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AN EVALUATION OF LAND USE
CONTROLS IN LOGAN, UTAH

by

William Earl Kuttler

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Economics

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

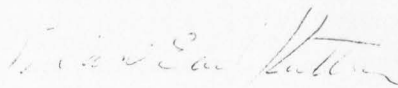
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ACKNOWLEDGMENTS

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I would like to express my sincere appreciation to my major Professor, Dr. W. Cris Lewis for his constant help with this project. It was through his intellectual guidance and financial help that this project was initiated as well as completed.

I would also like to thank Dr. Jay C. Andersen who served on my Graduate Committee as well as my Graduate Advisor for his time and effort in helping me through the Master's program. Also, I wish to thank Professor O. W. Asplund who also serves as Chairman for the Logan City Planning and Zoning Commission for his critical review of the thesis. Finally, I would like to express my appreciation to the faculty and staff of the Economics Department for their help and encouragement throughout the time I have been here.



William Earl Kuttler

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ABSTRACT

An Evaluation of Land Use
Controls in Logan, Utah

by

William Earl Kuttler

Master of Science

Utah State University, 1975

Major Professor: Dr. W. Cris Lewis
Department: Economic

The purpose of this paper is to demonstrate the role of economic, political, and religious power as it relates to a person's ability to get zoning decisions passed in his favor by the Logan City Commission and the Logan Planning and Zoning Commission. Data for the study was collected from the minutes of the Planning and Zoning Commission and the City Commission. The theory behind the incentives to seek zoning alterations is discussed prior to the actual work.

(83 pages)

CHAPTER I

STATEMENT OF THE PROBLEM

Although land use planning and land controls have been used for several hundred years, there has been a great increase in interest in these instruments at all levels of government in the past two decades. In fact, the majority of the urban centers in the United State now have some type of master plan and zoning ordinance.

At present, there are many different land use proposals pending at the national, state, and local levels. One that has received considerable attention in Cache County is the State Land Use Act passed by the Utah State Legislature in 1974, but later voted down in a referendum. Prior to its rejection, the Herald Journal stated that:

"Like their constituents, the five men who make up Cache County's state legislative delegation are still divided over the Utah Land Use Act with opinions ranging from outright contempt to cautious approval to whole-hearted support." (5, p. 1)

This statement illustrates the concern people have regarding land use planning and controls. It also indicates that there are many diverse opinions concerning the use of private property and controls thereon. The article further stated that, "All five, however, were able to agree on one major point — their votes for or against hinged on the issue of local control over land use planning." (5, p. 1) "I'm just asking people to read it, I don't believe many people are taking the time to read or study it (the new State Act)." (5, p. 1)

This same concern and confusion also exists in regard to planning and controls on the local level. Furthermore, the quote concerning state controls is applicable to local controls; that is, that few people are taking the time to read or study the land use controls being established by their local governments. The citizens of Logan, Utah have had to deal with these issues in the past and will most certainly be confronted with other land use planning issues in the future. As the population of Cache County grows and the economic base expands, the land available for these new activities will become more scarce. People are beginning to see that land is a limited resource and everyone wants his "rights" to be protected. The commercial and industrial communities want to be able to expand in the way that is most profitable to them; the residents of the city want to be able to obtain the type of housing they desire and can afford; everyone wants land to suit their recreational needs; and others want to maintain land in its pristine condition or to "protect" agricultural lands.

Because of these factors, everyone is affected by zoning decisions. If property is zoned for commercial use, generally it takes on a much higher value than, say, land zoned for agricultural use. A similar price differential exists between land zoned for single family residences and multi-family dwellings. What can or can't be built on a piece of property and what size the property must be are also issues of primary concern.

Land use planning in Cache Valley began with the first permanent settlers. As the Mormon pioneers settled Logan, they set out the streets, block sizes, and lot sizes. It is easy to see the effects of

this initial planning. The original streets all run north-south or east-west. The blocks are all of uniform size with most city lots of about the same width and depth. The commercial community was purposely located on the main arterial roads leading to and from town.

More recently, land use planning in Logan has taken the form of master planning with zoning laws. The first master plan containing a zoning ordinance map for the community was developed in 1962. It delineated areas to be used for various types of housing districts, commercial districts, and industrial districts. Since that time, there have been numerous changes and revisions to the original zoning map. Indeed, the city planning board meets regularly to discuss proposed changes in the current zoning ordinance. There is a full time assistant planner employed by the city to assist in the solutions of problems concerning land use planning and zoning in the community.

The value of such urban land control in the present context is a subject of much controversy. (28) There are those who believe that zoning laws are not only beneficial but absolutely necessary for orderly growth and efficient land use. Their reasons are many and some are valid. For example, they cite the tremendous population growth of certain places in the United States and the associated land use demands. A sense of logic tells them that this growth must be planned and controlled to properly utilize scarce land resources.

The existence of externalities are of principal concern to those individuals favoring public control of private land. Zoning laws are seen as a means of controlling negative externalities such as excessive noise, air pollution, heavy traffic, etc., while at the same time

promoting positive externalities such as homogenous neighborhoods, parks, and schools. Since the land area of the country is fixed while population is not, it follows that if everyone is to have their demands met, plans need to be made and controls exercised.

Some promoters of government controls on private land foresee the day when, in the absence of controls, people will abuse land to the point that it will lose its productivity. There is some fear that uncontrolled subdivision expansion will use the best farm land and thereby diminish the agricultural potential of the country. In essence, some promoters express a Malthusian view of the United States about land use planning and zoning; that is, that misuse of this resource (land) will lead to a subsistence economy. (7, preface)

Another implied reason for zoning ordinances is evidenced in nature. Racial prejudices exist and zoning provides a legal method of promoting segregation. By enforcing lot sizes and dwelling requirements, the poor and minorities can be separated from high class neighborhoods.

On the other hand, many believers in the market system, as well as other critics, doubt that zoning laws accomplish anything. In fact, they even go as far as to state that land resource control through zoning may result in costly misallocations of resources. (20, p. 90) Furthermore, there are some who believe that the market forces typically overcome zoning laws. Indeed, there appears to be substantial evidence to support these claims. For example, the high percentages of zoning petitions that are usually granted would suggest this.

Due to the increased market segregation and price differentials that come into being because of zoning ordinances, large economic

rents stand to be gained. It would be reasonable to assume that individuals capable of obtaining zoning changes in their favor would capture these economic rents. This paper will explore what effect three variables, economic power, political power, and religious power, have on an individual's ability to obtain favorable zoning decisions.

The null hypothesis to be tested is that individuals possessing relatively more economic, political, and religious power, are no more successful than individuals with relatively less power in capturing these economic rents associated with zoning changes. That is, suppose an individual possessing considerable economic and political power owned a parcel of land zoned single family residential. This parcel of property has a current value of \$10,000.00. If the zoning on this particular parcel could be changed to multiple family residential, the value would change to \$14,000.00. The null hypothesis states that this individual will have no better chance of getting his property rezoned than any other land owner regardless of the owner's economic and political prestige. Therefore, he has no better chance of obtaining the \$4,000.00 windfall than any other land owner.

CHAPTER II

LAND USE PLANNING AND CONTROLS, A REVIEW OF LITERATURE

Overview

One of the means that governments have devised to enable them to regulate land uses within their jurisdiction is zoning. These ordinances are made law by enactment with the aid of hearings, etc., by the local governing body, which retains the right to amend them as deemed necessary. Zoning ordinances have customarily required highly structured and predetermined patterns of land use as well as separation of different residential densities in the community. (21, p. 58) In addition to this, most zoning regulations set standards for minimum floor size, off street parking, sidewalks, building height, and lot sizes. (2, p. 11-12; 22, p. 58-59; 27, p. 80-81)

Different types of land use controls have been practiced by more advanced societies for centuries, although zoning as commonly known is a relatively recent concept. The history of zoning as a land use control in America can be divided arbitrarily into three stages. First, there was a struggle in the early decades of the twentieth century to persuade the courts that comprehensive public regulation of private land was not an unconstitutional interference with a person's rights regarding his property. Second, there was a period of about thirty years until the middle of the 1960's when the courts showed increasing sympathy with municipal land use regulations, thereby encouraging municipalities to extend the concepts of public health, safety, morals,

and general welfare to embrace more sophisticated and complex methods of regulation. The final period is just underway and is marked by many challenges to municipal preeminence in zoning. (2, p. 38) Both favorable and unfavorable court decisions regarding the legality of zoning, accompanied by attempts to empirically quantify the rights and wrongs of zoning as a land use control, have come forth in this last phase.

The first comprehensive zoning ordinance in the United States was passed in 1916 as a result of political pressures applied by merchants of New York's Fifth Avenue. (24, p. 171-184) Motivated by fear of a growing group of peddlers and unwanted salesmen, these merchants pushed for the passage of the ordinance to ensure the status of the area. From this first ordinance until after World War II, zoning remained principally a central city concept.¹ After World War II, the suburbs and smaller communities began utilizing zoning as a means of regulating the use of private land. (12, p. 62-63)

Rationale for Zoning

There have been several reasons offered to justify land use laws. It is generally assumed that zoning laws are theoretically supported by desirable land use and environmental goals. (24, p. 171-184) For example, New York's 1916 ordinance had the goal of cleaning up Fifth Avenue and then of retaining the character that had traditionally prevailed. (12, p. 62-63)

¹The term "Central City" refers to the fact that prior to World War II zoning ordinances were used sparingly in the suburbs and smaller cities. These ordinances were used principally in larger cities.

"Zoning is not just an expansion of common law of nuisance. It seeks to achieve much more than the removal of obnoxious gases and unsightly uses. Underlying the entire concept of zoning is the assumption that zoning can be a vital tool for maintaining a civilized form of existence only if we employ the insights and learning of the philosopher, the city planner, the economist, the sociologist, the public health expert and all other professions concerned with urban problems." (32, p. 21)

Supporters of zoning as a land use control stress the concepts of public health, safety, morals, and general welfare as the reasons for zoning. (2, p. 38) There are certainly many examples to support this concept. One need only look at some of the large foreign cities that exist without controls of any type. Population densities are so high that public health isn't feasible. Ghetto landlords have been accused, and rightfully so, of supplying inadequate and unsafe housing which diminishes the safety and welfare of the populous.

More recently, planners have begun to consider neighborhood effects (i.e., externalities) such as noise, traffic and congestion. Surely the majority of Americans would prefer living in neighborhoods where peace and quiet exist and where they don't need to constantly worry about their children being killed in the heavy traffic. In this age of awareness of our environment, people are now concerned about noise and air pollution and feel they have the right to live in areas free from these problems. Zoning, then, is one method designed to control these problems and allow people to live near others with similar lifestyles. (10, p. 79-99; 15, p. 96)

There are several other justifications for land use laws which have merit. Large externality producing factories operating twenty-four hours a day and single family residential homes certainly aren't compatible land uses. Zoning is viewed as a method of excluding such

undesirable uses from the neighborhood. (2, p. 3-5) Poor people often have more children than middle and higher income families and thus may increase per capita education costs. In addition, low cost housing provides less tax revenues than does more expensive housing. Land use controls can be used to limit or exclude minority groups or poor people from a neighborhood, and by doing so, can help to maintain a favorable tax base. (2, p. 3-5; 26, p. 1-16)

The aesthetics of land use is another important reason for zoning. Through the effective use of zoning laws, public authorities can require that buildings be designed to reflect high levels of "quality" and also to provide more stimulating relationships between different uses. (17, p. 23-33) Zoning can also help preserve landmarks and architectural and historical sites. Some argue, therefore, that zoning is a useful tool to preserve the aesthetic values of an area. (23, p. 1-5)

Another rationale for zoning not often discussed is the opportunity it provides for large economic gains. For example, suppose that an individual owned a one acre parcel zoned for single family residential use. This acre subdivided into four single family residential (R-1) lots might sell for \$5,000.00 a lot or \$20,000.00 for the parcel. If the owner could obtain a zoning change, say to a multiple dwelling designation (R-3), the property could be sold for, say, \$27,000.00, giving a \$7,000.00 windfall to the land owner.¹ This economic rent comes into existence because of the way zoning laws effect the supply of land. By limiting the supply of land for multiple family dwellings

¹ An R-3 zoning designation refers to land zoned for multiple family dwellings. An R-1 designation refers to land zoned for single family residences.

the price for this land increases. The individual that is successful in moving his product from one market to another market offering a higher price stands to gain considerably.

Zoning Types

Fiscal zoning refers to practices that seek to attract uses which will produce a high tax base while excluding consumers of large amounts of public services. (2, p. 3-5; 19, p. 69; 26, p. 3) Another type of zoning which is similar to fiscal zoning is large lot zoning. This is used to maintain property valuation and scenic value by enforcing a minimum lot size that is considerably larger than is needed to promote public health and morals. Other purposes of large lot zoning and fiscal zoning are to maintain the tax base, to preserve social homogeneity, i.e., to promote and retain a semi-rural atmosphere. (26, p. 4-6)

Zoning laws designed as a method of preserving community characteristics and of avoiding certain types of residential growth are referred to as exclusionary zoning. (26, p. 1) Another type of zoning is conditional zoning which typically amounts to little more than rezoning. That is, when an area is rezoned from one use or classification to another and the change is subject to some type of condition, this constitutes conditional zoning. The legality of this type of regulation is still questioned. (21, p. 59; 28, p. 96)

The net effect of the justifications for land use control seems to be to exclude certain land uses and to provide home owners with substantial power over the use of vacant land in their communities. It is this public control of private land that has led to the many legal

decisions both pro and con regarding zoning. (21, p. 76)

Resource Misallocation

Human resource misallocation

One of the often underestimated effects of zoning is its effect on human resources. As factories expand and modernize, more accessible land is needed. The suburbs become the ideal place to locate because commercial land is cheaper and easier to locate. As factories relocate in the suburbs, the resulting decline in the number of blue collar jobs offered in the city centers can cause serious unemployment problems, since these job shifts tend to be non reversible. (12, p. 64-65) As factories offering blue collar jobs move to the suburbs, poor people living in inner city neighborhoods must commute, which is often difficult, or find themselves unemployed.

Between 1952 and 1966, "a U.S. Bureau of the Census study found that while the number of jobs in St. Louis dropped by 50,000, they rose in nearby suburbs by nearly 193,500." (27, p. 80) Studies in Philadelphia and New York revealed similar results.

If it isn't financially feasible for the residents of the poorer central districts to commute, one would ask: Why don't they move to the suburbs where the jobs are? "Probably the most dreaded land use in America is for homes of low-income persons or families with incomes lower than those of the present residents." (21, p. 61) This is, in fact, one of the primary interests of zoning, to maintain the state of the neighborhood. This type of human resource misallocation is another topic and will be treated under "Exclusion and Segregation."

In summary, space is unavailable in central cities for modern manufacturing, causing jobs to diminish in central cities. In the last twenty-five years, 75 percent to 85 percent of the nation's central area jobs were created or moved to the suburbs. In some cases, zoning laws have made it difficult, if not impossible, for the poor to gain access to suburban housing. Non-access to suburban housing for the poor means non-access to suburban jobs, which means more unemployment and results in labor misallocation. (12, p. 62-65)

Zoning and market determined land use

As stated earlier, a zoning ordinance is made law by enactment by the local governing body, which may amend it as well. Generally, zoning has required highly structured and predetermined patterns of land use as well as separation of different residential densities. With time, pressures for land use change develop in the community and conditions are usually not the same as they were when the land was originally zoned. It is also possible that the land was not zoned for use in the first place. The right to amend the zoning ordinance allows officials to remedy such conditions. Rezoning applications are typically in response to pressures of the market for more intensive use of land or for a change from one category of use to another for which there is a greater demand. The new uses are likely to be for higher uses (e.g., multiple-family dwellings, commercial structures, etc.) which are apt to command higher economic returns. (21, p. 60) This thesis focuses on the amount of informal power individuals seeking zoning amendments have and the role it plays in capturing these higher economic returns.

It is natural for similar land uses to cluster, that is for heavy industry to center in certain locations, for single family residences to develop at certain places and for retail concerns to group. "To the extent that zoning simply recognizes the natural process, it changes nothing and causes no loss." (22, p. 58)

Zoning does tend to segregate the real estate market more extensively than does the market process. Old sectors of cities that were developed prior to zoning ordinances have a multiplicity of housing densities, that is, single family residences are intermingled with a variety of multiple family dwellings such as duplexes and fourplexes, etc. Zoning ordinances usually contain a multiplicity of residential and commercial uses (i.e., R-1, R-2, R-3, C-1, C-2, C-3). This results in areas of more defined use, that is, single family dwellings in one area and two and four family dwellings in yet another area.

Houston, the nation's sixth largest city, has not been zoned and does not appear to be any worse off in regards to congestion, pollution, and other negative externalities than any other large city; possibly it is better off. Growth has occurred at least as orderly as in zoned cities and with less planning and administrative costs. Instead of using zoning laws to control the use of land, private restrictive land covenants were used. These restrictive covenants were more permanent and predictable than zoning laws and have served to segregate conflicting land uses in an acceptable manner, and in many people's opinion, a more efficient way.

Siegan, in his study on Houston and its absence of zoning laws, presents several conclusions: 1) economic forces tend to make for a

separation of land uses even without zoning; 2) when economic forces don't provide for this separation, land owners may use private tools such as restrictive covenants to secure higher profits; 3) zoning tends to keep more areas strictly single family residences; 4) when restrictive covenants expire, land will be used as economic pressures indicate; and 5) zoning restricts the supply of some uses and thereby prevents some demands from being satisfied. (29, p. 142) Houston has shown that a no-zoning situation may be no more chaotic or haphazard than zoning. The closer the district is to full development, the more predictable will be the future of its vacant property. (12, p. 132)

One of the major weaknesses of zoning is its susceptibility to change under private pressure. (16, p. 48-49) If rezoning applications are simply expressions of market forces, the frequency with which these requests are granted would give some indication as to what influence the market has on zoning ordinances. In a 1968 survey on cities of over 5,000 population, information was requested concerning: 1) how many rezoning petitions per year were approved in whole or in part; and 2) how many zoning variances were acted upon for the same time. Those rezoning petitions acted upon averaged 11 per reporting government unit and about 73 percent were approved in whole or in part. Requests for zoning variances averaged about twenty-four per reporting government and about 78 percent of these were approved. The conclusions of this study were that: 1) many zoning changes in these communities would not have occurred if there had been a general adherence to some form of master plan; and 2) control of property through zoning is more chaotic than it is orderly. A similar study in Kentucky showed that 63 percent of the petitions for change were granted in the absence of

objectors. (28, p. 17) With such a high percentage of rezoning petitions granted, one would assume that the natural workings of the market do, in reality, have a great impact on land use even in the presence of zoning ordinances.

Land misallocation

As shown in the previous section, there are many who argue that zoning has little effect on land use. Others feel that zoning laws not only have failed to do what they were designed for, but actually lead to irredeemable misallocations of resources and, therefore, that zoning laws ought to be repealed. (22, p. 58)

When housing is involved, a zoning controversy is not simply one of municipality versus people, or a case of people versus property; it is one of people versus people. It tends to give inordinate powers and privileges to existing residents over people outside the community who would stand to benefit from the filtering effect created by new housing, as well as those within the housing market who would benefit from a greater supply of both land and housing.¹ (28, p. 87)

Another primary weakness of zoning as a land use control is that it leads to homogenous neighborhoods. (16, p. 48-49) "Zoning seems to be especially well designed to assure the misallocation of land." (21, p. 75) Through its restrictions on floor size, height, lot size, densities, etc., it may promote routine monotony in housing design. "One of the most conspicuous failures of suburban zoning ordinances

¹The filtering effect is the process where people become more affluent and move to more expensive housing thereby making more housing available for the less affluent.

can be observed in the endless streets of look-alike houses dotting the landscape." (21, p. 75)

When zoning restrictions reduce the available supply of certain types of land, they also operate to reduce competition in the real estate market. Supply and competition will be greater in the absence rather than in the presence of restrictions limiting production. Since the individual producer receives a perfectly elastic demand curve, this results in a tendency for each producer to produce as much as he can so as to maximize his profits. When zoning restricts the operation of the real estate market, it also restricts the supply of housing which is a major problem in the United States. (28, p. 247)

Zoning not only limits the supply of land available for certain activities, it also prohibits certain land uses. Many communities severely limit the number of sites available for mobile homes. Since mobile homes tend to be less expensive than other types of single family dwellings, their exclusion is another way in which land use controls create hardships for lower economic groups. (2, p. 9)

Another type of misallocation occurs when municipalities zone too much of their vacant land for one specific use. Underdevelopment occurs when land is zoned for too high of a use, thus making it too expensive and causing it to lie vacant. (28, p. 124) This type of misallocation usually occurs when communities zone too much of their land for uses they wish to attract. This in turn reduces supplies for other land uses and can cause prices to differ significantly from those in an unregulated market. (2, p. 9) "Zoning is wasteful because it causes some land to lie idle waiting for industry that never arrives." (22, p. 58-59)

Once again, Houston supplies some suggestions as to the effects of zoning on land misallocation: 1) in the relative absence of restrictions on apartments, development has allowed the market to satisfy the demand for apartments to a much greater degree than could occur under zoning controls; 2) more areas adjoining major thoroughfares are being used or will be used for all variations of commercial and family purposes than would be the case under zoning; 3) there are probably more non-residential uses in interior single family areas than would be present if these areas had been zoned for strictly single family use; 4) zoning serves to limit the number of multi-family dwellings in a community; 5) zoning changes seem to be somewhat more chaotic than they are orderly; and 6) zoning tends to give the municipalities greater and more minute control over land use. (29, p. 142-147) In essence, zoning laws can eliminate from residential or other areas, uses which are compatible and desirable. Examples of these are health services, social services, and food services, to name a few. This is accomplished by restricting their presence or by making regulations unreasonable as to permit these services to locate in the area. (18, p. 201-203)

In much the same way that original development is hindered by zoning controls, redevelopment is also slowed. Long after neighborhoods have become dilapidated and all but abandoned, they are still zoned for strict residential uses. The unlovely city isn't caused by a lack of zoning, and it is not helped by zoning. Zoning laws create a new set of problems. "Zoning, like all ecosystem modifications, itself, produces effects unforeseeable when the plan is introduced." (22, p. 59)

Real Estate Costs

In order for fiscal and large lot zoning strategies to have the desired effects, they must influence housing costs in some manner. Governmental regulations that impose a cost over what would be required by competitive conditions will raise prices. Zoning laws, when they require the purchase of considerably more land than market conditions warrant through minimum lot size standards usually add costs directly to the price of the home. These large lot restrictions also add indirectly to the cost of the dwelling by reducing the supply of land available and thereby shifting the price up. (28, p. 90-91) Low density zoning generally raises housing costs by requiring larger lots that are more expensive. Low density zoning also reduces the number of housing units that can be constructed in a given area which may push up land prices as the number of available lots diminish. Where these controls cause a shortage of small lots, demand could cause a significant increase in the price of the small lots. (2, p. 5-7)

Zoning influences the price of apartments and homes principally in three ways. First, by controlling the supply of sites for various uses, it influences the price of land classified for different residential purposes. Second, zoning influences rents and prices when it operates directly or indirectly to reduce or enlarge the supply of multiple or single family accommodations. Third, zoning may provide for requirements that will add to the cost of land and to the cost of construction. Eliminating these restrictions could serve to increase housing and decrease costs at the same time. (28, p. 136)

By eliminating substitutes for single family residences, demand for the existing units will increase, resulting in an upward push on prices. Many communities, in fact, do severely limit or prohibit the number of sites available for such things as mobile homes. Since mobile homes tend to be less expensive than other types of single family dwellings, their exclusion is another way in which land use regulations create hardships for lower economic groups. A similar effect comes about when zoning officials zone too much of the community's vacant land for one use and not enough for other uses. The areas of restricted supply usually suffer unnaturally high prices. (2, p. 9)

In addition to safety and health measures, some zoning regulations also require garages, off-street parking, fences, plantings, and so on, which also serve to increase the cost of housing. (2, p. 11-12)

Most of the current literature deals with the effects of zoning laws on housing costs, but commercial real estate is also affected. Zoning is one of the many things that influences commercial land prices. If the zoning ordinance is binding, (for example, if the ordinance limits construction to single story buildings where multiple story buildings would constitute the most valuable use,) the ordinance is binding and the value of the land is affected. Land zoned for higher uses takes on higher values. In many cases, zoning regulations have fixed allowed uses below potential uses. When this happens the property is less valuable than it otherwise could have been. From empirical testing, zoning was found to have a significant positive relation with the value of land. That is, land zoned for less intensive uses had a lower value than land zoned for higher intensive uses. (11, p. 44-56)

Examples of the effects of land controls on property values abound. In a northern California community, a three-acre school site worth \$35,000.00 six years ago recently sold for \$3.0 million after it was rezoned for commercial use. Another example would be of the elderly lady near Washington D.C. who, last year, had barely enough money for food after paying taxes for forty-eight acres of idle farm land. One day her land was rezoned and shortly after she received a developer's check for \$1.0 million. (15, p. 96)

In summary, zoning influences property values by: 1) reducing supply directly; 2) by over-zoning vacant land and thus indirectly reducing supplies for other uses; 3) by requiring "extras" such as fences, sidewalks, plantings, and off-street parking, construction costs increase; 4) by prohibiting substitutes for certain uses, the demand for those uses increases, causing prices to go up; 5) by controlling densities, the natural supply and demand schedules shift causing price changes; and 6) finally, zoning regulates what may be built on a particular piece of property. What is allowed may be a more intensive or less intensive use than market forces would have dictated which, in turn, results in prices which are drastically different than would prevail under free market conditions. A further discussion on the influence of zoning laws on real estate prices is presented in the following chapter.

Exclusion and Segregation

Undoubtedly the most emotional aspect of zoning is its ability to legally segregate the housing market. Articles have appeared not only in many professional journals but also in many national periodicals such

as Time, Newsweek, and Harpers. Almost all of these articles oppose the exclusionary practices that are inherent in most zoning ordinances. Unfortunately, many are highly emotional and normative in their approach to the topic. Even so, there are several articles, mainly in the professional journals, that treat the subject objectively.

As previously stated, one of the most dreaded land uses is that of housing for low income families or for families with lower incomes than the current residents of the neighborhood. (21, p. 61) There seems to be an inherent desire to preserve the status of a neighborhood, or to improve it. Minorities or lower income groups moving into an area make people feel as though the status would be lowered. This attitude has led to the use of exclusionary zoning and sub-division control as a means of preserving the status quo and avoiding certain types of residential growth in the suburbs. (26, p. 1)

Because of deep-rooted attitudes of fear, hatred, and other strong emotions against minority groups and the poor in general, zoning has been used as a tool to foster discrimination against the poor and the minorities. It is no wonder that the poor are restless. (33, p. 83) One of the acceptable things about zoning laws, from the existing resident's point of view, is that "they provide a legal means with which the middle and upper income groups can practice segregation without bringing the wrath of the moralists down on them." (21, p. 61)

As previously discussed, zoning influences the price of housing in several ways, most of which serve to increase the cost. By enforcing regulations that increase construction costs and by limiting the sites available for certain residential uses, many potential buyers are eliminated. Many communities have zoning laws that exclude or

severely restrict certain types of housing such as apartments, town houses, or mobile homes which may be the only housing that lower income people can afford. (2, p. 7; 28, p. 88) "Economic segregation through zoning laws is as pervasive and significant a factor in the housing market as racial segregation." (26, p. 1)

A study of the housing market in the suburbs of New York City revealed that families with incomes under \$12,000.00 could not afford homes in the suburbs. In these suburbs, almost 99 percent of the undeveloped land has been zoned for single family dwellings. Therefore, most of the area's land is inaccessible to almost 80 percent of the population in that region. (27, p. 81)

Another study in Portland, Oregon was conducted to see who paid the most for housing: the poor or the unpoor. It was found that the unpoor paid a mean rent per square foot of \$0.187 while the poor (people in lower classed neighborhoods) paid \$0.219 per square foot. Proximity to the city center was found to be insignificant in explaining this relationship. Unaccounted for in this cost comparison is that the unpoor renters often had swimming pools, carpeting, and furnishings provided while the poor renters did not. (8, p. 53-57) Another article, based on information gathered from 200 rental units in New Haven, Connecticut, presented reasons why minorities pay higher rents. It was determined that landlords are reluctant to rent to minority groups and will do so only at higher rates. (19, p. 590-606) This is due in part to racial bias which causes other tenants to stop renting, or potential renters to look elsewhere.

As it became more apparent that some zoning ordinances do not allow the poor and the minorities the right to better housing because

of high prices and excessive demand for low income housing, the public officials began to react. On June 2, 1970, George Romney, then Secretary of Housing, asked Congress for the power to override local regulations when they discriminated against subsidized housing. (4, p. 39-40)

As varied groups have generated growing pressure against local zoning ordinances that bar low income groups from the suburbs, test cases have appeared in the courts. In January, 1975, the Supreme Court ruled against a discrimination suit filed against exclusionary zoning. The court argued that exclusionary zoning was cost discriminatory and that the Fourteenth Amendment did not cover it. (1, p. 24)

Some of the cases have had decisions supporting exclusionary zoning while others have been against it. A Federal Court in Buffalo, New York, ruled that Lackawanna, New York, had practiced discrimination in refusing to allow 138 low cost housing units to be built in a nearly all white neighborhood. Alternatively, after a referendum in which Union City, California, did away with a low cost housing project, the courts stated that no constitutional violation existed but that the city had the responsibility to assure housing for the low income residents. (7, p. 51; 12, p. 62)

Within all the SMSA's in 1960, the nonwhite households occupied poorer quality housing than did the whites. (5, p. 32) As one author put it, "Why have the cavalry control the Indians and Mexicans when we have zoning." (12, p. 63-64)

Conclusions and Implications

Land use ordinances are often criticized for poor administration and for being subject to business and political pressures. The following chapters will explore these accusations and see if these studies have shown that zoning amendments are more likely to be granted than to be rejected. Other criticisms are that enforcement procedures may be weak or simply are not practiced. (33, p. 19) A change in zoning may appear unfair to a land owner who relied on zoning when he acquired his property. (28, p. 21) One author listed five faults of zoning. They are: 1) it is anti-development; 2) it is exclusionary; 3) it discourages diversity; 4) it is prohibitive; and 5) it weakens the tax base. (21, p. 67-77) In the words of Bernard Siegan, "It is time that we applied a clear and unmistakable lesson of the past 50 years. Zoning has been a failure and should be eliminated." (28, p. 247)

There is abundant literature dealing with exclusion and housing costs. Studies exist that cite the impact of zoning laws on employment and unemployment patterns. Much of this work hints or suggests that zoning is good business and that only the rich and powerful benefit. (3, p. 18) Even with all these hints and suggestions, little has been done to determine just what influence monetary and political power have on zoning decisions and the benefits derived therefrom. The following theory chapter will help explain why people go to such extremes as legal advice and illegal activities (i.e., bribery) to obtain zoning changes.

CHAPTER III

THEORY

When exploring the theory underlying land use controls and the incentives behind petitions for zoning alterations, it is necessary to examine the effects of zoning ordinances on the real estate market. If all land were equal and all uses were fully compatible, there would be only one real estate market, with one supply and demand function, and one price as shown in Figure 1.

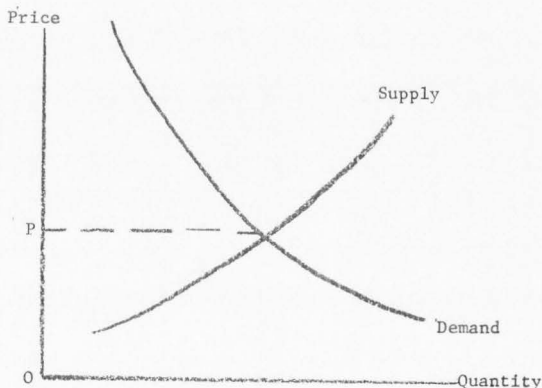


Figure 1. Real estate demand and supply, one market

Natural differences in land and location cause some segregation in the market for usable land. Land that is relatively flat with deep soil and plentiful water is suited for farming. Land that is near major highways and rail centers lends itself to commercial and industrial uses. Residential areas tend to form in sites that are set off from

the noise and traffic usually associated with commercial locations. Instead of having just one real estate market with one supply curve, one demand curve, and one resulting price, there are many sub-markets as illustrated by Figure 2.

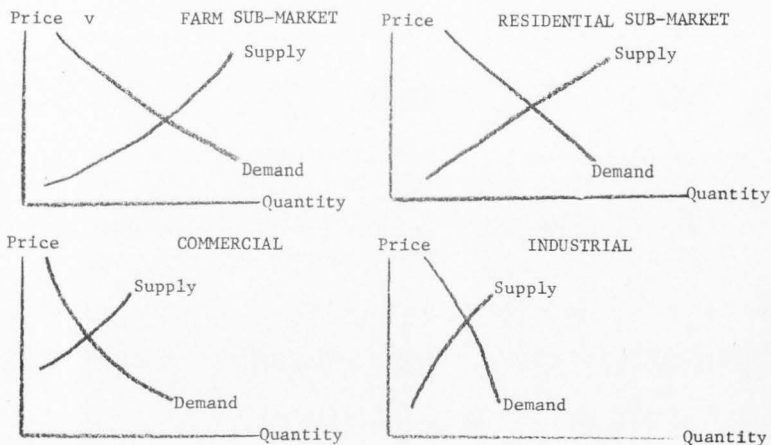


Figure 2. Naturally segregated sub-markets

Not only do the supply conditions differ in each sub-market, but the demand conditions also vary significantly from one use to another. These different supply and demand conditions in each sub-market can and generally do cause prices to differ between sub-markets as illustrated in Figure 3.

As depicted in Figure 3, industrial and commercial property generally take on a higher value than agricultural and residential property because there is less land suitable for these activities.

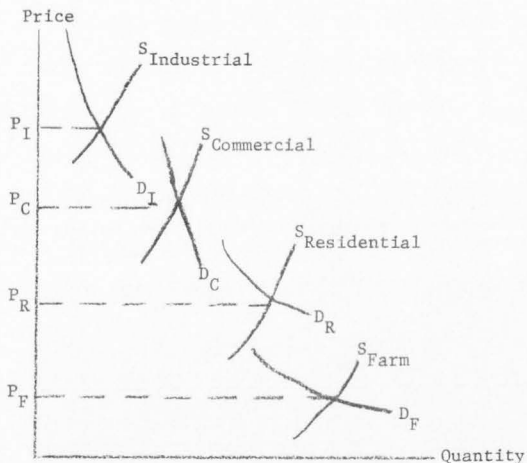


Figure 3. Sub-market price differentiation

As cities pass zoning laws, the supply conditions in the various sub-markets are altered, often extensively. By dividing residential land supplies into more specific uses, i.e., single family residences, duplexes, and multi-family areas, zoning laws serve to form many more separate sub-markets. The same thing happens with a multiplicity of commercial and industrial uses. These sub-markets, as shown in Figure 4, have distinct supply and demand conditions and therefore, distinct prices.

Through the increased market segregation caused by zoning ordinances, supply conditions can be much different from those existing in the sub-markets under an absence of government intervention. With this alteration in supply conditions brought about by land use controls, prices can be either higher or lower than in the absence of such controls.

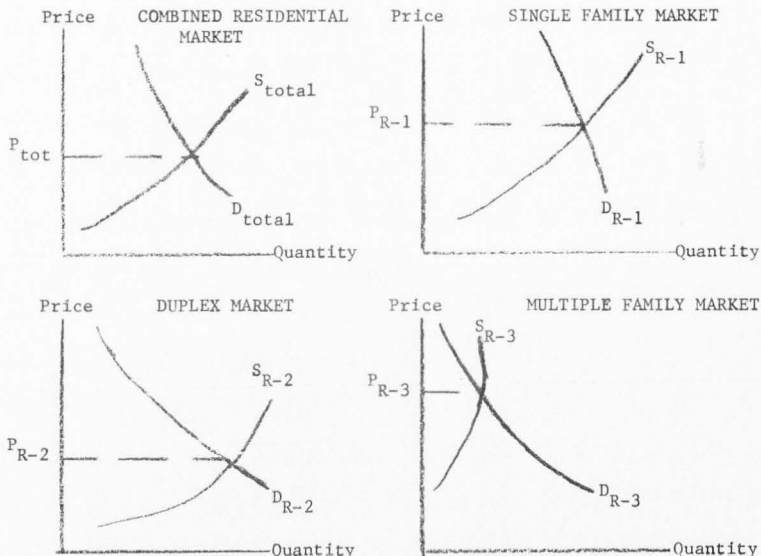


Figure 4. Increased market segregation due to zoning.

Principally, it is this large price variance brought about by zoning controls that provides the incentives to petition for zoning changes. For example, suppose an individual owns a parcel of land zoned R_1 (single family dwellings) which will bring a price P_1 in Figure 5. It is to his advantage to seek a zoning change to R_2 (limited multiple family dwellings) which controls a price P_2 so long as $P_2 > P_1$.

The individual perceives perfectly elastic demand conditions (D_1 and D_2 , Figure 5.) in both sub-markets (R_1 and R_2). If the individual is successful in his attempts to get his land rezoned from R_1 to R_2 , he will capture an economic rent of $abcd$. Since this rent can be significant, it works as a powerful incentive for the land owner to seek

changes. The same thing usually happens as you move from any lower use to a higher land use.

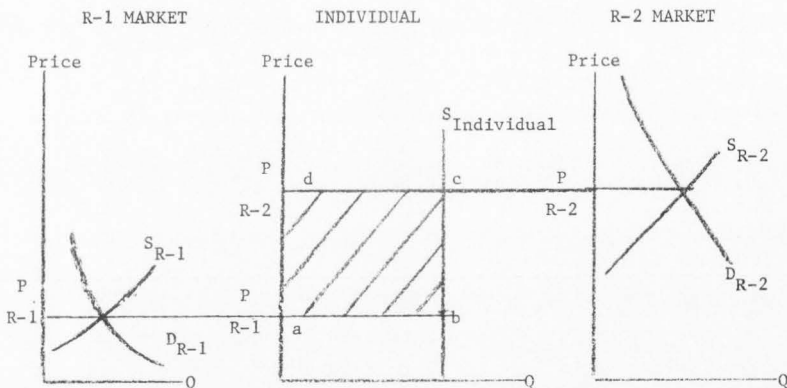


Figure 5. Incentives to seek zoning changes.

There are certain costs which need to be considered when an individual tries to get his land rezoned from its present use to a higher use. The time and effort involved in securing a petition and presenting it to the Planning and Zoning Commission has a certain opportunity cost associated with it. In addition to these costs, there are often legal fees involved. The total cost of securing the desired change must be weighed against the increased returns.

If $abfe$ of Figure 6 represents the costs involved and $abcd$ represents the increased returns, the change is desirable as long as $abcd$ is greater than $abfe$. If so, the net increase would be $efcd$, and could still represent considerable remuneration.

Often alluded to in the literature dealing with land use controls are the incentives to bribe local officials or to use other extra-

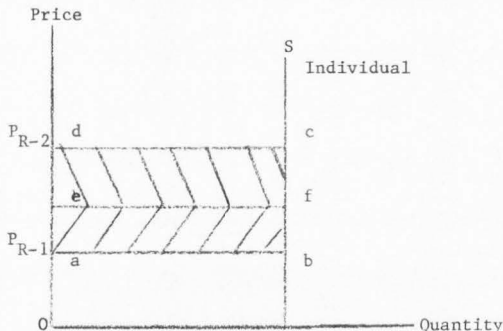


Figure 6. Cost versus potential gains

market tools to obtain zoning changes. Even with the expenditure of $abfe$, there are no guarantees that the desired change will be granted. It is, therefore, a temptation for the petitioner to offer bribes or similar incentives up to but not exceeding $efce$ of Figure 6. As long as the bribe is less than $efcd$, the proposition is still economically feasible to the land owner. In light of the foregoing discussion, it comes as no surprise when one reads of large bribes being offered members of city councils and planning and zoning boards.¹

In summary, zoning affects the market for different types of real estate by shifting supply curves thus effecting land prices. Also, by segregating the market more extensively than would occur without land use controls, powerful incentives are manifest which cause the land owner to petition for land use changes. These incentives, in the

¹The Chairman of the Salt Lake County Planning and Zoning Commission was recently indicted on four counts of bribery. "Grand Jurors Indict County Planner on Bribe Charges," The Salt Lake Tribune, August 27, 1975. Section B, page 1.

form of economic rents, go to those individuals most capable of getting their product (parcel of land) moved from one market to another.

This process involves several political decisions. This paper will explore some of the elements that possibly influence a person's ability to obtain these political decisions in their favor and thereby capture the rents created by zoning laws and ordinances.

CHAPTER IV

PROCEDURES

Data Preparation

The community selected for this study is Logan, Utah. The city is located in Cache County in the north-central part of the state and has a population of approximately 25,000 people. The area was settled by Mormon pioneers just prior to 1860 to take advantage of favorable farming conditions. Agriculture is still one of the principal industries of the county.

As with the majority of the Mormon settlements in the west, Logan began with a preconceived plan, that is, with blocks laid out in uniform size and shape. Certain areas were initially designated as commercial while others were residential. Land use controls of some kind have been in existence as long as the city.

In 1947 the city passed its first comprehensive land control ordinance. This ordinance established such things as fire districts and animal control. The 1947 zoning ordinance divided the city into "inner fire and business districts," "urban fire districts," and "industrial fire districts." Furthermore, it was "unlawful to keep swine, cattle, horses, or chickens in Fire District A (inner fire and business districts)." It was unlawful to keep swine, cows, and fur-bearing animals in District B. These controls were instituted "in order to better promote the health, safety, morals, and general welfare of the inhabitants of Logan City."

The first master plan and accompanying zoning ordinance of the type most common today was passed in 1962. At this time a Planning and Zoning Commission was formed to review all changes to the master plan. This entailed reviewing all petitions for changes in zoning areas. Upon their rejection, the petitioner could appeal to the City Commission, resubmit an altered proposal to the Planning and Zoning Commission, or let the issue die. The power of final decision rests with the City Commission, and in the first years under the master plan, many petitioners simply omitted the Planning and Zoning Commission and went directly to the City Commission with their requests. Since 1965, all requests have been channeled through the Planning and Zoning Commission first.

Revisions have been made from time to time with the issuance of new zoning ordinances every three or four years. Currently (1975) a new master plan has been prepared to replace the 1962 plan, which has become totally obsolete.

One objective of this study is to determine the effects of economic, political and religious power on the ability of land owners to obtain desired zoning changes. In order to do this, it was necessary to identify all those seeking changes from 1962 through 1974. This was done by examining the minutes of both the City Commission and the Planning and Zoning Commission. From these minutes, it was determined who requested the change, the dates of appearances before the different commissions, the type of change requested, the address, and the final decision of both commissions. Figure 7 presents an illustration of the Planning Board minutes.

MINUTES OF PLANNING & ZONING COMMISSION

SPECIAL MEETING

July 19, 1962

5:00 P.M.

Present: (members of) - Chairman
 (the Comm-)
 (ission)
 (listed)

Motion made by ()^a seconded by ()
 that subject to the signing of the University on the petition, the
 following described tracts of land be changed from an R-2 Zone to a
 C-1:

The South 9 rods of the East 6 rods of Lot 1,
 Block 12, Plat "E" Logan City Survey, and all
 of Block 17, Plat "E" Logan City Survey.

Voting unanimous.

Motion made by () seconded by ()
) that the Elks Lodge property referred to in the minutes
of June 13, 1962 be zoned from an R-2 to an R-3. Voting unanimous.

Meeting adjourned.

Recorded by () Approved by ()

^aNames of individuals have been omitted.

Figure 7. Example of Planning and Zoning Commission minutes.

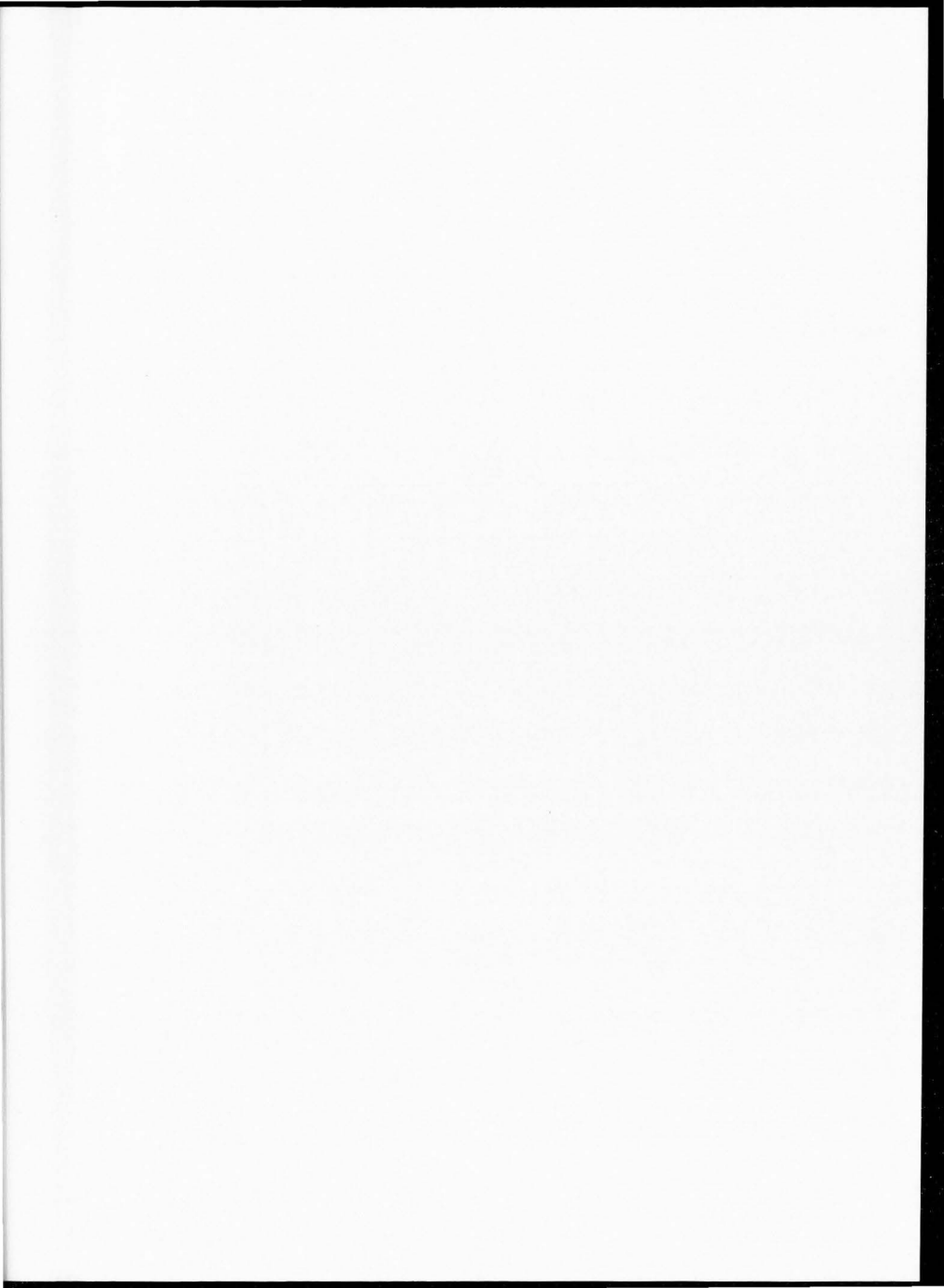
To verify those requests receiving favorable decisions from the
 Planning and Zoning Commission, letters of recommendation forwarded to
 the City Commission containing said information were examined. To
 verify the positive decisions of the City Commission, instructions went
 to the city engineer from the mayor concerning zoning alterations that
 were studied. A summary of these power ratings appear in Table 1, found
 on page 39.

Once the various individuals or groups were identified it became necessary to rate them as to their economic, political, and religious power. This presented somewhat of a problem because any large survey would have been too costly as well as legally questionable. It was decided to present a list of the names to eight knowledgeable people. These eight people represented real estate interests, city government interests, religious interests and educational interests. These people were instructed to assign a power rating to every individual with whom they were acquainted or knew of. They were to rate them on a scale of one to three with one representing none or very little power, two representing some power and three indicating substantial power. Every individual or characteristic with which they were unfamiliar they were instructed to leave blank. Figure 8 illustrates how the petitioners were rated by the eight knowledgeable people.

Individuals	Economic Power	Political Power	Religious Power
John Doe	3	1	1
Jack Doe	2		3
Bill Doe			
Larry Doe	1	1	1
Jane Doe	2	1	1
Linda Doe	2	3	3

Figure 8. Power rating survey example.

After this information was collected, separate totals for each characteristic of each individual was made. The number of replies received was noted, and the average power in each division was calculated. A summary of average power and number of replies received for each of the 87 cases appears in Table 1, page 39. Figure 9 shows



how each individual's data was summarized and recorded.

John Doe	Total	Replies	Average Power
Economic Power	19	8	2.35
Political Power	16	6	2.67
Religious Power	20	7	2.86

Figure 9. Example of power survey summary.

A data chart was then prepared for each petition which contained the previously mentioned information. (See Figure 10 and 11.) From these charts, data cards were punched containing all the needed information. This data was then subjected to a discriminant analysis model and two frequency models.

Frequency Models

The overall objective of this work is to determine whether or not perceived economic, political, or religious power aid individuals in capturing economic rents introduced by zoning changes. Two methods have been used to analyze the data: a simple frequency model and a discriminant analysis model.

The frequency model was designed to compare success ratios for groups of individuals classified by power ratings. As noted, each individual seeking a zoning change was rated with regard to his economic, political, and religious powers. The average of these responses for each of the three categories was then computed. Arbitrary power levels were established at levels of 2.00, 2.25, 2.50, and 2.75. Suppose an individual had an average of 2.31 with regard to economic

CASE:	No. 1	Economic Index	Political Index	Religious Index	Maximum Number of Responses
INDIVIDUAL:	John Doe	2.86	2.5	1.2	7
LOCATION:	718 East 900 North				
INITIAL REQUEST:	R ₂ changed to R ₃				
PLANNING and ZONING COMMISSION FINAL DECISION:	Yes	Number of appearances before the Planning and Zoning Commission			4
CITY COMMISSION FINAL DECISION:	Yes	Number of appearances before the City Commission			4
PLANNING and ZONING COMMISSION			CITY COMMISSION		
<u>Date</u>	<u>Decision</u>	<u>Remarks</u>	<u>Date</u>	<u>Decision</u>	<u>Remarks</u>
11/16/70		Tabled for further discussion	4/16/71		
12/8/70			4/28/71		
2/17/71			5/16/71		Public hearing set
3/15/71	Yes		5/28/71	Yes	

Figure 10. Data chart number one.

CASE:	No. 2	Economic Index	Political Index	Religious Index	Maximum Number of Responses
INDIVIDUAL:	Jane Doe	2.21	1.71	1.71	5
LOCATION:	450 West 300 South				
INITIAL REQUEST:	R ₃ changed to R ₁				
PLANNING and ZONING COMMISSION FINAL DECISION:	Yes	Number of appearances before the Planning and Zoning Comm.			4
CITY COMMISSION FINAL DECISION:	No	Number of appearances before the City Commission			2

PLANNING and ZONING COMMISSION			CITY COMMISSION		
Date	Decision	Remarks	Date	Decision	Remarks
3/15/73		Instructed to obtain a petition with at least 400 names.	5/4/73		
3/27/73			6/18/73	No	
4/18/73					
5/2/73	Yes				

Figure 11. Data chart number two.

Table 1. Summary of City Commission and Planning and Zoning Commission minutes

Case	Date	Planning and Zoning Commission Decision	City Commission Decision	Average Economic Power	Average Political Power	Average Religious Power	Maximum Number of replies received
1	1962	No	No	2.00	1.00	1.00	7
2	1962	No	No	1.00	1.00	1.00	0
3	1962	No	No	1.00	1.00	1.00	0
4	1962	Yes	Yes	2.5	2.50	1.00	3
5	1962	Yes	No	2.57	2.14	1.00	7
6	1962	No	No	2.33	1.80	1.50	6
7	1962	Yes	Yes	2.5	2.5	1.00	2
8	1963	No	No	2.29	2.17	1.75	7
9	1963	No	No	1.00	1.00	1.00	0
10	1964	No	No	1.00	1.00	1.00	0
11	1964	Yes	Yes	2.13	2.13	1.00	8
12	1964	Yes	Yes	2.86	2.50	1.20	7
13	1965	Yes	No	2.60	2.40	3.00	5
14	1965	Yes	Yes	2.40	2.00	1.20	5
15	1965	Yes	Yes	2.60	2.00	1.50	5
16	1965	No	No	2.00	1.80	1.67	5

Case	Date	Planning and Zoning Commission Decision	City Commission Decision	Average Economic Power	Average Political Power	Average Religious Power	Maximum Number of replies received
17	1965	No	No	2.67	1.67	1.33	3
18	1965	Yes	Yes	2.43	2.33	1.20	7
19	1966	Yes	No	3.00	1.67	1.67	3
20	1966	Yes	Yes	3.00	1.67	1.00	3
21	1966	No	No	1.50	1.00	1.00	2
22	1966	No	No	2.00	2.00	1.00	3
23	1967	No	No	2.00	2.00	1.00	3
24	1966	No	No	2.00	2.25	2.29	8
25	1967	Yes	Yes	2.60	2.40	1.60	5
26	1967	No	No	2.50	2.50	1.00	3
27	1967	No	No	1.00	1.00	1.00	0
28	1967	No	No	2.00	1.50	1.33	3
29	1967	No	No	1.00	1.00	1.00	0
30	1967	Yes	Yes	3.00	2.50	3.00	4
31	1968	Yes	Yes	2.63	2.38	2.71	8
32	1968	Yes	No	2.86	2.50	.120	7

Table 1. (Cont'd)

Case	Date	Planning and Zoning Commission Decision	City Commission Decision	Average Economic Power	Average Political Power	Average Religious Power	Maximum Number of replies received
33	1968	Yes	Yes	2.75	2.63	2.33	8
34	1969	Yes	Yes	3.00	2.00	2.80	5
35	1969	Yes	No	1.50	1.25	1.00	4
36	1969	Yes	Yes	2.00	1.80	1.67	5
37	1969	Yes	Yes	3.00	2.00	1.50	3
38	1969	Yes	Yes	3.00	2.67	1.50	6
39	1969	No	No	1.50	1.50	1.50	2
40	1969	Yes	No	1.00	1.00	2.00	1
41	1969	Yes	Yes	2.67	2.83	1.40	6
42	1970	Yes	Yes	2.63	3.00	2.33	8
43	1970	Yes	No	1.25	1.75	1.33	4
44	1970	Yes	Yes	2.57	2.14	1.00	7
45	1970	Yes	Yes	2.29	2.00	1.83	7
46	1970	No	No	2.43	2.00	3.00	7
47	1970	Yes	No	2.50	2.50	1.00	3
48	1970	No	No	2.00	2.00	1.00	3

Case	Date	Planning and Zoning Commission Decision	City Commission Decision	Average Economic Power	Average Political Power	Average Religious Power	Maximum Number of replies received
49	1970	Yes	Yes	1.67	1.00	1.33	3
50	1970	Yes	Yes	2.80	2.20	2.25	5
51	1970	No	No	2.00	2.00	1.00	3
52	1970	Yes	No	2.71	2.43	2.00	7
53	1971	No	No	2.71	2.43	2.00	7
54	1971	No	No	2.86	2.43	2.00	7
55	1971	Yes	No	2.63	3.00	2.33	8
56	1971	Yes	No	2.67	2.33	1.00	3
57	1971	Yes	No	2.63	2.38	1.00	8
58	1971	No	No	1.00	1.00	2.50	2
59	1971	Yes	Yes	2.67	1.67	1.33	3
60	1971	No	No	1.67	1.00	1.33	3
61	1971	Yes	Yes	2.67	2.33	1.00	3
62	1971	Yes	No	2.67	2.00	1.00	3
63	1971	Yes	No	2.33	1.67	1.67	3
64	1971	Yes	No	2.63	2.38	1.00	3

Table 1. (Cont'd)

Case	Date	Planning and Zoning Commission Decision	City Commission Decision	Average Economic Power	Average Political Power	Average Religious Power	Maximum Number of replies received
65	1972	Yes	Yes	2.33	2.00	1.67	6
66	1972	No	No	2.17	1.80	2.75	6
67	1972	No	No	2.00	1.50	1.00	2
68	1972	No	No	1.67	1.17	1.17	6
69	1972	No	No	1.50	1.25	1.00	4
70	1972	Yes	Yes	2.67	2.83	1.40	6
71	1972	No	No	1.20	1.40	1.40	5
72	1972	Yes	Yes	2.63	2.29	1.29	8
73	1972	No	Yes	2.63	2.38	1.00	8
74	1972	No	No	1.75	1.25	1.00	4
75	1972	No	No	1.60	1.25	1.50	5
76	1972	No	No	2.29	1.71	1.33	7
77	1972	Yes	No	3.00	2.00	2.80	5
78	1972	Yes	No	1.86	1.57	2.57	7
79	1972	No	No	2.00	2.33	1.25	6
80	1973	Yes	Yes	2.67	2.83	1.40	6

Case	Date	Planning and Zoning Commission Decision	City Commission Decision	Average Economic Power	Average Political Power	Average Religious Power	Maximum Number of replies received
81	1973	No	No	1.00	1.00	1.00	0
82	1973	No	No	2.00	1.40	1.80	5
83	1973	Yes	Yes	3.00	2.00	2.80	5
84	1974	Yes	Yes	2.86	2.50	1.20	7
85	1974	No	No	2.67	2.00	1.00	3
86	1974	No	No	2.00	2.00	2.00	1
87	1974	No	No	1.00	1.00	1.00	0

power, a 2.11 relative to political power, and a 1.60 average in the religious category. He would then have economic power at level two ($2.25 \leq 2.31$), political power at level one ($2.00 \leq 2.11$), and no religious power ($1.60 < 2.00$). This was then transferred onto computer data cards in binary form. That is, those individuals having power at the first level (≥ 2.00) were given a one while those without power were given a zero. The same procedure followed with level two (≥ 2.25), level three (≥ 2.50), and level four (≥ 2.75) for all three variables.

To further illustrate this, take an individual with an economic rating of 2.31, a political rating of 2.11, and a religious rating of 1.60. The individual would receive a one at level one, a one at level two, and a zero at levels three and four for the economic power variable. In analyzing his political power, he would receive a one at level one and zeros at the other three levels. In the religious category, he would receive zeros at all four power levels. These twelve variables (four levels for each of the economic, political, and religious power classes) form the data base for the statistical analysis.

The first part of the frequency model compared the successful individuals against the unsuccessful individuals at each level of power. That is, the number of individuals with no power receiving zoning changes was divided by the total number of individuals with no power seeking changes. Similarly, the number of individuals receiving favorable decisions with power at level one were divided by the total number of individuals possessing power at level one. This gave the percentage successful at each level. This same procedure was carried out on all four levels of economic power, all four levels of political

power, and all four levels of religious power for both the City Council and the Planning and Zoning Board decisions.

To determine whether or not the frequencies were significantly different, a two tailed "t" statistic was calculated.

$$t = \frac{f_2 - f_1}{\sqrt{f(1-f) \left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

where:

f_1 = the success frequency for group (with power)

f_2 = the success frequency for group two (without power)

N_1 = the number of successful observations for group one

N_2 = the number of successful observations for group two

with f given by:

$$f = \frac{Y_1 + Y_2}{N_1 + N_2}$$

where:

Y_1 = the number of successful in group one; i.e., $Y_1 = N_1(f_1)$

Y_2 = the number of successful in group two; i.e., $Y_2 = N_2(f_2)$

therefore:

$$f = \frac{N_1(f_1) + N_2(f_2)}{N_1 + N_2}$$

There are $N_1 + N_2 - 2$ degrees of freedom in the model.

This test statistic is used to accept or reject the hypothesis that f_1 (success frequency of the power group) is not significantly different from f_2 (success frequency of the no power group). In other words, the "t" statistic is used to test whether or not $f_1 - f_2$ is not significantly different from zero. The null hypothesis is:

$$H_0 : f_1 = f_2 \quad \text{or,}$$

$$H_0 : f_1 - f_2 = 0.$$

If the absolute value of the computed t statistic is greater than the t table value at a given level of significance, then the null hypothesis is rejected and the alternative hypothesis is accepted. The alternative hypothesis is that f_1 and f_2 are significantly different from each other.

Since the working hypothesis is that the possession of economic, political, and religious power does not aid individuals in obtaining changes to the zoning ordinances, the frequency model was further refined to limit each individual to one power level only in each of the three areas. Previously, if an individual had a political rating of 2.71, he would have received a one at levels 1, 2, and 3 and a zero at level 4. He therefore would have been tabulated into the success frequencies of levels 1, 2, and 3. The second method used to compute success ratios eliminated those individuals with power at the fourth level from the first three levels; it eliminated those with power at the third level from the first two levels; and it eliminated those with power at level 2 from level 1. The second frequency model would have treated an individual with a political rating of 2.71 at level 3 only. After restricting every individual to the highest power level for which he could qualify, they were separated into successful (those receiving favorable responses from the City Commission or the Planning and Zoning Commission) and unsuccessful. Once again, the number of successful at each power level were divided by the total number in each level to determine the success ratios for each power level of the

three variables.

Discriminant Analysis Model

The next model used to test the hypothesis was a discriminant analysis model. "Discriminant analysis is used when N normally distributed observations on p variables are hypothesized to explain an observed dichotomization of the data." (25, p. 402).

In this case there were 87 observations on 12 variables (i.e., $N = 87$, $p = 12$). The variables were all binary (i.e., each variable was either a zero or a 1). A "1" is recorded if the individual has power at the level represented by the variable or a "zero" if the individual does not possess power at that level.

The 87 observations were further classified into two groups. Group one (N_1) contains the successful individuals while group two (N_2) contains those individuals that were unsuccessful in their attempts to obtain zoning changes. The successful observations N_1 , plus the unsuccessful observations N_2 , equal the total observations N . (31, p. 96)

If perfect discrimination existed along these power ratings, those with power would be successful 100 percent of the time and those without power would be unsuccessful 100 percent of the time. More clearly, group N_1 (successful) would be composed entirely of individuals with power and group N_2 (unsuccessful) would be made up totally of individuals without power at the level in question. If no discrimination existed, group N_1 as well as group N_2 would be composed of petitioners with and without power. The discriminant model analyzes the data to

determine if the variables used were able to discriminate between successful and unsuccessful petitioners.

After grouping the data into successful and unsuccessful groups (N_1 and N_2), the overall mean \bar{X} of the total group N along with means \bar{X}^1 and \bar{X}^2 of groups N_1 and N_2 respectively are computed. These means are given by:

$$\bar{X}_i = \sum_{t=1}^N \left(\frac{X_{it}}{N} \right); \quad \bar{X}_i^1 = \sum_{t=1}^{N_1} \left(\frac{X_{it}}{N_1} \right); \quad \bar{X}_i^2 = \sum_{t=2}^{N_2} \left(\frac{X_{it}}{N_2} \right)$$

Once the means of each group were calculated, the differences of the means d_i were calculated. This was done in the following manner:

$$d_i = \bar{X}_i^1 - \bar{X}_i^2 \quad \text{with } i = 1, 2, \dots, p$$

This was done so that a linear function of those differences d_i could be found which "discriminates most successfully in a certain sense between the two sets of variables." (31, p. 97) This function is in the form of:

$$Z = k_1 d_1 + k_2 d_2 + k_3 d_3 + \dots + k_p d_p$$

"The solutions k_i are proportional to the estimates of the coefficients of the linear function which in the population corresponding to the sample discriminates best between the two groups." (31, p. 97)

This linear function is of the form:

$$Z = k_1 X_1 + k_2 X_2 + k_3 X_3 + \dots + k_p X_p$$

This computed Z value serves as an index of probability. That is, if perfect discrimination exists along the variables, those with high Z values would be found in the successful group N_1 and those individuals with low Z scores would be found in the unsuccessful group. To

further clarify this, suppose that $k_1 = 2$, $k_2 = 3$, and $k_3 = 1$. The function is $Z = 2X_1 + 3X_2 + 1X_3$ with X_1 being economic power, X_2 being political power, and X_3 being religious power. Individual A has power in all three areas and, therefore, X_1 , X_2 , and X_3 are all equal to 1.

$$Z_A = 2(1) + 3(1) + 1(1) = 6$$

Individual B has economic and religious power but no political power and, therefore X_2 equals zero.

$$Z_B = 2(1) + 3(0) + 1(1) = 3$$

Individual C has political and economic power and individual D has only economic power. Therefore:

$$Z_C = 2(1) + 3(1) + 1(0) = 5$$

$$Z_D = 2(1) + 3(0) + 1(0) = 2$$

Assuming that discrimination exists along the three variables, one would expect to find individuals A and C in the successful group and individuals B and D in the unsuccessful group. The data should appear in the following manner:

<u>Individual</u>	<u>Successful Group</u>	<u>Unsuccessful Group</u>
A	6	
C	5	
B		3
D		2

Of course, it is not reasonable to expect perfect discrimination to exist. One would expect a few individuals with high Z values to lie in the unsuccessful group and conversely, a few individuals with low Z values to be found in the successful group. With less than perfect discrimination the data would appear similar to the following:

<u>Individual</u>	<u>Successful Group</u>	<u>Unsuccessful Group</u>
A	6	
C	5	
E		5
F	5	
G	4	
B		3
D		2
H		2
I	1	
J		1

In this case, individuals E ($Z=5$) and I ($Z=1$) lie outside the expected group. Analyzing these unexpected cases is important in determining whether or not discrimination exists along the test variables.

In this particular problem four equations were run representing the four power levels. Each equation included three variables: one economic, one political, and one religious. Four sets of equations were run for both the City Commission and the Planning and Zoning Board decisions.

$$\begin{aligned} \text{Equation 1: Power level 2.00} & \quad Z = k_1x_1 + k_5x_5 + k_9x_9 \\ \text{Equation 2: Power level 2.25} & \quad Z = k_2x_2 + k_6x_6 + k_{10}x_{10} \\ \text{Equation 3: Power level 2.50} & \quad Z = k_3x_3 + k_7x_7 + k_{11}x_{11} \\ \text{Equation 4: Power level 2.75} & \quad Z = k_4x_4 + k_8x_8 + k_{12}x_{12} \end{aligned}$$

Variables:

- X_1 economic power at level one (2.00)
- X_2 economic power at level two (2.25)
- X_3 economic power at level three (2.50)
- X_4 economic power at level four (2.75)
- X_5 political power at level one (2.-0)
- X_6 political power at level two (2.25)

X₇ political power at level three (2.50)

X₈ political power at level four (2.75)

X₉ religious power at level one (2.00)

X₁₀ religious power at level two (2.25)

X₁₁ religious power at level three (2.50)

X₁₂ religious power at level four (2.75)

The estimated k_i in each equation are estimates of the coefficients of the linear function that best discriminates between two groups N_1 and

N_2 . Standard equational statistics are given by:

$$1) R^2 = \frac{N_1 N_2 (k_1 d_1 + \dots + k_p d_p)}{N} \quad (p = 1, 2, \dots, 12)$$

$$2) F = \frac{(N - p - 1)R^2}{p(1 - R^2)} \quad (p = 1, 2, \dots, 12)$$

The discriminant analysis does not provide for tests of significance of the individual k_i . However, the relative importance of each k_i can be illustrated in two ways. First, the contribution to the overall Z score of an average observation is the absolute value of the product of the discriminant coefficient k_i and the overall mean of the i^{th} variable \bar{X}_i ; $|k_i \bar{X}_i|$.

A second method to determine the contribution of the individual variable to the overall score of the equation is to evaluate the coefficient k_i times the overall mean of the i^{th} variable minus the sample standard deviation (S_{X_i}) of the i^{th} variable. That is,

$$|k_i (\bar{X}_i - S_{X_i})|$$

CHAPTER V

RESULTS AND CONCLUSIONS

Introduction

This chapter is organized so that the results of each subsection will be presented followed immediately by a discussion of their inferences. As noted in the preceding chapter, two frequency distribution models were used. The first determined success ratios at each level of power for all three variables. No attempt was made to restrict an individual to his highest power level, in this section. If an individual qualified at level 3, for example, he was considered at levels 1, 2, and 3. The results of this section of the frequency model are presented in Table 2. It should be noted that one asterisk indicates significance at the 0.10 probability level, that two asterisks indicate significance at the 0.05 level, and that three asterisks indicate significance at the 0.01 level.¹

Success Frequencies

The differential success frequencies were significant at the 0.01 level for all four levels of economic power. Under the economic power category those individuals without such power were only

¹Significance in this case indicates that the percent successful at the level in question is significantly different from the percent successful at the no power level, i.e., accept

$$H_A: f_2 - f_1 \neq 0 \text{ and reject } H_0; f_2 - f_1 = 0.$$

Table 2. Success frequencies measuring power at or below the maximum level

FREQUENCY MODEL							
Success frequencies measuring power at or below the maximum level.							
Economic Power							
1) Power Level	% Successful		% Unsuccessful		Computed test		
	PZC ^a	CC ^b	PZC	CC	Statistic t	CC	
No Power	22.7	44.5	77.3	54.5			
2.00	64.6	46.2	35.4	53.8	3.4075***	3.5224***	
2.25	80.0	56.0	20.0	44.0	8.7860***	6.8109***	
2.50	85.4	58.5	14.6	41.5	8.1387***	6.1391***	
2.75	92.9	71.4	7.1	28.6	6.7555***	5.7362***	
Political Power							
2) No Power	27.8	11.1	72.2	88.9			
2.00	72.5	52.9	27.5	47.1	4.1268***	4.0125***	
2.25	80.0	56.7	20.0	43.3	7.4158***	5.8711***	
2.50	93.3	73.3	6.7	26.7	6.1028***	5.1699***	
2.75	100.0	80.0	0.0	20.0	3.9756***	3.4221***	
Religious Power							
3) No Power	50.0	35.3	50.0	64.7			
2.00	58.4	36.8	41.6	63.2	1.4244	0.1246	
2.25	73.3	46.7	26.7	53.3	4.2510***	3.1431***	
2.50	70.0	40.0	30.0	60.0	3.4505***	2.3588**	
2.75	71.4	42.9	28.6	57.1	2.7693***	1.9712*	

Degrees of Freedom = 85

^aPZC indicates Planning and Zoning Commission decisions.^bCC indicates City Commission decisions

successful about 23 percent of the time in obtaining zoning changes from the Planning and Zoning Commission. Individuals with economic power at the lowest level (2.00) were almost three times as successful (65%) as those individuals without economic power. Those at the next highest economic power level (2.25) were successful 80 percent of the time before that Board. It is important to realize that as a person's economic power goes up, so does his ability to receive affirmative answers to his petitions. The Planning and Zoning Board approved 85 percent of the requests from individuals with economic power at level 3 (2.50) and 93 percent of the requests from individuals with economic power at the highest level (2.75). Figure 12 presents graphically the relationship between economic power and ability to gain rezoning requests.

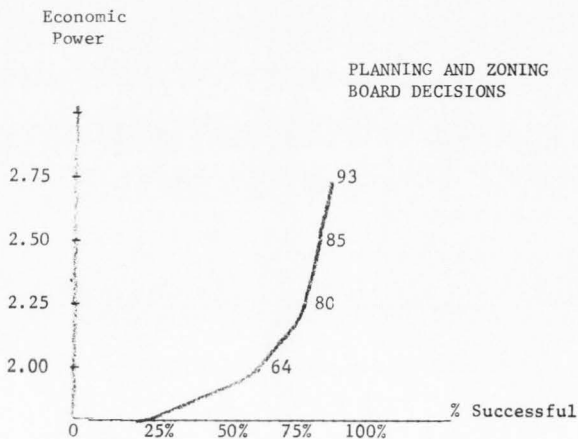


Figure 12. Planning and Zoning Board decisions, economic power.

The city government is planned so that the City Commission hears only requests that have received affirmative decisions from the Planning and Zoning Board. This is usually, but not always, the case. There were a few (less than 5% of the total) individuals who went directly to the City Council; of the three individuals attempting this, only one received a zoning change. Also, individuals receiving denials from the Planning and Zoning Board had the right to appeal the decision to the City Commission. Most of the time the City Commission upheld the Planning and Zoning Board.

The success frequencies for individuals with economic power before the City Commission followed a pattern similar to those of the PZB. For example, individuals with no power were successful only 44.5 percent of the time (f_2) while individuals with power at level 1 (2.00) were successful 46 percent of the time (f_2). The resulting t test statistic for these two levels indicates that the null hypothesis that $f_2 - f_1$ is significantly different from zero at the 0.01 level. Those individuals with power at the 2.25 level were successful 56 percent of the time. Fifty-eight percent of the people with economic power at level 3 were successful and 71 percent at level 4 were successful. Figure 13 shows this data graphically.

For both Commissions, economic power was positively related to frequency of approval. This would indicate that zoning laws help the rich get richer by allowing them to capture the economic rents formed by zoning ordinances. All economic results were significant at the 0.01 probability level.

Political power and its influence on the Planning and Zoning Commission will now be considered. All of the frequencies in this

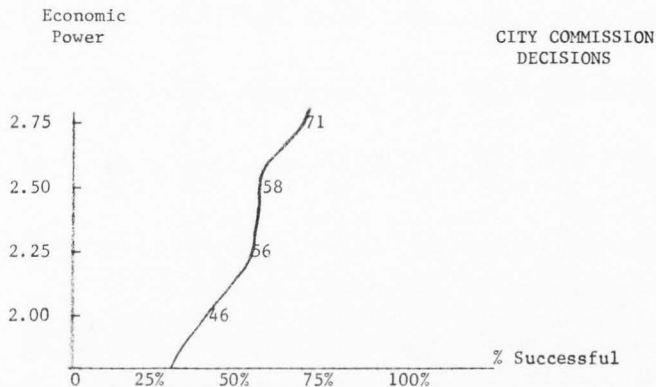


Figure 13. City Commission decisions, economic power.

category are significantly different from the no power frequency at the 0.01 level. Individuals without power were successful only 28 percent of the time while those with political power at the 2.00 level were successful 72 percent of the time. Eighty percent with political power at level 2 were successful; 93 percent at level 3 were successful and 100 percent of those having political power at level 4 were successful. Those with power at the highest level were approximately three and a half times more successful than those lacking political influence. With a larger sample it would be reasonable to assume that individuals with political power at the highest level would not be successful 100 percent of the time. Nevertheless, this data indicates that the Planning and Zoning Board decisions are very susceptible to political influences. These results are presented graphically in Figure 14. As with economic power, the more political power an individual enjoys, the greater are his chances of success with the

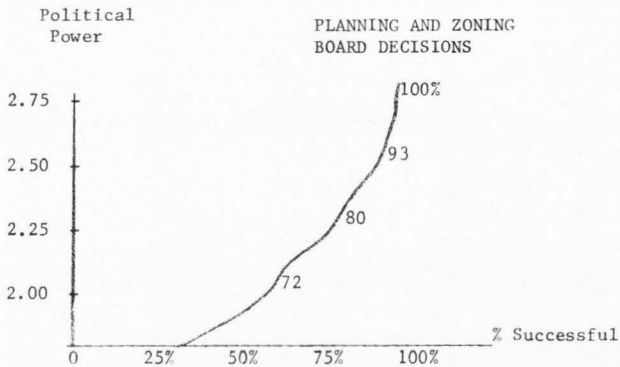


Figure 14. Planning and Zoning Board decisions, political power.

Planning and Zoning Board.

In every case, the City Commission was less apt to approve a request than was the Planning and Zoning Board. Even so, political power seemed to influence the City Commission in much the same way it did the PZB. For example, individuals with no power were successful 11 percent of the time while individuals at the highest level were successful 80 percent of the time. Those with political power at the 2.00 level were successful 53 percent of the time; those with power at the 2.25 level were successful 57 percent of the time, and individuals with power at the 2.50 level were successful 75 percent of the time. This seems to indicate that the City Commission is just as susceptible to political pressures as the PZB. These results are presented graphically in Figure 15.

The more economic and political power the petitioner had, the easier it was for him to get his requests granted. Also, all the economic and political frequencies were significantly different from

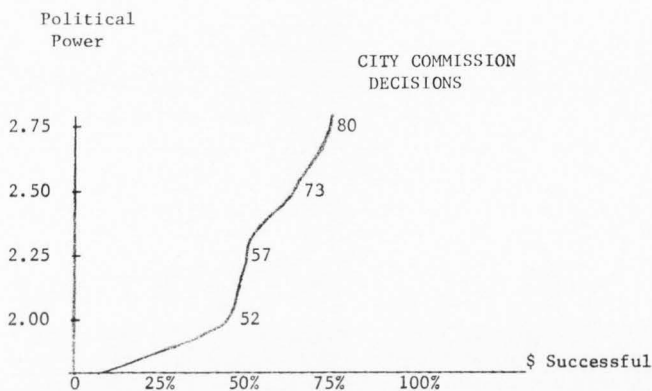


Figure 15. City Commission decisions, political power.

the respective no power frequencies at the 0.01 level. This does not hold for those having religious power at either the PZB or the CC. For the Planning and Zoning Board, those with no religious power had a success frequency of 50 percent. Individuals with religious power at level 1 were 68 percent successful. The differences in these frequencies, however, are not significantly different. Therefore, for religious power at this level, the hypothesis $H_0: f_2 - f_1 = 0$ must be accepted and the alternative hypothesis $H_A: f_2 - f_1 \neq 0$ must be rejected. At religious power level 2 (2.25), 73 percent were successful. This is significantly different from the no power group at the 0.01 level. Holders of power at level 3 obtained zoning changes 70 percent of the time. This also is significantly different than the no power frequency. At level 4, 71 percent of the petitioners were successful. This is significant at the 0.01 level from the no power group. Figure 16 is a graph of these results.

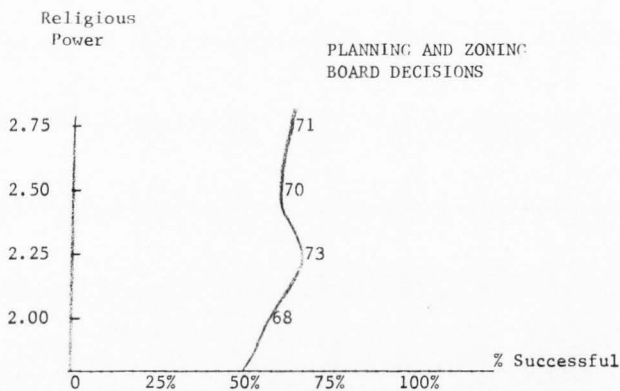


Figure 16. Planning and Zoning Board decisions, religious power.

Since the no power and the first power level results are not significantly different and no set pattern is formed from the other results (i.e., more power could mean more or less success), it appears that religious power has less influence on the Planning and Zoning Board than does economic and political power.

Lower frequencies of success occur with respect to City Commission decisions and religious power. Those individuals with no religious power were successful 35.3 percent while those at the very highest level of religious power were successful only 42.9 percent. Thirty-six percent were successful at level 1; 47 percent were successful at level 2 and only 40 percent at level 3. In terms of significance, level 1 results were insignificantly different from the no power findings. Level 2 was significantly different from the no power group at the 0.01 level, and level 3 was only significant at the 0.05 level. Power level 4 was significantly different from the no power group at

the 0.10 level only. Figure 17 provides a graphical presentation of these results.

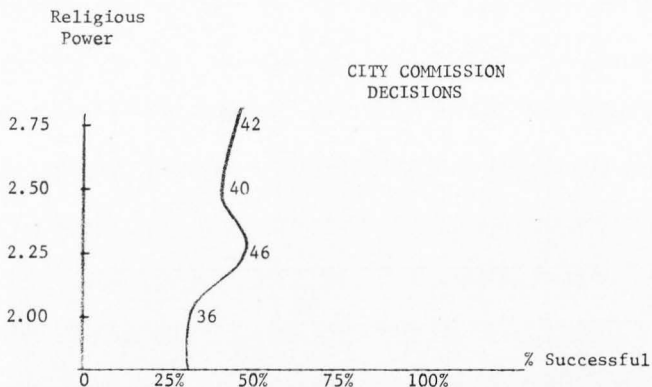


Figure 17. City Commission decisions, religious power.

The City Commission results coupled with the Planning and Zoning Board findings tend to indicate that the influence of religious power on zoning decisions is minimal at best. Of the three areas tested, only religious power failed to be significant at the highest test level.

To provide further insight into the influence of the three power variables on the decision making process of the PZB and CC, success ratios were calculated after restricting each individual to his highest power level. That is, if an individual had an economic power rating of 2.79, a political rating of 2.81 and a religious power rating of 2.31, he would be eliminated from the first three economic power levels and restricted to the fourth level. Previously, he would have been entered in all four power levels. The same thing would happen with

respect to political power. In the religious category, the individual would be eliminated from the first power level (2.00) and restricted to the second (2.25). The individual fails to have enough power to make the 2.50 cut off.

Table 3 contains the data from the second part of the frequency model. As before, significance at the 0.01, 0.05, and 0.10 levels are indicated by three, two, and one asterisks respectively. The results are interesting in that many of the results that were significantly different from the no power frequencies become insignificant or significant at a lower level from the no power frequencies.

In the economic category, the Planning and Zoning Board results became insignificantly different from the no power results at the 2.00 level. By eliminating those in higher economic power levels, the percent successful at level 1 dropped from 65 percent to 13 percent. On the City Commission side the percent successful dropped from 46.2 to 13.3. Both the PZB and CC results became insignificant at any test level. Level 2 became significant at the highest test level but with a lower success ratio than before. The PZB results went from 80 percent successful to 56 percent successful. City Commission results dropped from 56 percent successful to 44 percent successful. Planning and Zoning Commission level 3 dropped from 85 percent to 81 percent while the City Commission dropped from 58 percent to 51 percent. This third level decline was proportionately much less than the first and second level declines. Of course, those in the highest level remained the same. These findings would indicate even more forcefully that the individuals with considerable economic power were the ones most capable of gaining from the zoning process. Figures 18 and 19 give these

Table 3. Success frequencies restricting individuals to their highest power level

Power Level	Success frequencies restricting individuals to their highest power level.					
	Economic Influence, One Power Level Only				Computed test statistic t	
	\bar{X} Successful		\bar{X} Unsuccessful			
PZC ^a	CC ^b	PZC	CC	PZC	CC	
No Power	22.7	4.5	77.3	95.5		
2.00	13.3	13.3	86.7	86.7	-0.7163	0.9615
2.25	55.6	44.4	41.4	55.6	3.1619***	2.7359***
2.50	81.5	51.9	18.5	48.1	4.0448***	2.4867**
2.75	92.9	71.4	7.1	28.6	5.7712***	4.8326***
Political Influence, One Power Level Only						
No Power	27.8	11.1	72.2	88.9		
2.00	61.9	47.6	38.1	52.4	2.5333**	3.0888***
2.25	66.7	40.0	33.3	60.0	4.1331***	2.9058***
2.50	90.0	70.0	10.8	30.0	4.3034***	3.6130***
2.75	100.0	80.0	0.0	20.0	3.4011***	2.8733***
Religious Influence, One Power Level Only						
No Power	50.0	35.3	50.0	64.7		
2.00	50.0	0.0	50.0	100.0	0.0	-1.4552
2.25	80.0	60.0	20.0	40.0	2.0125***	1.8973*
2.50	66.7	33.3	33.3	66.7	1.4545	-0.7302
2.75	71.4	42.9	28.6	57.1	1.4389	0.9759

^aPZC refers to the Planning and Zoning Commission

^bCC refers to the City Commission

results graphically.

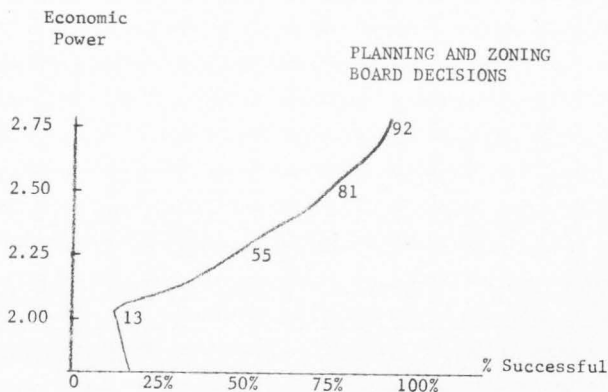


Figure 18. Planning and Zoning Board decisions, economic power.

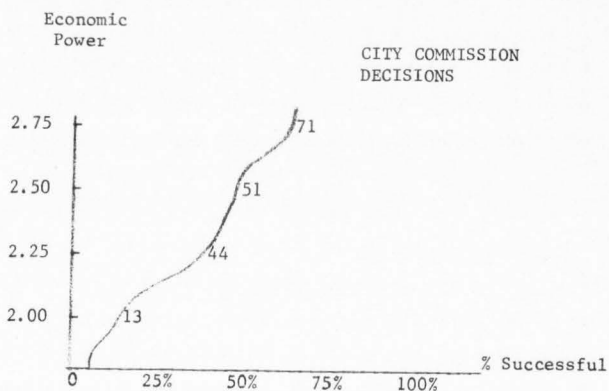


Figure 19. City Commission decisions, economic power.

The political power data was similar to that for economic power. At level 1, the PZB results went from 62.5 percent successful to 61.9 percent while the CC results dipped from 52.9 to 47.6 percent. Level



Figure 21. City Commission decisions, political power.

Referring to religious power, 50 percent of the petitioners were successful before the PZB, and zero percent were successful before the CC at the 2.00 level. At level 2, 80 percent were successful before the PZB, and 60 percent before the City Commission. Success fell slightly for both the PZB and the CC at level 3. Success fell to 67 percent and to 33 percent for the PZB and the CC respectively. Seventy-one percent of the petitioners were successful before the Planning and Zoning Board at level 4, while 42 percent were successful in obtaining their requests before the City Commission. None of the results were significantly different from the no power results for either the PZB or the CC at the 0.01 level of significance. The Planning and Zoning Board frequencies at power level 2 were significantly different from the no power frequencies at the 0.05 level of significance. Figures 22 and 23 graph these results.

No visible pattern appears from this religious power data. This adds further weight to the insignificant role that religious power has

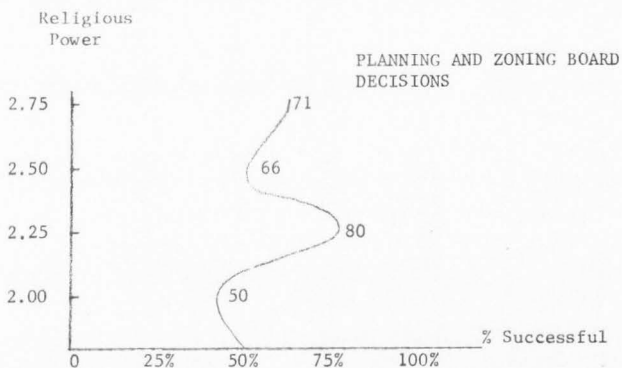


Figure 22. Planning and Zoning Board decisions, religious power.

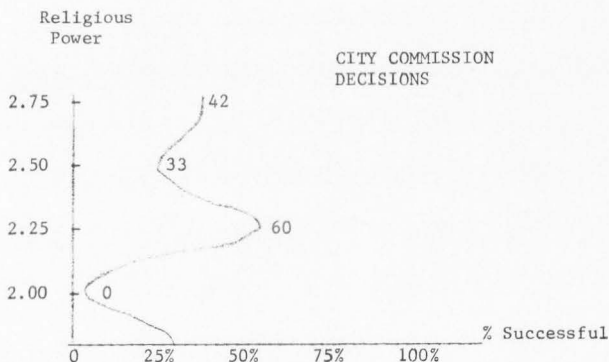


Figure 23. City Commission decisions, religious power.

on zoning decisions at either the Planning and Zoning Commission level or the City Commission level.

In summing up the information from the frequency models, the more economic and political power one has, the easier it is for him to obtain zoning decisions passed in his favor. Religious power has very little

effect on the process of altering zoning laws.

Discriminant Analysis Model

The discriminant analysis model estimated four equations, one for each level of power (2.00, 2.25, 2.50, 2.75). Each equation contained an economic, a political, and a religious power variable.¹ Tables 4 and 5 present the results for the Planning and Zoning Board and the City Commission respectively. In total, eight equations were estimated: four for the City Council findings, and four for the Planning and Zoning Board results.

The discriminant analysis model provided some interesting results. First, regarding significance of the equations, the F statistics were significant at the 0.01 level for all eight equations estimated. Unlike ordinary least squares estimates, there were no tests for significance of the individual variables. Because of this, two methods were devised to evaluate the relative importance of each variable. The first method consisted of taking the absolute value of the product of the estimated coefficient (k_i) and the overall mean of the variable (X_i). The resulting values provided a way of ranking the contribution of each variable to the probability index Z by ordering the test values from highest to lowest. The variables with the highest values of $|k_i X_i|$ were relatively more important than those with lower values.

Referring to the PZB decisions, this test revealed that the religious power variable was always the least important at every level

¹See Chapter IV (Procedures), page 32, for a discussion of the model.

Table 4. Estimated discriminant functions, Planning and Zoning Commission decisions

Estimated Discriminant Functions Planning and Zoning Board Decisions
 $N_1 = 47$ $N_2 = 40$ $N_t = 87$

	i Variable	Estimate of Coefficient k_i	Overall mean \bar{X}	Overall variance S^2_{Xi}	Overall standard Deviation S_{Xi}	$ k_i \bar{X} $ (rank)	$ k_i (\bar{X} - S_{Xi}) $ (rank)
Power Level 2.0		Equation 1) $z = k_1x_1 + k_5x_5 + k_9x_9$			$R^2 = .2604$	$F = 7.1890$	
Economic	1	.0079	.7471	.1911	.4372	.0059 (2)	.0024 (1)
Political	5	.0205	.5862	.2454	.4954	.0120 (1)	.0019 (2)
Religious	9	.0045	.2184	.1727	.4155	.0010 (3)	.0009 (3)
Power Level 2.25		Equation 2) $z = k_2x_2 + k_6x_6 + k_{10}x_{10}$			$R^2 = .6104$	$F = 16.9116$	
Economic	2	.0415	.5742	.2473	.4973	.0239 (1)	.0034 (1)
Political	6	.0060	.3448	.2285	.4781	.0021 (2)	.0008 (3)
Religious	10	.0085	.1724	.1443	.3799	.0015 (3)	.0018 (2)
Power Level 2.50		Equation 3) $z = k_3x_3 + k_7x_7 + k_{11}x_{11}$			$R^2 = .5746$	$F = 15.88042$	
Economic	3	.0390	.4713	.2521	.5021	.0184 (1)	.0012 (3)
Political	7	.0102	.1724	.1443	.3799	.0018 (2)	.0021 (1)
Religious	11	.0083	.1149	.1029	.3208	.0010 (3)	.0017 (2)
Power Level 2.75		Equation 4) $z = k_4x_4 + k_8x_8 + k_{12}x_{12}$			$R^2 = .2308$	$F = 6.3779$	
Economic	4	.0286	.1609	.1366	.3696	.0046 (1)	.0060 (1)
Political	8	.0327	.0575	.0548	.2341	.0019 (2)	.0058 (2)
Religious	12	.0001	.0805	.0748	.2736	.0000 (3)	.0000 (3)

Table 5. Estimated discriminant functions, City Commission decisions

Estimated Discriminant Functions City Commission Decisions
 $N_1 = 31$ $N_2 = 56$ $N_c = 87$

	i Variable	Estimate of Coefficient k_i	Overall mean \bar{X}	Overall Standard Deviation S_{X_i}	$ k_i \bar{X} $ (rank)	$ k_i (\bar{X} - S_{X_i}) $ (rank)
Power Level 2.00 Equation 1) $z = k_1x_1 + k_5x_5 + k_9x_9$ $R^2 = .2547$ $F = 7.0558$						
Economic	1	.0102	.7471	.4372	.0076 (2)	.0032 (1)
Political	5	.0211	.5862	.4954	.0124 (1)	.0019 (2)
Religious	9	(-).0058	.2184	.4155	.0013 (3)	.0011 (3)
Power Level 2.25 Equation 2) $z = k_2x_2 + k_6x_6 + k_{10}x_{10}$ $R^2 = .3331$ $F = 9.2245$						
Economic	2	.0290	.5747	.4973	.0167 (1)	.0022 (1)
Political	6	.0053	.3448	.4781	.0018 (2)	.0007 (2)
Religious	10	.0026	.1724	.3799	.0004 (3)	.0005 (3)
Power Level 2.50 Equation 3) $z = k_3x_3 + k_7x_7 + k_{11}x_{11}$ $R^2 = .3984$ $F = 8.2626$						
Economic	3	.0225	.4713	.5021	.0106 (1)	.0007 (2)
Political	7	.0153	.1724	.3799	.0026 (2)	.0032 (1)
Religious	11	.0012	.1149	.3208	.0001 (3)	.0002 (3)
Power Level 2.75 Equation 4) $z = k_4x_4 + k_8x_8 + k_{12}x_{12}$ $R^2 = .2212$ $F = 6.1135$						
Economic	4	.0300	.1609	.3696	.0048 (1)	.0063 (1)
Political	8	.0334	.0565	.2341	.0019 (2)	.0059 (2)
Religious	12	(-).0065	.0805	.2736	.0005 (3)	.0013 (3)

of power. At the 2.00 power level, political power was the most important with economic power second. At the 2.25, 2.50, and 2.75 levels of power, economic power was the most important with political power in second place. This variable ranking test ($\{k_i \bar{X}_i\}$) provided similar results for the City Commission discriminant equations. At the first power rating (2.00), economic power was ranked second in importance. In the remaining three power levels (2.25, 2.50, and 2.75), economic power was first in importance. Political power ranked first at the 2.00 level and second in importance in the top three levels of power. In all four equations related to the City Council, i.e., all four power levels, religious power ranked last in importance.

The rankings for both Commissions further strengthen one of the conclusions from the frequency models: religious power has very little to do with an individual's ability to get zoning decisions passed in his favor. A further indication of this came from the estimated coefficients (k_i) themselves. In all eight equations (4 CC equations and 4 PZB equations) the k_i 's associated with the economic and political variables were always positive. This was not so of the k_i 's associated with the religious power variable. At the first (2.00) and last (2.75) equations of the City Commission decisions, the k_i 's associated with the religious variable were negative for the second and third equation (2.25 and 2.50) of the City Commission and for all four of the Planning and Zoning Board equations.

The second test developed to rank the independent variables in order of importance consisted of subtracting the overall standard deviation from the overall mean of each variable and multiplying this times the estimated coefficient, i.e., $k_i (\bar{X}_i - S_{X_i})$. The absolute

value of this computation gave a ranking of the variable.

Using this test to rank the variables in order of importance for the City Commission equations, economic power was most important at power levels 1, 2, and 4. Economic power ranked second in importance in equation 3 (power level 2.50). Political power ranked second in every equation but was third for the City Council decisions. In the third equation political power ranked second. Once again, in all four City Council equations, religious power was least important.

The second ranking test yielded some peculiar results for the Planning and Zoning Board equations. Economic power was first in importance for equations 1, 2, and 4, but last in importance in level 3. Political power was second in importance for the first (2.00) and last (2.75) equations, first for equation 3 (2.50), and last in importance for equation 2 (2.25). Religious power was last in importance for equations 1 and 4, and second in importance for equations 2 and 3.

A summary of the studies for all eight equations using both ranking tests showed that economic power was most important twelve of the sixteen times. Economic power was second most important three times and least important only once. Political power was most important three times, least important once, and second most important twelve times. Religious power was never most important although it ranked as second most important twice. Religious power was least important fourteen out of sixteen times.

The R^2 values for the City Council ranged from a level of .22 for the fourth equation to a high of .33 for the second equation. The first equation had an R^2 of .25 and the third equation an R^2 of .30. Overall,

the R^2 values related to the Planning and Zoning Board equations were greater than those for the City Council. Once again, the fourth equation was low with an R^2 equal to .23. The R^2 for the second equation was highest at .61. The first equation R^2 equaled .26 and the third equation R^2 equaled .57.

The R^2 values were somewhat low. This was in part due to the absence of several independent variables such as the makeup of the two commissions, the type of change requested, and the location of the desired alteration. Considering this and the nature of the data, i.e., cross sections, the R^2 values were certainly acceptable. It was interesting to note that the second and third equations of both the PZB and the CC had the highest R^2 . In both cases the lowest R^2 came from the first and fourth equations. These results are pictured graphically in Figure 24.

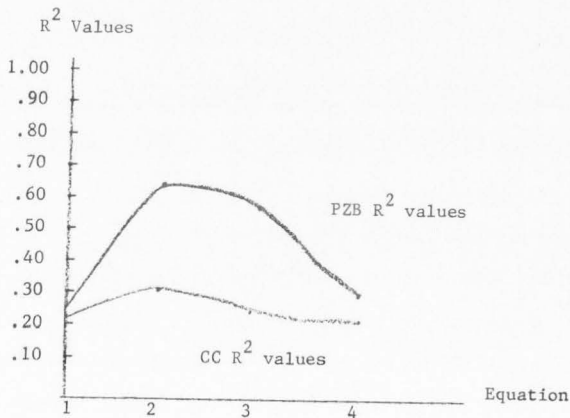


Figure 24. PZB and CC R^2 values.

As mentioned in the preceding chapter, if perfect discrimination existed along the variables, those with high z values would always be successful and those with low z scores would be unsuccessful in their attempts to get zoning decisions passed. It was impractical to expect perfect discrimination. Where imperfect discrimination exists, there exists some individuals with high z scores that are unsuccessful before the PZB or CC, and also some individuals with low z scores that were successful before the PZB and CC. To determine just how good the z functions, these "outliers" need to be defined and analyzed. An outlier in this text is defined as a Z value lying above the mean (\bar{Z}_1) of the successful group or below the mean (\bar{Z}_2) of the unsuccessful group. To further explain this concept, think of the successful group as being made up of individuals with different z scores illustrated by curve I. The mean of this group is given by \bar{Z}_1 . The unsuccessful group is formed from individuals with generally lower (but not so always) scores. This unsuccessful group is represented by curve II with the mean of this group given by \bar{Z}_2 in Figure 25.

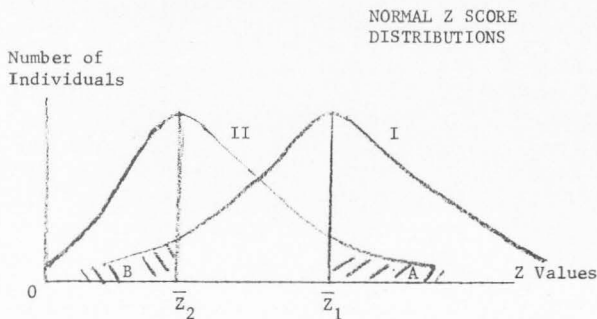
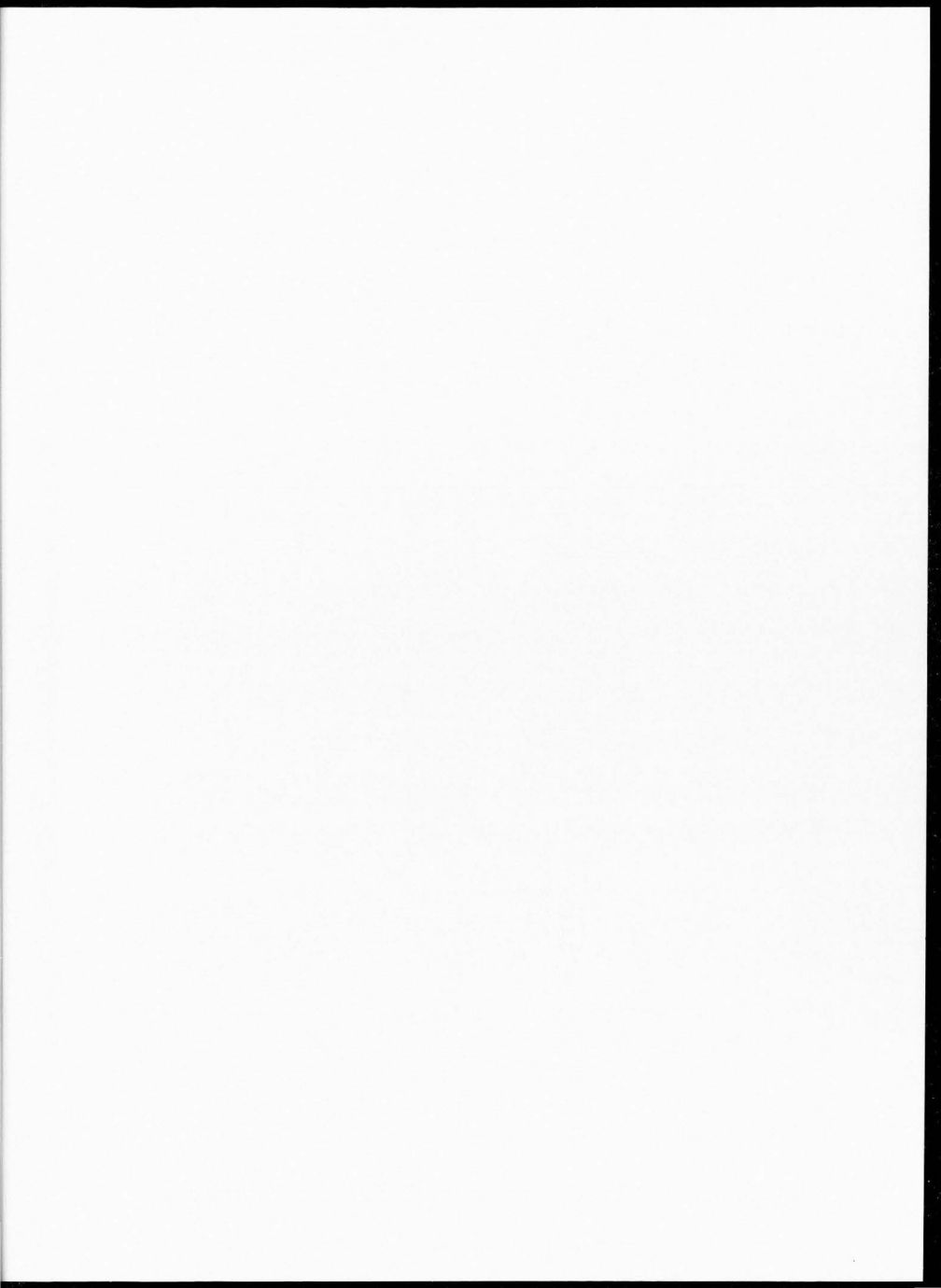


Figure 25. Normal Z Score distributions.



The outliers were found in region A, i.e., those unsuccessful individuals with z scores greater than \bar{Z}_1 , and in region B, i.e., those successful individuals with z scores less than \bar{Z}_2 .

For equation 1 of the Planning and Zoning Board decisions, the successful group mean \bar{Z}_1 was equal to .02438 and the unsuccessful group mean was equal to .01236. Using the previously established definition of an outlier there were 14 individuals with z scores greater than \bar{Z}_1 that were unsuccessful, and 37 individuals that were successful. There were 10 individuals with z scores lower than \bar{Z}_2 that were successful, while 21 individuals with z scores less than \bar{Z}_2 were unsuccessful. This means that out of the 87 individuals seeking zoning amendments, 24 individuals or 28 percent were outliers.

Using the same criteria for equation 2 (2.25 power level) of the PZB decision, there were a total of 10 unsuccessful outliers, and 7 successful outliers.¹ Therefore, at the 2.25 power level only 20 percent of the individuals were outliers.

At level 3 (2.50) of the PZB, there were 6 unsuccessful outliers, and 11 successful outliers. At the 2.50 power level, 20 percent were outliers.

For the fourth equation (2.75) of the Planning and Zoning Board decisions, there was one unsuccessful individual with a z score greater than \bar{Z}_1 and 29 successful individuals with z scores less than \bar{Z}_2 . In this case, 34 percent of the individuals were outliers. It is

¹Unsuccessful outliers refers to those individuals with Z scores greater than \bar{Z}_1 that were unsuccessful. Successful outliers refers to those individuals with Z scores less than \bar{Z}_2 that were successful.

particularly interesting to note that at the 2.00 level there were 14 individuals classified as unsuccessful outliers. At level 2 this number dropped to 10, and to 6 for equation 3. At power level 4 there was only one individual with a z score greater than \bar{z}_1 that was unsuccessful.

Equation 1 of the City Council decisions had 16 unsuccessful outliers and 4 successful outliers for a total of 23 percent. At the 2.25 level there were a total of 16 outliers of which 13 were unsuccessful and 3 were successful. Therefore, of the 87 individuals seeking zoning changes in equation 2, 18 percent were outliers.

There were 13 outliers, or 15 percent, in equation 3 of the CC data. Seven were successful and 6 were unsuccessful. In equation 4, 5 individuals with z scores greater than \bar{z}_1 were unsuccessful, and 17 individuals with z scores less than \bar{z}_2 were successful. This means that of the 87 individuals analyzed in equation 4, 25 percent were outliers. Once again, in equation 1, there were 16 unsuccessful outliers; in equation 2, 13 unsuccessful outliers; in equation 3, only 6 unsuccessful outliers; in equation 4, only 5 unsuccessful outliers. Tables 6 and 7 present these results.

Out of all eight equations only one (the fourth, PZB equation) had greater than 30 percent of the sample as outliers. Half of the equations had 20 percent or less of their sample as outliers. Figure 26 presents the distribution of these outliers graphically. Curve I represents the CC outliers and Curve II the PZB outliers.

The lower the percentage of the observations that were outliers, the better the equation was. In light of this, equations 2 and 3 of both the City Commission and Planning and Zoning Board were the best.

Table 6. Analysis of outliers, PZC

Equation	\bar{z}_1	\bar{z}_2	#Unsuccessful where $Z > \bar{z}_1$	#Successful where $Z < \bar{z}_2$	Total No. of Outliers	% of obser- vations as Outliers
1	.02438	.01236	14	10	24	28
2	.04043	.01214	10	7	17	20
3	.03328	.00672	6	11	17	20
4	.01139	.00072	1	29	30	34

Table 7. Analysis of outliers, City Commission

Equation	\bar{z}_1	\bar{z}_2	# Unsuccessful where $Z > \bar{z}_1$	# Successful where $Z < \bar{z}_2$	Total No. of Outliers	% of obser- vations as Outliers
1	.02699	.01421	16	4	20	23
2	.02971	.01300	13	3	16	18
3	.2302	.00806	6	7	13	15
4	.01335	.00227	5	17	22	25

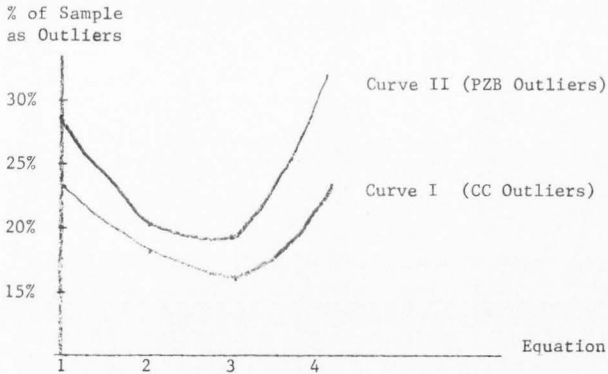
DISTRIBUTION OF
OUTLIERS

Figure 26. Distribution of outliers.

This, coupled with the fact that the R^2 values increased up to power level 2.50 and then began to drop off, indicates that at some point an increment of economic or political power had little effect on a person's ability to get a zoning variance passed in his favor. However, the discriminant functions were able to segregate the data quite successfully with an acceptable amount of outliers. This, coupled with the conclusion that the religious power has little if any influence, indicated that economic and political power does in fact enable individuals possessing these traits to get their zoning requests ratified.

The results of the two frequency models indicated that religious power was unimportant in aiding an individual to receive positive responses to his requests before the Planning and Zoning Board or the City Commission. Analyzing the discriminant functions suggested that of the three variables tested, religion was the least important. Also,

the signs of the coefficients (k_1) related to the religious variables were both positive and negative, further pointing to the fact that religious power fails to aid individuals seeking zoning variances. Therefore, from the evidence provided from the various tests, it was concluded that there is insignificant evidence for rejection of the null hypothesis that religious power does not aid individuals seeking zoning changes.

The case for the economic and political variables was just the reverse. From the high success ratios associated with possession of these two powers together with the successful segregation of the data provided by the discriminant functions, ample evidence for rejection of the null hypothesis exists. Therefore, the null hypothesis that economic and political power do not aid individuals seeking zoning alterations was rejected, and the alternative hypothesis that economic and political power do aid individuals in obtaining changes to existing zoning laws must be accepted.

From the theory chapter it was concluded that large economic rents were available to those individuals capable of getting existing zoning laws amended in their favor. The conclusion from this chapter is that individuals with economic and political power are most capable of getting zoning laws changed in their favor thus allowing them to capture the economic rents formed by zoning laws.

CHAPTER VI

SUMMARY

Land use planning and controls exist under the assumption that planning is necessary today to provide for a better tomorrow. Also, zoning laws are supposedly necessary to control negative externalities such as traffic, smoke, and noise, and to promote positive externalities such as homogenous neighborhoods and convenient shopping centers. What zoning does do, as shown in the theory chapter, is to create large economic rents by controlling the supply of real estate. These rents become an attractive incentive to people involved in real estate. In order to capture these rents, an individual must be capable of moving his product from one market to another which involves political decisions. These economic rents go to the individuals most capable of obtaining favorable political decisions. This thesis shows that these successful individuals are people who enjoy considerable economic and political power.

There are alternative explanations for explaining why the economically and politically powerful are most capable of obtaining zoning changes, and, therefore, of capturing the large rents associated with the changes. The most prevalent of these ideas is that the members of the Planning and Zoning Board, as well as those of the City Commission, are more susceptible to the influences of and the pressures from powerful individuals than from non-powerful individuals. An alternative explanation is that the less powerful lack the resources to constantly

have someone present at the regular meetings of the two commissions to "lobby" in their behalf or to bring legal action against the respective commissions or even to bribe the officials of the commissions. Still another explanation as to why the powerful are more successful than the nonpowerful in obtaining their rezoning requests is that they make the best proposals. They are familiar with what is and what is not acceptable to the two planning units, and therefore, usually do not submit plans that cannot meet the city's guidelines. A final explanation as to why the powerful are most successful is that the City Commission and the Planning and Zoning Board may be made up of economically and politically powerful individuals themselves and that the rich take care of the rich.

Another interesting fact coming from the study was that the Planning and Zoning Board approved more rezoning requests at every power level than did the City Commission. This was possibly because the City Commissioners are elected officials while the Planning and Zoning Board members are not. Since the ability of the City Commissioners to retain their jobs is heavily dependent on their ability to make popular decisions, it is to their advantage to approve or deny zoning petitions based on public sentiment. If a large group of citizens were opposed to a certain rezoning proposals it paid the City Commissioners to reject it whether or not it met the suggested guidelines. It remains unclear as to why the City Commission approved fewer rezoning applications, but the above mentioned explanation is certainly a possibility.

What does all this mean for the future of land use controls? It means that more land use controls means more incentives for corruption

and more money for the rich.¹ Land use planning and control can provide for a more "desirable" land use for some, but certainly not equally for all. These controls become a vehicle through which those with power and money may gain more power and money while providing a way to hinder those individuals lacking these resources.

Supposing that land use planning and controls do accomplish some of their objectives (i.e., better living conditions), land use controls are at best a mixed blessing. If land use controls fail to achieve their objectives as the review of literature would indicate is often the case, they become a hinderance instead of a blessing. The results of this study coupled with the review of literature suggests that no land use controls are possibly better than the extensive land use controls now in existence in Cache Valley. Currently, many of the county's communities are attempting to slow their growth.² A more sensible goal of land use planning would be to provide as many homes as cheaply as possible to as many people as possible. Land use controls in their present state fail in this aspect.

Assuming the theories underlying land use planning are valid, i.e., that land use planning can help to improve the quality of life for the majority, zoning practices as they now exist should be changed. Private controls should be used whenever possible. Since zoning is a tool for the public, it should be used by the public. That is, greater citizen participation needs to be generated. Initial land use patterns

¹For a discussion of incentives for corruption refer to Chapter III.

²See page 1 of the Herald Journal for the week of September 8 - 12, 1975, a series of articles on the Cache Valley real estate market.

could be made a matter of public vote. Programs to educate the public as to why certain property is zoned in a certain way should be implemented. And finally, zoning changes should receive more public exposure, possibly through organized citizens groups.

LITERATURE CITED

1. "A Higher Wall Around Suburbia." Business Week, May 1, 1971.
2. Babcock, Richard F. and Fred P. Bosselman. Exclusionary Zoning Land Use Regulation and Housing in the 1970's. Praeger Publishers, New York, 1973.
3. Balk, Alfred. "Invitation to Bribery." Harpers, 233:18. October, 1966.
4. "Battle to Open the Suburbs: New Attack on Zoning Laws." U.S. News and World Report. 68:39-40. June 22, 1970.
5. Bonham, Gordon S. "Discrimination and Housing Quality." Growth and Change. 3(4): 26-34. October, 1972.
6. "Cache Delegation is Divided on Land Use Issue." The Herald Journal, Vol. 65, No. 240. Logan, Utah. October 7, 1974.
7. Cecil, Andrew R., President, Southwestern Legal Foundation, Dallas, Texas. Institute on Planning, Zoning, and Eminent Domain. Matthew Benders Co., New York. 1974.
8. Cicarelli, James and Clifford Landers. "The Last of Housing for the Poor: A Case Study." Land Economics. 48 (1): 53-57. February, 1972.
9. "Color Zoning White." Time, 96:51, September 7, 1970.
10. Crecine, J. P., O. A. Davis, and J. E. Jackson. "Urban Property Markets: Some Empirical Results and Their Implications for Municipal Zoning." Journal of Law Economics. 10:79-99. October, 1967.
11. Downing, Paul B. "Commercial Land Values: An Empirical Study of Milwaukee, Wisconsin." Land Economics. 49(1): 44-56. February, 1973.
12. Funnye, Clarence. "Zoning — The New Battle Ground." Architectural Forum. 132:62-65. May, 1970.
13. "Getting Lots on Which to Build is Problem." The Herald Journal, Vol. 66, No. 217. Logan, Utah. September 10, 1975.
14. "Grand Jurors Indict County Planner on Bribe Charges." The Salt Lake Tribune, Vol. 211, No. 135. August 26, 1975.

15. Gross, Leonard. "Big Zoning Battle." Look. 29:93-98. October 5, 1965.
16. Harrison, Gordon. "Law and Living." Saturday Review. 51:48-49. August 3, 1968.
17. Heyman, I. Michael. "Innovative Land Regulation and Comprehensive Planning."
18. Johnson, Cecilia D. "Community Zoning: Civic Marvel or Moat?" America. 127: 201-203. September 23, 1972.
19. King, A. Thomas and Peter Mieszkowski. "Racial Discrimination, Segregation, and the Price of Housing." Journal of Political Economy. 81(3): 590-606. May/June, 1973.
20. Lewis, W. Cris. "A Critical Look at Land Use Planning." Utah Science. Vol. 35, (September 1974), 90.
21. Linowes, R. Robert and Don T. Allensworth. The Politics of Land Use. Praeger Publishers, New York. 1973.
22. Mandel, David J. "Zoning Laws: The Case for Repeal." Architectural Forum. 135:58-59. December, 1971.
23. Mitrisin, Sophie. "The Aesthetics of Zoning -- Social and Economic Aspects." Council of Planning Librarians. Mrs. Mary Vance, Ed. Monticello, Illinois.
24. Natoli, Salvatore J. "Zoning and Urban Land Use." Economic Geography. 47(2): 1710184. April, 1971.
25. Prescott, J. R. and Lewis, W. C. "State and Municipal Locational Incentives: A Discriminant Analysis." (National Tax Journal), Vol. No. 2, September 1969, pp. 399-408.
26. Sagalyn, Lynne B. and George Steralieb. Zoning and Housing Costs. Center for Urban Policy Research, Rutgers University, The State University of New Jersey. 1972.
27. Shipler, David K. "The Moral Dilemma of Zoning." The Nation. 211: 80-83. August 3, 1970.
28. Siegan, Bernard H. Land Use Without Zoning. Lexington Books: D. C. Heath and Co., Lexington, Massachusetts. 1972.
29. Siegan, Bernard H. "Now Zoning in Houston." Journal of Law Economics. 13(1): 71-147. April, 1970.
30. Stull, William J. "Land Use and Zoning in an Urban Economy." American Economic Review. 64(3): 337-347. June, 1974.

31. Tintner, Gehard. Econometrics. John Wiley and Sons, Inc., New York, New York, 1952.
32. Udell vs. Haas. N. Y. S.21888, 893, 21 N.Y. 21 463 (1968)
33. Witheford, David K. Zoning, Parking, and Traffic. Author Technical Director ENO Foundation for Transportation. Connecticut. 1972.