1976 season. Hockey expresses plans for expansion in the near future. Baseball, though at present not contemplating expansion, is continually faced with relocation decisions. As the number of major league franchises increases, competition for market space will also increase. Future sites, be they by expansion or relocation, will have significant impact upon the eventual economic success or failure of a particular franchise. When this observation is coupled with the fact that an eventual ceiling on television revenues is approaching, it becomes evident that the average amount of empty stadium seats must be reduced. Thus, the question of franchise location becomes critical.

Due to the enormity and obvious logistical difficulties inherent in addressing the location question for all major league sports, the scope of this paper will embrace only major league baseball. The location problem for baseball is especially critical, in that the sport no longer enjoys the lofty position of being the leading spectator sport. Since there are more teams, playing more games than ever before, total attendance is at a record level. However, average game attendance for major league baseball has declined through the years.

Relocation occurs frequently in major league baseball. And each shift in location has had an adverse effect upon the game, i.e., loss of fan support and increased financial burdens for management. With this in mind, the purpose of this paper is to develop a predictive model that will indicate within some degree of probability-limits the

potential of a prospective Standard Metropolitan Statistical Area (SMSA) to successfully support a major league baseball franchise.

One of the initial and basic assumptions made in this study is that there is a relationship between the spatial variation in the location of professional baseball franchises and socio-economic conditions which also vary spatially. The primary objective of this study is to delineate those variables which influence the location of professional baseball franchises and to match those variables with elements of particular clubs to be located. A further objective is to rank and measure the relationship of each variable to the presence or absence of major league teams in a particular area. Another objective is to determine the location prime potential SMSA's for future league expansion of franchise relocation. However, the specific location site within the SMSA is not a concern of this study. Further limitations focus upon the lack of comparable data therefore attention will focus only upon the United States even though major league baseball franchises exist in Canada. Also, attendance will serve as a proxy for success since franchise revenue information is not readily available.

CHAPTER TWO

ELEMENTS OF FRANCHISE SUCCESS

There are many factors which account for the potential success or failure of a given major league franchise in a particular metropolitan area. Although published research ignores the locational aspects of professional sports, several economists, Neal, 1964, Jones, 1969, El Hodiri and Quirk, 1969 and 1971, and more recently Demmert, 1973, and Noll, 1974, have examined various economic aspects of the professional sports industry.

Demmert attempts to integrate economic analysis with professional sports technological and institutional irregularities, while Noll analyzes the operation of professional sport clubs with particular attention to the effects of government policy on the financial performance of teams. Noll's major purpose is to consider whether the peculiar requirement of sports--that teams must not differ too greatly in playing strength if popular interest in any team is to be maintained--demands the special status sports enjoy as compared with government policy towards other forms of industry.

The pronounced increase in the overall number of franchises would seem to indicate the presence of high rates of return to management. Recent expansion clubs have generally been obtained at much higher prices than expansion teams of a decade ago, in spite of the fact that most recent expansion franchises are located in market areas which. generally would be less attractive than those acquired in earlier

periods of expansion (see Tables 2, 3, 4, 5, and 6). In 1962, for example, New York and Houston interests paid $3.75 million and $5 million respectively, for the right to field professional baseball teams in the National League. In 1969 investors in Montreal, Canada, and San Diego, California, paid $10 million each for that same right (Forbes, April 1, 1971).

Sources of Revenue

Professional baseball, as well as professional sports in general, is first and foremost a promoter of business and secondarily of sport. If they did not operate on a profit maximization principle, and continuously find total revenues to exceed total costs, all professional sports would follow in the footsteps of the defunct World Football League. A franchise is a firm and its goal is to produce revenue which will exceed costs and theoretically attain a point of profit maximization in a competitive market, where marginal revenue equals marginal costs.

The largest source of revenue for any major league club arises from the sale, either via tickets or broadcasting rights, of its primary product, the game. The stream of utility of the game can be divided into three parts: uncertainty of outcome, entertainment value, and the vicarious pleasure a consumer attains from relating to a "winner." Historically the potential audience has paid more to identify with a winning club (Demmert, 1973).

Other key sources of revenue include broadcasting rights to radio and television, concessions, stadium rental, marketing rights to club emblems, and the sale of player contracts. The value of each of these components increase as the stream of utility increases.

The cost function for profit maximization can be divided into two categories, costs associated with specific game items such as arena

operation, vendors, attendants, and those incurred in hiring, training and maintaining athletic talent.

Davenport (1969) attempted to calculate rates of return for the Baltimore baseball club, a moderately successful member of the American League. He arrived at a rate of return fluctuating from 10 or 11 percent in "bad years" to greater than 25 percent in "good years." It is interesting to note that over the four year period investigated by Davenport, Baltimore's yearly attendance was 969,000, only 35,000 more than the average for the entire American League. Furthermore, Baltimore's other major revenue source, broadcasting rights, has typically been below the league's average.

Team Quality and Profits

There are two plausible specifications of the individual franchises' objective function. It may act either as a profit maximizer within a given institutional and technological framework, or it may endeavor to maximize an objective function whose elements do include both profit and team quality. Jones (1969) has profit maximizing as entirely consistent with the behavior of the clubs in the NHL, and Koppett (1967) commenting on major league baseball points out that,"When a clear cut choice arises between more victories and more profit, the path toward more profit is chosen."

Demmert suggests a strong positive relationship between relative team quality and club profits. Since potential consumers derive utility from association with a winning team, then one would logically expect that demand for attendance would increase with increases in relative team quality. Furthermore, Demmert points out that since the potential audience for game broadcasts is also larger for a winning team, it

follows that the media's demand for radio and television broadcasting rights would also shift upward as team quality increased.

Broadcast Rights

As alluded to earlier the potential success or failure of a franchise hinges greatly on its ability to sell broadcasting rights. With the spread of television to 96 percent of United States households, televised sports has assumed an important role in American life. Correspondingly, radio and television broadcasts of professional sports have become a central part of the corporate planning of major league clubs.

Presently over 1,000 hours of sports are being broadcast annually. This constitutes over 11 percent of the total network time, and represents an increase of 100 percent in a 10 year period (Durso, 1971).

Revenues from television contracts have insured owners against financial losses regardless of a team's success in competition. Reacting to the impact of television revenue, Walter O'Malley, president of the Los Angeles Dodgers, stated ". . .My goodness, without the National Game of the Week program on N.B.C. many of our teams would be running in the red" (Johnson, 1970).

Network payments have risen from $3,250,000 to 18.8 million within the last decade. Also, live sport telecasts have created such interest in professional sports that attendance at sporting events has actually increased for each of the sports viewed regularly (Durso, 1971).

Horowitz identifies several impacts the broadcasting of major league events have upon major league franchises, two of which have particular significance with regard to franchise location and success:

(1) Franchise location decisions are influenced by potential broadcast revenues, to the detriment of areas with a small broadcast audience.

(2) The framework of sports broadcasting increases prices all along the line, including prices paid by sponsors, and to the extent that sponsors do not completely absorb higher advertising costs, by consumers.

Horowitz completed a statistical analysis of the relationship between the number of telecasts and baseball attendance. The results demonstrate that telecasts do not erode attendance at major league games, but in fact contribute to attendance by generating greater fan interest.

In 1970, a typical year with respect to home, away and total major league baseball telecasts, Horowitz identified a slight positive relationship between home attendance and the number of games televised by each of the 23 United States based clubs. This positive relationship reflects the fact that clubs in more populous areas televise more games and attract larger crowds.

Although the magnitude of the effects of fan interest and team performance on broadcasting revenues cannot be measured, they affect the size of the broadcast audience, which is of primary concern to sponsors. In view of the importance of broadcasting revenues to the clubs, the potential total audience can be a key influence in managerial decision making (Horowitz, 1974).

Several recent cases illustrate this influence. The Milwaukee Braves reached a high point of $.5 million for their 1963 local broadcasting rights. This fell to $.2 million in 1965 when the Braves had publicized their relocation to Atlanta. An important consideration in the move was the vast southeast broadcasting audience that could be reached by the Brave's sponsors. Indeed, when the Braves moved in 1966, they were guaranteed $1.2 million in annual rights fees, published reports in 1964 had alledged a five year, $7.5 million contract awaited. The 1961 shift of the original Washington franchise to Minnesota brought a three-year

contract that tripled revenues to $600,000. Similarly in 1967 the Kansas City Athletics received only $98,000 for television rights and a total of $165,000 for broadcasting rights. Oakland interests promised the Athletics a television contract worth $705,000 annually, and the Athletics subsequently moved to California.

Broadcast potential has also played a role in major league baseball expansion. The New York Mets entered the league in 1962 with a $1 million contract, and the Kansas City Royals began operation with a $650,000 contract that surpassed by $250,000 the best contract the Athletics had received in Kansas City. Similarly, San Diego began operation in 1969 with a three-year, $700,000 per year contract. The Houston Astro's began in 1962 with a $500,000 contract, but by 1965 it had increased to $1.8 million, the highest in baseball (Johnson, 1970).

Drawing Potential and Team Quality

The formation, relocation and abandonment of franchises reflects dynamic elements in the evolution of a viable league structure and must be considered if any analysis is to be valid. Quirk and El Hodiri identify several prominent elements, which reflect the dynamic nature of franchise success or failure. These include: changes in the size and distribution of population, technological advances, competition from existing or potential rival leagues, and of central importance, drawing potential.

They demonstrate that the early history of most major league franchises has been characterized by the movement of franchises away from smaller towns as public acceptance of the league grows. Much of the changes in franchise location over the past 30 years represents the expansion of leagues from regional to national organizations made possible by dependable air transportation and by the growth of population centers

on the west coast and in the southeastern sections of the United States. In contrast, potential competition accounts for the movement of professional baseball into Minneapolis and New York City. The constant movement of small city franchises during the past decade (i.e. Kansas City, Seattle, and Milwaukee) indicated that in a league's maturity, drawing potential is a primary factor in the movement of franchises.

Quirk and El Hodiri investigated the hypothesis that high drawing potential franchises have strong teams while low drawing potential franchises have weak teams. Key variables examined to determine the validity of this proposition included:

1) population of metropolitan area
2) percent of games won
3) franchises abandoned
4) franchises relocated
5) championships won

The results of their study indicate that the nature of the franchise relocation problem is in "supporting a losing team," from 1903 to 1970 every American League team with a losing record relocated. Using the championship-won variable as a measure of success, the record points out that in the American League the four largest cities won 49 of 68 championships or 72 percent; and in the National League the four largest cities won 41 of 68 or 60 percent.

This information supplemented by the history of abandonment of small town franchises and the records of championships won, offers some evidence of the relationship between drawing potential and playing strength. A fair appraisal would indicate clearly that small city teams have had little, if any, chance of surviving in professional sports. Furthermore, the highest drawing potential areas get more of their share of championships; and the championships-won population comparisons, though not conclusive tend to support the Quirk and El Hodiri hypothesis.

Elements of the Demand for Professional Baseball

It can be safely stated that no single factor could be considered as a total explanation of demand for professional baseball contests and subsequently franchise location. Rather, it would appear that a combination of elements are relevant in accounting for the spatial distribution of major league baseball frachises and would weigh heavily upon the potential success or failure of a particular location.

Defining the Variables

Determination of factors that ought to influence attendance at a major league baseball contest is a relatively easy task. The difficulty lies in grouping the elements into meaningful categories. For the purposes of this study, elements influencing the demand for major league baseball are to be divided in two specific groups: those extraneous to the sport, which stem from the general socio-economic and cultural climate prevailing; and those inherent in the business, over which the owner-managers working individually and collectively, can exert a direct measure of control or influence.

Demographic Factors

Of the outside forces that impinge upon major league baseball attendance, population of the home market merits considerable attention. Population is a primary factor in understanding demand. Therefore, it is anticipated that paid attendance is directly related to the population of the Standard Metropolitan Statistical Area (S M S A) as well as other demographic characteristics of its market.

Demmert (1974) points out that an additional one million residents within an S M S A is equivalent to an increase of attraction by about

40,000 per season. Although raw population figures are an important consideration, knowledge of specific socio-economic characteristics of the group at large would provide more insight into the general characteristics of those most likely to attend a major league baseball contest.

With this in mind, the racial composition of the metropolitan area is included as an element of professional baseball consumption. Professional team owner-managers have long regarded racial composition as an important factor in determining paid attendance. Industry sources believe that a smaller number of blacks are fans and some have argued that Caucasians attend less frequently if more blacks are in attendance (Scully, 1974).

A 1972 Harris survey indicated that the greatest direct consumers are males under age 35 and over age 50. This would seem to indicate that those involved with families are least likely to attend professional sporting events. In keeping with this line of thought it is apparent some identification of the age composition of a metropolitan area is needed to further explain potential attendance at a given site. Percent population over age 65 as an element of demand may not prove to be a powerful element of consumption as those previously identified. Nevertheless, it is included as this researcher believes some measure of age composition of metropolitan areas is desireable.

Economic Factors

In 1974 the average fan attending a professional sport contest spent $7.10 for a ticket, $.50 for the priviledge of parking and $.40 for concessions while at the event, for a total of $8.00 per person for approximately two hours of entertainment (Ball, 1975).

With both ticket prices and total attendance costs rising, one would have to expect an average fan within the market area to have a relatively high income. Their are numerous ways in which income might partially explain attendance. Inner city variations in per capita income reflect among other things, differences in industrial and employment structure, educational attainment and age and racial composition of the population. Per capita income tends to be higher in a city that is in the north or that has a large percentage of its workers in white-collar level occupations, more of its population of prime working age, or more college graduates. It tends to be lower in the south or in a city that has an abnormally large percentage of residents who have not finished high school, who are young, very old, or who work in blue-collar occupations.

In order to gain a complete picture of the income level of a particular area several measures will be examined. Among those measures will be the figure of Effective Buying Income developed by Sales Management. This figure is derived by subtracting federal, state and local taxes from personal income. It is generally equivalent to the federal government's "disposable income" and indicates the general ability to buy and is essential in comparing, selecting and grouping markets. It would seem that the amount of capital available would have a positive relationship to paid attendance.

By examination of retail sales, one gains a valid impression of the amounts of goods and services which are traded off within a market area. The greater the amount of total retail sales the greater the indication that residents are more inclined to spend their income in that location for all types of goods and services. These goods and services include the demand for major league baseball. Statistics demonstrate that more

individuals are willing to spend a higher amount to attend a sporting event in an area where the amount of retail sales is proportionately greater. Retail sales, therefore, must be considered a primary factor in determining whether an area has profit potential as an active major league baseball market (Sales Management, 1974). Other specific elements considered with regards to income and alluded to earlier include median household income, family income greater than $15,000 and less than $5,000 as well as average family effective buying incomes.

Employment Characteristics

Another factor that should affect attendance is the metropolitan area's employment structure. The interaction of two factors is herein considered. First, baseball tickets are relatively inexpensive, compared to other sports and forms of entertainment. Most baseball teams have some seats priced at or below $1.50, while very few teams in other sports have any seats priced below $3.00. Second, people in less physically exerting occupations may find the leisurely pace of baseball less attractive. If so, cities having relatively fewer high-paying white collar jobs, such as those associated with government would have significantly lower attendance than areas with a greater percentage of employees engaged in manufacturing or services. With this in mind, three elements of employment structure will be examined: percent employed in government service, manufacturing and wholesale retail. It is felt that these measures allow one the broad coverage needed to adequately represent the employment structure of contemporary urban areas.

Entertainment Competition

Another factor which should impact attendance is the amount of competition the franchise is exposed to. This is manifest in two forms. First, the number of major league baseball franchises in the metropolitan area, a factor which can be measured and will be included in this study. Second, the geographical location of the metropolitan area and its environs, which may provide a form of non-sport but definitely leisure time competition. However, this is very difficult to capture quantitatively. Population of area would seem to serve as a valid surrogate when one views non-sport entertainment competition as a function of size.

Factors Inherent in Major League Baseball

As previously stated there exist factors over which management has direct influence. Paramount among these would be a measure of a team's quality relative to other teams in its league. Several indices of team quality are available. Demmert used "games behind the leader" as a quality measurement. The number of star players is another, but a rather dubious method. Noll in his research has experimented with several methods including: playing success, championships won, percent of games won and games behind the leader. For purposes of this study, and consistent with the Quirk and El Hodiri proposition that success on the field leads to success at the gate, percent of games won will be the index used to capture the team quality element.

The stadium in which a team plays its home games can also affect total paid attendance. Two elements are involved here. First, a newer facility may attract fans because it provides a better view or affords greater comfort. Secondly, the capacity of the stadium imposes an

upper limit to attendance. It would be expected that the impact of this variable would be significantly greater in metropolitan areas with more than one franchise. Elements of each can be measured quantitatively, and the age of stadium will serve in the former instance, while stadium capacity will be applied in the latter.

Hypothesis

In their text McCarty and Lindberg (1966) state that: "A hypothesis should be considered simply as an analytical device, a purported explanation of the place to place variation which appears in a problem, stated in the form in which its validity can be tested and the extent of its applicability measures." This investigation is concerned with the distribution of professional baseball franchises. Thus an ideal hypothesis would assume the form: There is a significant relationship between the variation of paid attendance to major league baseball franchises within the S.M.S.A. and the variation in the following phenomena outside the control of the owner-manager:

Population
Effective buying income
Total retail sales
Percent White population
Percent population over age sixty-five
Percent population employed in wholesale/retail service
Percent population employed in manufacturing
Percent population employed in government
Percent of population with family income greater than $15,000
Percent of population with family income less than $5,000
Median household income
Average household effective buying income

as well as elements directly under the control of the owner-manager including:

Club won-lost percentage
Age of stadium
Capacity of stadium
Number of franchises located within the S.M.S.A.

Appendix A lists the sources of information for each variable.

CHAPTER THREE

THE MODEL: METHODOLOGICAL AND CONCEPTUAL CONSIDERATIONS

This study attempts to bring more unified and systematic thought to bear upon the problem of professional sport franchise location. Obviously, the basis for the distribution of franchises is the disposition of resources. Franchise owners seek to locate where earnings will be large and assured. There is justification in approaching the problem of franchise location by investigating the factors, as described in Chaptar Two, that determine the location of the franchises.

Hoover points out in his text, The Location of Economic Activity, that although some new locations may offer greater income potential than sites presently occupied, firms will not necessarily relocate. Hoover cites several obstacles which must be overcome if a firm is to successfully relocate or expand to a near site. All of these have significance for the professional sports industry.

A major obstacle is the lack of sufficient knowledge upon which to make a rational decision. Specifically, the client may be unaware of the superior prospects of another location. Secondly, he may be under some artificial constraint, i.e., stadium rental or contract. Also, many times both private and social interests are best sensed by continued operation at a location that may be "obsolete" on a total cost basis as long as no extensive renewal of capital facilities is needed.

The location of economic activity is by no means a haphazard occurrence, and of course this holds true for the professional sports industry as well. The element of competition from both within and without professional sports will reward and encourage well located clubs and eliminate poorly located franchises, as witnessed by the 27 failures previously cited. Even if new franchises were to be located purely by whim, and if they were never relocated, some semblance of a reasonable pattern would emerge on the basis of competition alone.

Therefore, in the location of professional sports franchises as well as economic activity in general, it is not necessary to have both competition and wise business planning to exhibit rational locational patterns. However, each method has shortcomings and a combination of each seems desireable. Competition among poorly informed firms implies that many new clubs are destined to fail, entailing a vast misallocation of resources. On the other hand, an attempt to plan and administer the geography of the professional sports industry without the stimulus of competition shows little promise in the absence of a degree of information and foresight far beyond our present experience (Hoover, 1948).

As Nourse points out, geographical patterns of economic activity are not static, but change with time. In order to analyze the changes, one must first be able to measure them. In order to measure activity in a place, the site must be bounded and hence defined. For the purpose of this study, measurement and subsequent change will be based upon the Bureau of Census' Standard Metropolitan Statistical Areas (SMSA). All of this ordering is necessary if there is to be an effecting of a rational decision-making mechanism for future franchise locations.

Method

The sample consists of 91 SMSA's all measured on 12 socio-economic, externally related parameters. The sample is divided into two groups. Group one consists of those SMSA's (20) measured over a five year period between 1970-1974 which are the home market for a major league professional baseball club, termed franchised SMSA's. The remaining 71 SMSA's, arbitrarily selected on the basis of population, do not posess a major league baseball franchise and are termed non-franchised SMSA's.

As well as the 12 external parameters, four internal or baseball related variables will also be analyzed, however, data for the internal variables only exists for the 20 franchised SMSA's.

The goal is to build projections for the 71 non-franchised SMSA's. This is to be accomplished by a factor analyzing of the 12 internal variables to discern patterns which will be good predictors for attendance. Factor scores will be written for each case and those determined significant will be utilized with the internal variables in a regression equation based upon the franchised SMSA's with attendance serving as the dependent variable. The slopes and constants derived from the regression analysis are combined to build a prediction equation from which attendance figures will be generated for the 71 non-franchised SMSA's.

Factor Analysis

Given the nature of the data utilized in this study, factor analysis seemed a logical choice of the techniques available. With 12 variables and 171 observations, it was necessary that the techniques chosen be capable of handling large amounts of data. Factor analysis has that capability. As Nie, Bent, and Hull (1975) state:

> The single most distinctive characteristic of factor analysis is the data reduction capability. Given an array of correlation coefficients for a set of variables, factor analysis techniques

> enable us to see whether some underlying pattern of relationship exists such that may be 'rearranged' or 'reduced' to a smaller set of factors.

With data as highly correlated as socio-economic variables, it is necessary to employ a technique in which the assumption of interdependence is unnecessary. Factor analysis requires no such assumption.

In factor analysis, one may begin by considering the data matrix. The initial step of factor analysis involves calculation of a correlation matrix from the data. In this step each variable is correlated to every other variable to determine their relationship. Coefficients of correlation are derived which express the linear relationship between row and column variables of the matrix. It is possible that some discernible pattern or regularity can be derived from a perusal of this correlation matrix. Normally, however, the principal means of analysis will be the principal components or varimax solutions of the next phase in the factor analysis sequence. Principal components analysis is performed on the correlation matrix to determine major patterns of data. If this is viewed geometrically, each observation would be defined as a coordinate axis of geometric space, and each characteristic of the observation would be considered as a point located according to its value for each SMSA. These observations and characteristics are defined on the basis of a cartesian coordinate system. By laying out lines from the origin to each characteristic vector representations of the data are derived. The angle between the vectors so obtained represents the relationship between the characteristics and the observations. The configurations of these vectors will be representative of the interrelationships of the characteristics. Characteristics highly interrelated will cluster together and these clusters will be indicative of the patterns

that exist. Each cluster will be defined by a factor, which is located in vector space by weighing each vector equally and fitting the factor in a gravity like situation. By determining the relationship of each characteristic to each factor, a value known as a factor loading is derived. These loadings can be used to determine the strength of the relationship between the characteristics and the factor.

In the principal axis solution, factors maintain a 90 degree separation and each variable loads on each factor; hence, this solution may not precisely delimit the patterns that exist. In order to achieve the maximum clustering of selections the orthogonal factors are normally rotated. By subjecting the orthogonal factors to varimax rotations, it is possible to obtain separation of variables so that a limited number of variables are loading on each factor. Having utilized varimax rotation, the eigen values can be examined to obtain a notion of which clusters of characteristics are accounting for the greatest proportion of the variation in the number of professional teams per SMSA.

In order to obtain some concept of how each individual observation is relating to the factors derived, the factor scores are analyzed. Factor scores are weighted measures of the way an observation rates with a factor. Thus, factor scores can be used in scaling observations and in mapping them according to each individual factor derived in the analysis. The factors that are obtained are composites or clusters of elections. By mapping the factor scores, it is possible to differentiate within each factor as to the strength of the relationship of individual SMSA's to each factor or cluster of selections.

Factor analysis can be employed in a deductive approach involving the hypothesis of the existence of particular dimensions and factor analysizing the data to see whether these dimensions emerge. It has

been hypothesized that the ability of an SMSA to support a major league baseball franchise is dependent upon its population and economic viability. Therefore, both population and economic factors should emerge in which variables measuring aspects and functions of both demographic and economic indicators cluster. Furthermore, it will be interesting to note whether major league baseball franchise location is associated with more than one cluster of variables.

Although results from the factor analysis could be considered as final output, the factors will be utilized as inputs into the final analysis. This will entail usage of conceptual socio-economic "factors" as independent variables and regressed against the dependent variable paid attendance.

Correlation-Regression Analysis

A regression model is appropriate for situations wherein a functional relationship is postulated. When using regression analysis, one is faced with selecting independent variables which may serve as a surrogate for a set of highly related variables. Regression analysis does partially account for interrelationships of variables though partial correlation coefficient, but assumes that "independent" variables are in fact independent.

Adelman and Morris in their text, Society, Politics and Economic Development: A Quantitative Approach, indicate concisely the difference between regression analysis and factor analysis.

> Technique of factor analysis shares certain characteristics with both non-quantitative comparative studies and statistical regression analyses. In essence, it is equivalent to a systematic application of comparative studies which simultaneously test a large number of ceteris paribus propositions.

> As in regression analysis, factor analysis breaks down the original variance of a variable into variance components associated with the variation of a set of other quantities. In regression analysis, the variable whose variations are decomposed in this manner is known as the dependent variable, and the variables that account for different portions of its variation are the independent variables. In factor analysis, all variables are dependent and independent in turn. Thus, by contrast with regression analysis which is a study of dependence, factor analysis is a study of mutual interdependence (Adelman and Morris, 1967).

The ultimate goal of science is that of prediction. A primary function of regression analysis is to find the best linear prediction equation and evaluate its prediction accuracy.

This technique is an appropriate test of a hypothesis which states that variations in the magnitude of the problem (dependent) variable are related mathematically to variations in the magnitude of several other, explaining (independent) variables. It represents a test of spatial association. The multiple regression equation is of the form:

$$Yc = a + b_1 x_1 + b_2 x_2 + b_3 x_3 \ldots + b_N x_N$$

Since the hypothesis of this paper is concerned with spatial association and is stated in similar form, the regression technique is applicable. From the regression analysis, three types of coefficients will be obtained. Robinson, Lindberg, and Brinkman describe these three as 1) a coefficient of correlation (r) which describes the degree of association between two variables; 2) a coefficient of multiple correlation (R) which describes the degree to which three of more variables are associated, and 3) the coefficient of partial correlation, again describes the degree of association between two variables, but accomplishes this by holding other variables which may be interrelated, constant. All of these represent summary measures for the entire study and are used to describe the degree of a real association among selected

variables to test the validity of hypothesis formed for the research project.

As Robinson, Lindberg and Brinkman state, the value of R is a "numerical description of the linear association between the dependent variable and all the independent variables included in its computation." Implied in this statement is the basic assumption that a linear relationship exists between variables.

Interpretation of the Factor Analysis

The results of the factor analysis are summarized in the matrix of common factor coefficients presented below.

TABLE 3

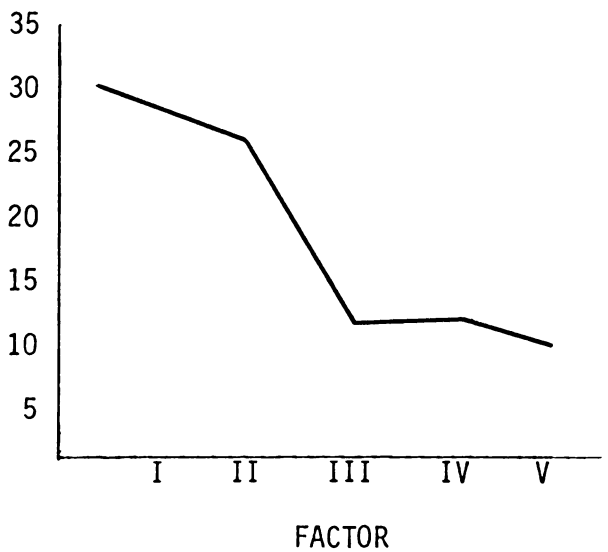
VARIMAX FACTOR LOADING MATRIX

Variables	Factors				
	I	II	III	IV	V
1. Population		.9878			
2. Effective Buying Income		.9834			
3. Total Retail Sales		.9843			
4. Percent White				.8167	
5. Percent Over Age Sixty-Five				.7319	
6. Percent Wholesale/ Retail Employment			.9478		
7. Percent Government Employment					.9568
8. Percent Manufacturing Employment					-.7888
9. Income Greater Than $15,000	.9317				
10. Income Less Than $5,000	-.8750				
11. Average Effective Buying Income	.9734				
12. Median Household Income	.9749				

The factoring of the correlation matrix produced five factors (Table 3) that accounted for 91 percent of the total variance of the data.

TABLE 4

PERCENT VARIANCE PER FACTOR



As Table 4 indicates, factor I accounts for 30 percent of the variability in the data. The characteristics having their highest loadings in factor I are personal income greater than 15,000 dollars, average effective buying income, medium household income and personal income less than 5,000 dollars.

More specifically, factor I may be interpreted to represent both high individual and family income levels. The low negative loading of family income below 5,000 dollars helps reinforce the high income nature of this factor.

High positive factor scores were considered characteristic of sufficient income levels to support professional major league baseball, while low negative values were indicative of areas lacking necessary

individual and family income to warrant a major league franchise.

It is interesting to note, however, that 44 percent of the observations of franchised SMSA's recorded factor scores with negative values. Further, of the 20 franchised SMSA's, only two, Detroit and Chicago, recorded positive values for each of the five years examined. Clearly, it would appear that the income factor can be discounted as a significant force in attracting franchises and positively impacting attendance.

Factor II accounts for 26 percent of the variability in the data. The socio-economic indicators with their highest loadings on factor II are SMSA, population, effective buying income, and total retail sales.

In particular, the pattern of associations incorporated in factor II is strongly suggestive of size and economic viability. This factor is termed "economic strength." Clearly suggesting strong relationship between the presence of a franchise, or at least the potential to support a franchise with the population of the SMSA, related buying power index and spending rates.

An examination of both franchised and non-franchised SMSA factor scores provides further insight into the relationship between factor II (economic strength) and franchise location.

TABLE 5

ECONOMIC STRENGTH AND POPULATION

SMSA	POPULATION RANK	FACTOR SCORE RANKING	ECONOMIC STRENGTH	NUMBER OF BASEBALL FRANCHISES
New York	1	1	4.01484	2
Chicago	2	2	2.06416	2
Los Angeles	3	3	2.16346	1
Philadelphia	4	4	1.06654	1
Detroit	5	5	.7449	1
San Francisco	6	6	.53812	2
Boston	8	7	.43736	1
Dallas	10	13	-.2547	1
St. Louis	11	8	.08826	1
Pittsburgh	12	9	.06356	1
Houston	13	12	-.14958	1
Baltimore	14	10	-.0312	1
Cleveland	16	11	-.14334	1
Minneapolis	17	17	-.36202	1
Atlanta	18	18	-.38614	1
Anaheim	19	19	-.55216	1
San Diego	20	15	-.35282	1
Milwaukee	21	16	-.35840	1
Cincinnati	23	13	-.33088	1
Kansas City	27	14	-.33942	1

Table 5 depicts the relationship of population ranking to factor score generation. As would be expected, there is a direct correlation.

However, factor II values take a definite decline for the 7 least populated SMSA's. It is interesting to note that 9 non-franchised SMSA's record higher factor II values than Cincinnati's .33088, also Seattle, the new site for the 1977 season, is not among them. Of the seven franchise cities in question, Minnesota, Milwaukee and Kansas City have previously lost franchises while Anaheim, San Diego and Atlanta have publicly discussed relocation several times. Only Cincinnati qualifies as a deeply entrenched, highly successful operation.

Of the non-franchised cities scoring higher than the seven lowest franchised SMSA's, five (New Orleans, West Palm Beach, Miami, and Birmingham) are located in geographical areas where climate is a limiting factor. However, technology in the form of domed stadiums makes these areas prime possibilities for future consideration. Nassau-Suffolk, New York, Riverside, San Bernadino-Ontario, and Newark also qualify as strong candidates. Washington, D.C. completes the list of high "economic strength" scoring non-franchised SMSA's.

In reference to economic strength, it appears that Washington, D.C. is an anomaly. Its factor score of .4659 is higher than all but the six largest franchised SMSA's yet Washington, D.C. has lost more franchises than any other SMSA. Clearly there is more at work than economic strength. It seems that Washington, D.C.'s unique position as our nation's capital demands that the national pastime be located within the SMSA, but by its very nature, eliminates or at least restricts opportunity for success.

Generally, it would appear that a high factor II score points to potential in terms of socio-economic criteria needed to support a professional baseball franchise. Factor III is unique in that only one variable (percent wholesale/retail) recorded a value of (.9478) above

the .70 cut-off level. Factors with more than one variable loading highly are termed common factors. Common factors account for the variables' intercorrelations, whereas unique factors represent that portion of a variable not accounted for by its correlations with other variables in the set.

Factor III termed "services" accounted for approximately 12 percent of the variability in the data. Generally, franchised SMSA's recorded negative values on this factor, which reflects the high percentage of employment involved in manufacturing common to many of the franchised SMSA's. Positive scores on factor III were restricted almost exclusively to the south and west, areas of more recent and expanding urban development. This regional shift in population and employment structure is reflective of the everchanging nature of our urban areas. It would seem at this point that employment structure would be a significant measure of a community's ability to support a professional sport franchise. Furthermore, relatively large population percentages employed in manufacturing and services would be preferable to similar percentages employed in governmental service or high percentages of retired individuals.

Factors IV and V, termed Retirement and Governmental Service, contributed 23 percent of the total variability of the data. The percent of population over age 65 was perceived as an important element with regards to the presence or absence of professional baseball franchises. However, upon examination of the factor scores this does not appear to be the case. Only four franchised SMSA's recorded positive values for this factor and it is evident that population percent over age 65, as a causal factor is of little consequence. The emergence of this factor appears to be a function of the type of data analyzed, as opposed to its

relationship to successful franchise location.

Factor IV, termed "WhiteCollar/Government Service," though contributing over 13 percent of the variability does not significantly add to the analysis. At this point, it appears that high percentages of government employment would work against successful franchise location. The primary example being the case of Washington, D.C. The nation's capital ranks eighth in total population and seventh in economic strength, yet it has lost two baseball franchises in the last 25 years. Conceivably, this may be attributed to the unusually high percentage of residents employed in governmental service. Both San Francisco and San Diego also recorded high values on factor V. Although they have not yet lost a professional baseball franchise, they rank well below the league average paid attendance mark and have discussed relocation openly on several occasions.

Summary

In summary, the original 12 socio-economic variables analyzed were reduced by approximately 60 percent to five conceptual variables. These conceptual variables retained over 91 percent of the original information found in the total matrix. Although results from the factor analysis could be considered as final output, the conceptual variables will be utilized as inputs into the final analysis. The conceptual variables determined in this analysis and the factor scores generated provide one of the basic inputs into the analysis of socio-economic structure and professional baseball franchise location.

CHAPTER FOUR

THE MODEL: ANALYSIS AND RESULTS

Implementation of factor analysis and the subsequent delineation of conceptual variables solidifies the hypothesis, making it necessary to restate it at this point. Thus the revised form appears as:

H_1

There is a significant relationship between the variation in the attendance of major league baseball (Y) and the variation in:

- X_1 Economic Strength (Factor II)
- X_2 Government/WhiteCollar Employment (Factor III)
- X_3 Percent of Games Won (PCT)
- X_4 Number of Baseball Franchises in SMSA (MULT)
- X_5 Stadium Capacity (CAP)
- X_6 Age of Stadium (AGE)

The null hypothesis becomes:

$$H_0 \quad R = 0 = b_1 + b_2 + \ldots b_6$$

Testing for significance was accomplished at the .05 level of confidence

The systematic evaluation of the hypothesis is an integral part of the problem solving process. As McCarty and Lindberg have recognized: "The test of any hypothesis, whether simple or complex involves measuring the degree to which the hypothesized distribution matches the problem distribution," (McCarty, Lindberg, 1966).

The primary activity is to compare two sets of values Y and Yc. The former represents the actual magnitudes of paid attendance for major league baseball franchises. It is the problem distribution as well as the dependent variable. These are the values that are computed for "Y locations" on the basis of the dependent variables. If one formulates a completely accurate hypothesis, the magnitude of all occurences of Y are exactly equal to the magnitudes of Yc at those same locations.

Before a comparison of this nature can be made the Yc values must be calculated. The method of calculation used in this study is a combination of standard multiple regression and stepwise procedures. Through the use of this routine a candidate for inclusion into the equation is selected from among all those independent variables not yet included in the equation. The variable selected is that independent variable which will reduce unexplained variance around the mean of the dependent variable the most. Conversely, the selected independent variable is that one which will raise the coefficient of determination ($_r2$) the greatest.

The regression analysis was completed with the franchised SMSA's over the five year period from 1970-1974. The stepwise procedure was utilized with a minimum F at .01 and the tolerance to enter at .001. Both stadium capacity and age of stadium were eliminated at this point, as they failed to meet minimum levels for inclusion. However, a conceptual variable was created which did meet minimum levels for inclusion.

The interaction between percent of games won and factor III (PCT/FS III) was calculated and included in the final regression equation.

Simple coefficients of correlation (r's) were computed between each variable and every other variable. The result appears in Table 6.

TABLE 6

SIMPLE COEFFICIENTS OF CORRELATION

Attendance	1.00000					
Economic Strength	.67443	1.0000				
Government/White-Collar Employment	-.20127	.04054	1.0000			
Won-Lost Percent	.53987	.19490	-.05315	1.0000		
Number of Franchises	.29917	.66752	.16529	.22077	1.00000	
FS III/PCT	-.22146	.04749	.98672	-.03982	.19621	1.00000

The values of (r) describe the degree of correlation between any two variables. This model also measures the strength of the univariate relationship between the dependent variable and each independent variable. Additional utility is derived from these coefficients when they are used to obtain estimates of the necessary regression coefficients. Substitution of these coefficients in the regression model results in the following equation:

Attendance = -316614.28 + 330360.25 FSII + 2843.17 PCT - 339865.62 MULT - 1192.33 FSIII/PCT + 465389.70 FSIII

The preceeding equation is a generalized description of the manner in which the five hypothesized independent variables are related to the distribution of attendance for major league baseball franchises when considered simultaneously. Since it is a generalization, its value in description and prediction depends upon how accurately it "fits" the

actual distribution of attendance. In order to obtain a measure of its "fit", it is necessary to consider another correlation coefficient, the coefficient of multiple correlation (r).

As Robinson, Lindberg, and Brinkman have indicated, ". . . the meaning of R is similar to that of Y in that it is a numerical description of the linear association between the dependent variable and all the independent variables included in its computations" (Robinson, Lindberg, and Brinkman, 1961). In this instance R assumes the value of .86157 (significant at the .005 level). The critical level of the correlation coefficient (r) with 90 degrees of freedom is .267 (Fisher, Yates, 1952). Clearly this relationship is not likely to occur by chance and on the basis of the significance of (r) one can confidently reject the null hypothesis presented previously. It is obvious that an association exists between the spatial variation of baseball attendence and the spatial variation of the five independent variables.

A more accurate indication of the extent of this association can be gained by squaring R to compute the coefficient of multiple determination (r^2). The r^2 value of 0.74320 indicates that approximately 74 percent of the actual problem distribution is accounted for by the regression equation (hypothesized) distribution. To more clearly understand the effect of the five independent variables upon the problem distribution, each variable is examined individually. Table 7 illustrates this relationship and Table 3 identifies individual variables grouped together to form the conceptual factors.

TABLE 7

CHANGE IN THE COEFFICIENT OF MULTIPLE DETERMINATION

VARIABLE	R SQUARE	CHANGE IN R SQUARE
FSII	.45486	.45486
PCT	.62826	.17340
MULT	.69406	.06580
FSIII/PCT	.72615	.03029
FSIII	.74230	.01615

The r^2 for FSII is .45486. The simple squared correlation (r^2) between the dependent variable (attendance) and FSII is also .45486. When PCT is added to the equation r^2 becomes .62826. Prediction is improved by approximately 17 percent through the addition of PCT. Similarly as MULT is added to the equation, r^2 increases to .69406, the addition of MULT to the equation has accounted for an additional .06580 of the variation in attendance, improving prediction accuracy by 6.58 percent. FSIII/PCT increases r^2 to .72615, a gain of 3.21 percent. With the addition of FSIII the previous value is increased by .01615, r^2 is now equal to .74230. As Table 7 illustrates the addition of new variables to act on the variation left unexplained by those already in the equation add less and less to the prediction accuracy of the equation.

Interpretation of Predicting Variables

It is not surprising that "economic strength" (FSII) emerges as the most potent "explaining variable". As the factor analysis suggests, franchise success and economic strength variables co-vary. Therefore, one would expect a strong relationship between an SMSA's economic strength and the success potential of a professional baseball franchise

located in that region.

Further evidence of the impact of economic strength as a factor influencing attendance is evidenced by the fact that in 1971 four major league franchises finished thirty or more games behind the eventual league champion. Only one, Philadelphia, drew more than one million fans. The Philadelphia SMSA contains nearly five million residents and registered a factor II score of 1.2387. All the other franchises are located in SMSA's with populations less than three million and significantly smaller scores on factor II.

Given the negative correlation between attendance and government/white-collar employment, baseball appears to attract the working class fan. Two factors may account for this negative relationship. Baseball tickets are relatively inexpensive compared both to other sports and other forms of entertainment. Also, individuals employed in less physically exerting occupations may find the sedate pace of baseball less attractive. If so, cities having relatively more higher paying white-collar jobs would have lower attendance figures. Both factors are related to the suggested long term decline in the popularity of baseball. Increased government and white-collar employment levels are associated with both a declining sensitivity to price differentions among entertainment options and a smaller relative number of persons in physically exerting occupations (Seymour, 1971).

Won-lost percentage apparently has a strong effect upon attendance during the season, but even a greater effect upon the attendance of succeeding years. If a highly successful team can increase season ticket sales by only 2,500 for the following year that will net an increase of over 200,000 in paid attendance for the season. Further, this suggests as Noll (1974) points out, that team attendance will

be sustantially higher if several teams alternate winning seasons than if one team tends to dominate.

Beta Weights

Because our attention is focused upon prediction rather than measures of degrees of relationship the Beta weights were selected for analysis and appear in Table 8. Beta weights indicate how much change in the dependent variable is produced by a standardized change in one of the independent variables when the others are controlled.

Analysis of Beta weights enables one to simplify the linear regression equation. Furthermore, when there are two or more independent variables measured on different units (such as economic strength in factor scores and team quality in winning percentage) standardized coefficients may provide the only sensible way to compare the relative impact to the dependent variable of each independent variable (Nie, et al., 1975).

TABLE 8

BETA WEIGHTS

Variable	Beta Weight
FSII	.77094
PCT	.44936
MULT	-.25465
FSIII/PCT	-.98045
FSIII	.80087

Blalock, in discussing the relationship between the unstandardized equation and the Beta weights points out that:

> The partial correlation is a measure of the amount of variation explained by one independent variable after the others have explained all they could. The beta weights, on the other hand, indicate how much change in the dependent variable is produced by a standardized change in one of the independent variables when the others are controlled. (Blalock, 1972).

In this study the standardized equation would take the following form:

Attendance = .77FSII + .45PCT -.25MULT -.98FSIII/PCT + .80FSIII

Thus, a change of 1 unit in FSII, with the other independent variables remaining constant would produce a change of .77 standardized units in attendance. For the first time one gains insight into the actual impact each of the independent variables upon attendance. Further it is clear for the owner-manager as to which areas he may allocate resources to maximize attendance.

Residuals from Regression

Thus far, none of the measures used in the analysis has indicated the spatial variations in the degree to which the regression equation fits the actual distribution of baseball attendance. As indicated in the initial portion of this chapter, a comparison of the distribution of Y and Yc is a key feature of an analysis of this type. To accomplish this task residuals from regression must be considered. Such a residual may be defined as: "that part of the magnitude which a phenomenon reaches within a given area which is independent of the areal association between the given phenomenon and the other factors included in the investigation" (Thomas, 1968).

In this analysis residuals were determined by subtracting Yc from Y. It should be noted that negative residuals are cases where the regression equation overestimates the value of Y and the positive

residuals are cases where the equation underestimates the value of Y. The residuals from the regression analysis appear in Appendix B. Only five SMSA's fall outside one standard error and none fall beyond two standard errors. However, in four of the five cases this error may be explained by the completion of a new stadium, the fifth case being Washington, D.C.

CHAPTER FIVE

THE MODEL APPLIED: IMPLICATIONS AND FUTURE DIRECTIONS

The preceeding statistical results have important implications for the expansion and relocation of major league baseball franchises. Within the industry a common rule of thumb is that a franchise needs to attract approximately 850,000 fans to its home games in order to break even. Noll (1974) points out that a franchise needs to attract one million spectators if it expects to earn a modest profit of $100,000 - $200,000. This appears to be the minimum level of profit necessary for a profit oriented franchise to remain in an SMSA.

It is assumed that the predictive model can be generalized to non franchised SMSA's, that the regression coefficients remain stable over time and that general ceteris paribus conditions hold. To apply the predictive equation to the non franchised SMSA's, PCT is set to equal .500 and MULT is set to equal zero. The resulting equation takes the following form:

Estimated Attendance = -316614.28 + 330364.25 FSII
+ 465389.70 FSIII + 2843.17 (PCT 500) - 1192.33 FSIII/PCT.

The above equation represents the actual relationships between attendance at major baseball contests and the hypothesized independent variables identified in this study.

Viability of Non-Franchised SMSA's

Estimated attendance figures for the 71 non-franchised SMSA's are generated from the prediction equation and appear in Appendix C. Of the 71 SMSA's investigated only 10 generated attendance figures larger than the suggested figure of 1,000,000 which represents profit-making. Table 9 lists these SMSA's and provides their estimated attendance figures.

TABLE 9

PRIME SMSA's ESTIMATED ATTENDANCE

SMSA	ESTIMATED ATTENDANCE
Tampa - St. Petersburg	1,127,127
Newark	1,113,237
Miami	1,106,545
Tulsa	1,040,913
Greenville - Spartanburg	1,040,411
Nassau - Suffolk	1,038,592
Greensboro - Winston Salem - High Point	1,034,995
Allentown Bethlehem - Easton	1,033,490
Birmingham	1,019,824
Youngstown - Warren	1,013,722

As Table 9 illustrates, only Tampa - St. Petersburg, Newark, and Miami stand out as prime future franchise locations. The Tampa - St. Petersburg SMSA generated the greatest amount of estimated attendance and with the recent placement of an NFL franchise there, they have already attained major league status. However, baseball operates under a different set of constraints than does professional football, and a successful football franchise is no indicator that a major league

baseball franchise will also be successful.

One of the elements not investigated in this study that definitely impacts the potential success of Tampa - St. Petersburg as well as Miami as a viable location site is summer rainfall. Traditionally baseball is played out-of-doors during the summer months. During this period both Tampa and Miami experience large amounts of rainfall. The combined total of rainy days during the months of May, June, July, August and September for Tampa and Miami equal 82 and 99 days respectively. Table 10 illustrates mean rainfall for both SMSA's during the baseball season.

TABLE 10

SUMMER MEAN RAINFALL
Miami, Tampa - St. Petersburg SMSA's

	Miami		Tampa - St. Petersburg	
	Mean Rain-Fall (Inches)	Number of Rainy Days	Mean Rain-Fall (Inches)	Number of Rainy Days
April	3.60	6	2.00	8
May	6.12	10	2.41	15
June	9.00	15	6.49	18
July	6.91	16	8.43	20
August	6.72	17	8.00	20
September	8.74	18	6.35	18
Total	41.09	82	33.68	99

Source: Statistical Abstract of the United States, 1976.

The information presented in Table 10 clearly illustrates the potential problems summer rainfall would have upon both Tampa - St. Petersburg and Miami and reduces their attractiveness as a viable location site. It is doubtful that a major league baseball franchise would locate in

an area with such high potential for summer rain without the benefit of a domed stadium.

When attention is focused upon two prominent facts, the Newark - Patterson area emerges as the "ideal" location for either an expansion or relocation major league baseball franchise. The first fact is that Newark is bordered by two other potentially strong non-franchised SMSA's. Paterson - Clifton - Passaic, located directly north of Newark generated an estimated attendance of 980,979. While Jersey City, situated to the east, was estimated at 972,019 by the prediction equation. When these figures are combined with the 1,113,237 predicted attendance figures for the Newark SMSA, the area's potential for a successful franchise location becomes apparent. Secondly, the regression equation discussed in Chapter four underestimated the potential of the New York SMSA to support yet another major league baseball francise indicating even greater potential for that particular region. When combined, these two facts further enhance Newarks position as the ideal site for future major league baseball franchise location.

If one accepts the one million attendance level as a minimum for a profit-seeking franchise, very few franchised SMSA's exhibit the potential to support an additional major league team. As previously mentioned the New York City SMSA could probably support one more franchise as well as the Dallas - Fort Worth SMSA. Certainly, though, the success of these sites would be a function of subsequent league expansion and/or the relocation of other franchises within the league.

SMSA's which are often mentioned as potential franchise locations include: New Orleans, Denver, Indianapolis, Memphis, Phoenix, Washington, D.C., Seattle and Buffalo. Results of this study indicate that these

SMSA's are for the most part on the borderline of viability and would not be able to support a profit seeking major league baseball franchise (Appendix C).

The regression Analysis further indicates that Cleveland, Baltimore, Minneapolis - St. Paul and San Francisco - Oakland, under present operating conditions are not viable franchise locations. This is further evidenced by the fact that all franchises located in those SMSA's record low attendance figures relative to league averages. It is therefore extremely likely that if relocation is to occur, at least one of these SMSA's would be involved.

The Seattle Situation

As previously stated, Seattle does not appear to be a viable site for the location of a major league baseball franchise. Nevertheless, it has been awarded a franchise for play during the 1977 season. Seattle is both a present and a former franchise site, and is predicted to be on the borderline of viability with an estimated attendance of 909,671. Under normal circumstances Seattle would be considered deficient in terms of economic strength (FSII) to support a franchise, but it has the advantage of access to a large regional broadcasting audience as well as being located in close proximity to another metropolitan center, Tacoma, which was estimated to have generated an attendance of 662,031 by the prediction equation. Certainly these combined factors could contribute to the successful location of a major league baseball franchise in the Seattle SMSA. A further consideration, which may reduce the area's potential to generate the predicted value, is the fact that as an expansion franchise it is not likely Seattle will register a won-lost percentage of .500. Therefore, it is fairly safe to assume in this instance that the predicted

attendance is an inflated figure. The fact that the Seattle franchise will play in a newly constructed domed stadium could offset the negative effect of a poor won-lost percentage. This fact and the novelty of a major league baseball franchise will increase attendance, but again the limiting factor will be the quality of the team as evidenced by the won-lost percentage, and as the novelty wears off, attendance will decline.

Gate-Sharing Arrangements

Noll (1974) discusses expansion and points out that expansion prospects for major league baseball are quite dim. He attributes this to the gate-sharing arrangement presently in effect in major league baseball. The current arrangement mandates that the home team retains 80 percent of the gate receipts in the American League and 90 percent in the National League.

If attendance revenues were divided equally, substantial expansion would be possible. Even if this resulted in smaller home attendance figures and smaller broadcasting revenues for franchises in the smaller SMSA's, they would still be in a better position to register profits due to a reduction in the significance of the economic strength factor (FSII) and an increase in the revenue generated by road games.

SMSA's Motives for Franchise Location

As stated in Chapter One, 29 major league sport franchises have failed since 1970. This could lead one to believe that there is a limit to the number of major league franchises the United States can support. This thought is further reinforced when one considers that of the 24 major league baseball franchises in existence in 1976, only nine claimed to have made a profit during the 1976 season. Those claiming a

profit include: California (Anaheim - Garden Grove), Cincinnati, Houston, Kansas City, Los Angeles, Milwaukee, Montreal, Philadelphia, and San Diego (Block, 1977).

Block acknowledges that more major league baseball franchises are now, or soon will be, placed on sale than at any time in recent memory. He attributes this to both increases in players' salaries and operational costs. Nevertheless, large metropolitan areas continually attempt to attract a major league franchise.

In a recent study completed by the University of Pittsburgh and the Pittsburgh Chamber of Commerce, Civic pride and community self interest were identified as dominant factors in explaining an SMSA's desire to attract a major league baseball franchise. The study indicated that major league baseball contributes $21 million to the economy of the Pittsburgh SMSA. Further, the Pittsburgh franchise attracts 560,000 people from outside Allegheny County to the central city for the purpose of attending major league baseball games. Each visitor spends an average of $5.77 in downtown Pittsburgh after each of the 81 home games. Finally, visiting teams contribute $400,000 to the areas restaurants and hotels, (Mulloy, 1977).

It is clear that the benefits which accrue to an SMSA as a function of the location of a major league baseball franchise are significant and many. It is also obvious the owner-manager of a major league franchise risks large sums of money with each location decision. If for no other reason it is critical that the owner-manager have complete and reliable information before such a decision is reached.

Areas for Future Research

A major purpose of this study is to bring more unified and systematic thought to bear upon the problem of major league baseball franchise location. This study increases the amount of available knowledge from which rational decisions may be made, but due to the dearth of such previous studies can only be viewed as a beginning. In the course of examining the major league baseball location problem, several questions not addressed in this study need to be confronted in future research. The first, and probably most important question would be that of the relationship of ticket prices to attendance. In a management situation that features both an inflated dollar and rapidly rising costs the current or future major league baseball owner is obviously going to have to face the question of increasing ticket prices. This fact makes the variable of ticket pricing a most important element for future consideration. The influence of this variable is very difficult to capture in that there is always present an extremely wide range of ticket prices at any one given event. This problem is further compounded by the fact that a plethora of promotional inducements tend to widely distort both attendance figures and the effect of price upon the marketplace.

A second question worthy of future consideration would be that of the quest for the ideal stadium location. This problem has long haunted major league baseball owners, and yet at present there appear to be only two viable alternatives to this problem, either a downtown or a suburban location. Remarkably, virtually no research has been published in this problem area of stadium location, although it is commonly agreed that stadium location can be a most important component in the decision-making process of a potential spectator.

Another question area for future consideration would be that of season ticket holders. Season ticket holders are a most important element in the potential success or failure of a major league franchise. Although they may be a small figure when compared to stadium capacity they become an important element when received as guaranteed spectators for all 81 home games. But beyond this consideration is the fact that little research has been published delineating, in-depth, the socio-economic characteristics of major league baseball season ticket holders. Such a series of profiles would provide a much needed comparative basis that would be invaluable in the location and marketing of fugure major league baseball franchises.

General Summary

This study has investigated the potential of SMSA's to successfully support major league baseball franchises. This study concentrated on paid attendance. Since profit maximization is the objective function of most major league baseball franchise owners this study focused upon the only available and representative component of the economic infrastructure of these franchises - paid attendance. A model was built to predict this paid attendance. The model identified five variables which significantly contributed to an explanation of paid attendance. The variables that were identified by the model include two conceptual variables as defined by factor analysis. These two variables described elements of economic strength and the employment structure of the specific SMSA's.

Two variables internal to the nature of baseball were also identified by the model to be significant. These variables include both the percent of games won and the absence or presence of another major league baseball

franchise within the same SMSA. A third conceptual variable was created by the interaction of the employment structure factor with the percentage of games won. The resultant regression equation accounted for approximately 74 percent of the variation in paid attendance, and a consequently much more unified and systematic overview of the role of paid attendance within the infrastructure of major league baseball franchises.

The final task of this study was to construct attendance projections for non-franchised SMSA's within the parameters of the study. Upon completion of this task 10 SMSA's emerged as potentially strong major league baseball franchise locations. From this total only three SMSA's were deemed ideal future locations in that only they suggested the potential to compete successfully in the market place. These three SMSA's were Tampa - St. Petersburg, Newark and Miami. They emerged as stronger sites than both the SMSA's of New York and Dallas - Fort Worth -- the only SMSA's that had been identified by the model as potentially able to support an additional major league franchise.

General Conclusions

There have been three phases in the evolution of major league baseball. The first was the Developmental Phase. This was that period from 1903 to 1961 (Table 2). This phase was characterized by a stability in the number of teams at, sixteen, and a consequent lack of expansion. In its last eight years however, this phase was characterized by six relocations of franchises. These relocations ushered in the Expansion Phase in 1961. This phase lasted until 1977 and saw eight expansion franchises addedin during its first eleven years. In its last four years, however, this phase, too, had several franchise relocations -- three in a period of four years. As during the Developmental Phase these relocations signaled

the beginning of a third, or Neo-Expansion Phase, in 1977. This Neo-Expansion Phase is characterized by "newness" in that it is a "new" (another) expansion that is going to also have to occur in primarily "new" markets. As such, this entire phase is a direct outgrowth of the model's identifying of the fact that the general market place for major league baseball franchises in the United States is extremely limited. The model could identify only five SMSA's of the total of 276 in the United States in 1976 as possessing the potential to support a major league baseball franchise. The model, furthermore, identified only three SMSA'S as having the potential to support an initial franchise. Thus, given such a saturated market, there is only one way for future franchise location to turn in our mass society. It must develop critical mass by expanding major league baseball to international markets. The recent awarding of a major league baseball franchise to Toronto, Ontario, Canada was a reaffirmation of this fact. This was a conscious and much considered decision based upon the initial location of the Montreal Exposition in Canada in 1969, and should be seen as a harbinger of further international expansion to such areas as Mexico, Central America and Japan. The identification of markets and the location of franchises outside the United States during this Neo-Expansion Phase is a must. Because of the continuing and dynamic advancements occuring in the mass media this seemingly futuristic possibility is upon us now. With this in mind, and the large number of franchises losing money in the United States, it would appear that a stabilization through reduction and relocation of major league baseball franchises in the United States will occur before any large-scale international expansion. When viewed from an historical perspective it seems reasonable to predict that this reduction and relocation will take

place over no more than a five year time frame and will be followed by a short period of stabilization before engaging in the major concern of the Neo-Expansion Phase -- vigorous and extensive international expansion.

APPENDICES

APPENDIX A

SOURCES OF DATA FOR VARIABLES

IDENTIFIED IN STUDY

VARIABLE	SOURCE OF INFORMATION
Attendance	The World Almanac and Book of Facts
Population	Statistical Abstract of the United States
Effective Buying Income	Sales Management
Total Retail Sales	Sales Management
Percent White Population	Statistical Abstract of the United States
Percent Population Over Age 65	Sales Management
Percent Population Employed in Wholesale/Retail Service	Employment and Earnings, States and Areas, 1939-1974
Percent Population Employed in Manufacturing	Employment and Earnings, States and Areas, 1939-1974
Percent Population Employed in Government	Employment and Earnings, States and Areas, 1939-1974
Percent of Population with Family Income Greater Than $15,000	Sales Management
Percent of Population with Family Income Less Than $5,000	Sales Management
Median Household Income	Sales Management
Average Household Effective Buying Income	Sales Management
Club Won-Lost Percentage	The Encyclopedia of Baseball
Age of Stadium	The World Almanac and Book of Facts
Capacity of Stadium	The World Almanac and Book of Facts
Number of Franchises Located Within SMSA	The World Almanac and Book of Facts

APPENDIX B

RESIDUALS FROM REGRESSION

FRANCHISED SMSA's 1970-74

SMSA	YEAR	Y VALUE	Y ESTIMATE	RESIDUALS
Los Angeles	1970	1,784,527	1,944,195	-159,667
	1971	1,697,122	1,988,774	-291,661
	1972	2,064,594	2,004,657	59,936
	1973	1,860,858	2,036,670	-175,811
	1974	2,136,192	2,232,744	-96,552
New York	1970	2,175,373	2,319,664	-144,291
	1971	2,697,479	2,021,097	676,382
	1972	2,266,680	2,087,493	179,187
	1973	2,134,185	2,258,432	-124,247
	1974	1,912,390	2,015,727	-103,336
Houston	1970	1,412,995	1,154,519	258,475
	1971	1,253,444	1,123,828	129,616
	1972	1,261,589	1,111,812	149,776
	1973	1,469,247	1,308,868	160,378
	1974	1,394,004	1,176,447	217,556
Chicago	1970	1,674,993	1,772,342	-97,348
	1971	1,642,705	1,591,737	50,967
	1972	1,653,007	1,562,438	90,569
	1973	1,299,163	1,718,568	-419,404
	1974	1,351,705	1,544,676	-192,971
Atlanta	1970	1,458,320	1,289,157	169,163
	1971	1,078,848	917,010	161,837
	1972	1,006,320	1,025,469	-19,148
	1973	752,973	855,862	-102,889
	1974	800,655	971,642	-170,987
Baltimore	1970	1,058,168	1,454,693	-396,525
	1971	1,057,069	1,321,484	-264,414
	1972	1,023,037	1,320,241	-297,204
	1973	899,950	1,049,182	-149,232
	1974	958,667	1,258,463	-299,796
Seattle	1970	677,944	704,425	-26,481
Milwaukee	1971	933,690	713,555	220,174
	1972	731,531	793,000	-61,469
	1973	600,400	719,149	-118,709
	1974	1,092,158	891,493	200,664

SMSA	YEAR	Y VALUE	Y ESTIMATE	RESIDUALS
Minneapolis	1970	1,349,328	1,460,118	-110,790
	1971	1,261,887	1,382,589	-120,702
	1972	940,858	950,765	-9,907
	1973	797,901	1,024,013	-226,111
	1974	907,499	1,076,024	-168,524
Washington D.C.	1970	918,106	618,537	299,568
	1971	824,789	773,126	51,662
Arlington	1972	655,156	734,387	-79,231
	1973	662,974	559,676	103,294
	1974	686,085	701,017	-14,932
St. Louis	1970	1,574,046	1,188,365	385,680
	1971	1,604,671	1,376,635	228,036
	1972	1,682,783	1,275,941	406,842
	1973	1,629,736	1,048,985	580,750
	1974	1,196,894	1,123,729	73,164
San Diego	1970	512,970	658,686	-145,716
	1971	643,679	715,091	-71,412
	1972	557,513	703,220	-145,707
	1973	644,273	701,851	-57,578
	1974	611,826	702,826	91,000
Cincinnati	1970	987,991	1,294,778	-306,787
	1971	1,803,568	1,598,941	204,626
	1972	1,501,122	1,019,738	481,383
	1973	1,611,459	1,432,248	179,210
	1974	2,017,601	1,448,413	569,187
San Francisco	1970	773,232	850,223	-76,991
	1971	778,355	913,140	-134,785
	1972	1,106,043	856,153	249,889
	1973	921,323	929,433	-8,110
	1974	1,000,763	946,271	54,491
Pittsburgh	1970	769,369	1,380,277	-610,908
	1971	1,341,947	1,403,421	-61,473
	1972	1,501,132	1,530,671	-29,539
	1973	1,427,460	1,572,264	-144,804
	1974	1,319,913	1,175,098	144,814
Philadelphia	1970	519,414	1,068,576	-549,162
	1971	708,248	1,299,112	-590,863
	1972	1,511,223	1,171,285	339,938
	1973	1,343,329	1,075,271	268,058
	1974	1,475,934	1,317,857	158,077
Boston	1970	1,833,246	1,377,182	456,063
	1971	1,595,278	1,328,314	266,963
	1972	1,678,732	1,335,327	343,405
	1973	1,441,718	1,429,921	11,797
	1974	1,481,002	1,488,128	-7,126
Anaheim	1970	758,388	841,178	-82,790
	1971	1,077,741	1,160,309	-82,568
	1972	926,373	903,971	22,401
	1973	744,190	943,890	-199,700
	1974	1,058,206	972,413	85,792

SMSA	YEAR	Y VALUE	Y ESTIMATE	RESIDUALS
Cleveland	1970	619,970	736,582	-116,612
	1971	729,752	1,039,275	-309,522
	1972	591,361	646,932	-55,571
	1973	626,354	966,964	-340,610
	1974	615,107	874,395	-259,288
Detroit	1970	1,577,481	1,595,598	-18,116
	1971	1,501,305	1,382,732	118,573
	1972	1,591,073	1,611,111	-20,037
	1973	1,892,386	1,593,904	298,482
	1974	1,724,146	1,583,113	141,033
Kansas City	1970	902,414	855,947	46,466
	1971	693,047	734,524	-41,477
	1972	910,784	1,122,648	-211,863
	1973	707,656	981,355	-273,699
	1974	1,345,341	1,153,508	191,833

APPENDIX C

NON-FRANCHISED SMSA's

ESTIMATED ATTENDANCE

SMSA	ESTIMATED ATTENDANCE
Tampa - St. Petersburg, Florida	1,127,127
Newark, New Jersey	1,113,237
Miami, Florida	1,106,545
Tulsa, Oklahoma	1,040,913
Greenville - Spartanburg, South Carolina	1,040,411
Nassau - Suffolk, New York	1,038,592
Greensboro - Winston Salem - High Point, North Carolina	1,034,995
Allentown - Bethlehem - Easton, Pennsylvania	1,033,490
Birmingham, Alabama	1,019,824
Youngstown - Warren, Ohio	1,013,722
Grand Rapids, Michigan	998,887
Gary - Hammond - East Chicago, Indiana	995,065
Louisville, Kentucky - Indiana	985,333
Providence - Warwick - Pawtucket, Rhode Island	984,165
Fort Lauderdale - Hollywood, Florida	982,020
Paterson - Clifton - Passaic, New Jersey	980,979
Jersey City, New Jersey	972,019
Norfolk - Virginia Beach - Portsmouth, Virginia North Carolina	970,475

SMSA	ESTIMATED ATTENDANCE
Nashville - Davidson, Tennessee	969,820
Buffalo, New York	968,071
Chattanooga, Tennessee - Georgia	967,463
Springfield - Chicopee - Holyoke, Massachusetts - Connecticut	952,836
Bridgeport, Connecticut	965,999
Charleston - North Charleston, South Carolina	965,373
Portland, Oregon - Washington	963,658
Worcester, Massachusetts	948,560
Indianapolis, Indiana	944,870
Rochester, New York	942,874
New Orleans, Louisiana	941,464
Phoenix, Arizona	939,544
Toledo, Ohio - Michigan	935,804
Orlando, Florida	931,031
Denver - Boulder, Colorado	928,968
Beaumont - Port Arthur - Orange, Texas	924,869
Wilmington, Delaware - New Jersey - Maryland	924,675
Mobile, Alabama	923,815
Flint, Michigan	922,306
Memphis, Tennessee - Arkansas - Mississippi	915,182
Jacksonville, Florida	914,239
West Palm Beach - Boca Raton, Florida	913,077
Seattle - Everett, Washington	909,671
Akron, Ohio	908,432
New Haven - West Haven, Connecticut	908,090
Shreveport, Louisiana	899,515

SMSA	ESTIMATED ATTENDANCE
Green Bay, Wisconsin	898,263
Wichita, Kansas	895,125
Salt Lake City - Ogden, Utah	893,733
San Jose, California	865,886
Dayton, Ohio	853,742
Knoxville, Tennessee	845,143
El Paso, Texas	838,425
Omaha, Nebraska - Iowa	829,720
Syracuse, New York	826,644
Spokane, Washington	815,602
Richmond, Virginia	811,449
Riverside - San Bernardino - Ontario, California	797,393
Columbus, Ohio	784,559
Fresno, California	755,728
Las Vegas, Nevada	755,711
Washington D.C. - Maryland - Virginia	742,710
San Antonio, Texas	728,266
Oklahoma City, Oklahoma	723,285
Albany - Schenectady - Troy, New York	699,442
Raleigh - Durham, North Carolina	693,686
Albuquerque, New Mexico	671,897
Hartford, Connecticut	666,097
Tacoma, Washington	662,031
Tucson, Arizona	659,340
Baton Rouge, Louisiana	613,015
Honolulu, Hawaii	563,751
Sacramento, California	427,819

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