A DEMOGRAPHIC STUDY OF COMMUNITY SUPPORT

FOR GROWTH CONTROL IN DAVIS, CALIFORNIA

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PROJECT

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A DEMOGRAPHIC STUDY OF COMMUNITY SUPPORT

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A Project

by

John Russell Batchelder

Approved by:

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Date:_____

Abstract

of

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Statement of Problem

To attempt to discover whether the two opposing constituencies on the growth control issue in Davis, California, have significantly different demographic profiles. A history of the growth control policies in Davis, California, and an overview of the current growth control movement in the United States are also included.

Sources of Data

Sources of data include journals, periodicals, newspapers, personal interviews, and written survey data.

Conclusions Reached

The two opposing constituencies on the growth control issue in Davis, California, do not have significantly different demographic profiles. This situation may change as the equilibrium of supply and demand for single family housing becomes more affected by the existing restrictions on increasing the supply of single family housing in a region experiencing rapid job creation and population growth.

_____, Committee Chair
J. Robert Fountain

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CHAPTER 1

Introduction

Statement of Problem

The growth control measures that have been implemented in Davis, California, and other communities have had significant effects on the citizens of those communities. Growth control policies typically cause a decreased rate of residential construction. The resulting higher prices for housing generate windfall benefits for some individuals and create net costs for others. To the extent that an individual's demographic profile determines whether he is a net beneficiary or net loser as a result of growth control, that profile might be an indicator of his position on the growth control issue.

This study analyzes the growth control policies in Davis, California, and other communities, and then attempts to determine through survey research whether the two constituencies on the growth control issue in Davis have significantly different demographic profiles.

Background of the Problem

The precipitating stimulus for enacting some type of growth control often varies from one community to another. In many documented cases of growth control implementation, however, the underlying force that causes the observable growth related problems in a community is economic expansion. Rapid economic growth creates jobs and other opportunities which attract people to a region. As many communities located within expanding regional economies have discovered,

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prescribing a growth control remedy to mitigate the problems created by rapid population growth is not always successful. In addition, unforseen and unwanted negative side affects often result from growth control policies.

One of the reasons for the inefficiency of many growth control policies is the indirect effect of restricting residential development on population growth. Where there are strong pressures for population growth, perhaps due to expansion in a regional economy or increased enrollment at a local university, controlling the supply of housing may not have much immediate impact on population levels. Instead, current property owners in affected areas may reap windfall profits as their real estate rapidly appreciates in value. Landlords may find vacancies dropping to near zero and may discover they can raise rents far in excess of the increased cost of doing business. Renters and prospective home owners often find they cannot afford their preferred housing situation. The number of occupants per bedroom increases in apartments and in rental housing. New homeowners rent rooms to boarders to help pay the mortgage and other household expenses.

Growth control, if implemented under the preceding circumstances, does not necessarily provide net benefits to all members of the affected community. Depending on their relative circumstances, different constituencies might have quite different attitudes towards the type and degree of growth control that best preserves the desired qualities of a community. Numerous demographic characteristics could potentially be used to differentiate between these various groups. The distinguish-

ing demographic qualities between the various constituencies would likely relate to how individuals perceived themselves being affected by growth control.

Homeowners might be more supportive of growth control than renters, because limiting the supply of housing in a community with a high rate of economic and population growth would create a higher rate of real estate price inflation. An individual who already owns a home will not be priced out of the housing market if prices do increase rapidly. Renters, in the absence of any form of rent control, do not have similar protection against growth control induced housing inflation.

For similar reasons, households with relatively high incomes are less affected by growth control. High mortgage costs due to high loan amounts have less affect on upper income groups. They can qualify for the higher monthly payments and deduct the interest expense from a higher gross income that is being taxed at a higher marginal rate. Since the net costs of growth control are potentially less for higher income groups, they might have less reason to oppose such policies.

Another less obvious demographic characteristic that might differentiate pro-growth and anti-growth constituencies is the length of residency in a community. If an individual has grown up in a relatively small community, he will likely have made personal and lifestyle adjustments to that small town environment. Rapid land development in the community will change that environment in many ways. Streets and commercial centers may become more intensely used to the point of congestion. Schools may become larger and overcrowded. Strangers may begin to outnumber the familiar faces a person encounters in the community. Social

problems such as crime, delinquency, and destitution may significantly increase. A long term resident who has made numerous personal and lifestyle adjustments to a specific environment may easily feel threatened by rapid changes to that environment. Conversely, an individual who has not resided for an extended period of time in a particular community has not made quite so many attitudinal and lifestyle adjustments to that way of life. For the above and other reasons, the length of time individuals have lived in a city may differentiate them with respect to their attitudes toward growth control.

An additional factor which could affect personal attitudes toward growth control is a person's level of formal education. The amount of education an individual has received might affect his understanding of the relationship between the quality of life prevalent in a community and its rate of land development and rate of population growth.

Managing rapid economic growth and land development in a community or region is a technically difficult and politically contentious process. There is no growth control policy panacea that effectively responds to the many growth control related issues and creates net benefits for all members of the affected community. This chapter has described some of the conditions that typically lead to the implementation of growth control and how an individual's demographic profile might affect his attitudes toward growth control.

CHAPTER 2

History of Growth Control in Davis, CA

After Davis, California had experienced an extended period of rapid population growth, the City Council enacted strict controls on the rate of both land development and residential construction in 1974 (Davis, CA, <u>An Ordinance</u> 1). Like many cities in the sun belt, Davis experienced rapid population growth in the 1960s. From 1967 to 1972 the rate of residential construction and the rate of population growth seemed to many local residents to be increasing at an unacceptably high rate. The State of California Department of Finance estimated the 1967 population of the City of Davis at 18,700 (Davis, CA Chamber of Commerce, <u>Population</u> 1). The same department estimated the 1972 population at 28,450 (Davis Chamber of Commerce, <u>Population</u> 1). This represents a rather startling compounded growth rate of almost 9 percent per year.

The primary source of the population growth pressure was the increased enrollment at the Davis campus of the University of California. The University of California at Davis was in the midst of the transformation from an Agricultural School adjunct of the University of California at Berkeley, to a full fledged university in its own right. Full time enrollment at the University increased from 10,166 in 1967 to 15,256 in 1972 (Davis Chamber of Commerce, <u>Growth</u> 1). The total growth of the population of the City of Davis from 1967 to 1972 and the total increase in enrollment at the University of California at Davis from 1967 to 1972 both approximated 50 percent (Davis Chamber of Commerce, <u>Growth</u> 1).

The emerging community concern over the rapid rate of population growth and the resulting inability to maintain proper levels of public services in the City of Davis quickly coalesced into political support for some form of growth control for the City. A network of community volunteers staffed study groups that were formed in 1972. Each group examined some aspect of community planning and the affects of growth on that planning feature of the community. By the end of 1974, a complex ordinance designed to strictly control the number of residential housing units constructed in the City of Davis had been enacted by the city council (Davis, CA, An Ordinance 1).

Under the original City of Davis growth control ordinance, land developers were required to submit formal proposals to the Davis City Council for their respective projects. The City Council, in consultation with the community at large, developed target population levels for future years and allocated building permits based upon those population targets. Since the number of applications for building permits always exceeded the allowed building level, the City Council had to develop a systematic procedure to determine which developers would receive the available permits. Past criteria used by the Davis City Council for evaluating developers' proposals included those outlined below. The score of each proposal was compiled by adding the points accumulated in each weighted consideration. The most important criteria were triple weighted, secondary criteria double weighted, etc. At the end of the evaluation of the submitted proposals, a purportedly objective quantification of the projects' scores would be tallied for relative comparison (Davis,

CA, Comm. Devel. Dept., Summary 1). The criteria and their weighing as set out in the original Davis housing allocation system were as follows (Davis, CA, An Ordinance 4):

I.   Triple Weighted

    A.   Low and Moderate Cost Housing

    B.   Evaluation of Past Performance

II.   Double Weighted

    A.   Economic Mix

    B.   Availability of Public Facilities and Services

    C.   Design Diversity

III. Single Weighted

    A.   Internal Growth Needs

    B.   Environmental Impact

    C.   Economic Impact

    D.   Compactness

    E.   Provision for Small Builders

    F.   Provision of Lots for Manufactured Housing

A thirteen year history of residential permit allocations shows the forced gradual reduction of residential construction in Davis (Davis, CA, Comm. Dev. Dept., List 1):

YEAR	ALLOCATIONS
1975	386
1976	275
1977	275
1978	152
1979	152
1980	164
1981	235
1982	210
1983	113
1984	113
1985	90
1986	94
1987	94

The allocations column in the preceding list refers to the number of single family building permits authorized by the Davis City Council on an annualized basis. In 1975 the City Council allocated 550 building permits for a two year period, 1976 and 1977. The allocation numbers for 1976 and 1977 are annualized averages for that two year period. The same procedure was used to obtain yearly figures for 1978, 1979, 1983, 1984, 1986, and 1987.

In nominal dollars, the value of building permits issued by the City of Davis declined from $21,958,913 in 1973 to $11,491,525 in 1981 (Davis, CA Chamber of Commerce, Growth 1). Adjusted for inflation, this indicates a 75% decline in the dollar volume of construction activity over the eight year period.

The effects of the preceding growth controls on the composition of the building industry in the City of Davis have been considerable. The scale of completed and proposed projects after the implementation of growth control is much smaller than those constructed prior to enactment of the slow growth

ordinance (Lumbrazo). The two large production builders in Davis in the early 1970s, Stanley Davis Homes, Inc. and Streng Brothers Homes, Inc., have both moved their entire operation from Davis and show no sign of returning. Primarily Davis-based small developers and builders have attempted to fill the void created by the departure of the larger regional builders. The smaller Davis-based contractors are not able to obtain the economies of scale that the larger companies enjoy, with the result that the cost of single family housing is higher than it would have been without growth control.

The allocations of building permits to developers were historically awarded on a competitive basis based upon the criteria previously mentioned. As a predictable result, there was a deliberate effort on the part of developers to tailor their proposals to both the evaluation criteria proscribed by the growth control ordinance and also to the personal preferences of the members of the Davis City Council. Over time, the Davis City Council began to exercise more personal prerogative in the awarding of housing allocations.

This qualified adherence to standardized evaluation procedures in determining housing permit allocations reached the point where the predetermined ratings system was abandoned altogether. In October, 1990 the City of Davis Planning Staff requested that the City Council readopt some type of ratings system for evaluating projects. According to a newspaper article, "Staff [planning department] had suggested a set criteria to depoliticize the allocation process.

According to the city's principal planner . . . the ratings system would have provided clear, objective benchmarks . . . for the allocation system" (Dodge A3).

As was reported in an article in The Davis Enterprise, the City Council debated the suggestion and "rejected the idea of a predetermined ratings system designed to choose future development projects." Two council members "strongly objected to the ratings system. They asserted that it would make the [allocation] process more complex." Another council member reflected that the previous point system had limited the Council's ability to conduct an individualized, context sensitive evaluation of a project and declared "I am not willing to go back to the numbers game" (Dodge A3).

In response to some of the complaints about the accumulated impacts of growth control, the City Council added several more criteria to the evaluation process:

1. Emphasize affordable innovative housing, including mobile homes, modular homes, and second unit (granny flat) houses, to provide more rental units.

2. Emphasize multi-family developments intended for rental.

3. Emphasize developments with superior amounts and plans for affordable housing. (Dodge A3)

The current housing allocation system followed by the Davis City Council is a hybrid of the previous point system, with its weighted criteria, and a subjective case by case approach, where each council member utilizes his own personal judgment to evaluate development proposals (Dodge A3).

As is now apparent, a chain of events that began in the early 1960s as the University of California at Davis expanded into a major research and teaching institution has shaped the current regulatory and business environment of land development in Davis.

CHAPTER 3

Previous Related Research By Author

Synopsis

The purpose of the previous related research conducted by the author was to obtain a demographic profile of the voting age individuals in Davis, California with respect to their attitudes toward the growth control policies then being administered by the city council and planning department in Davis (Batchelder). The dependent variable in the survey instrument utilized in this study was support for the growth control policies of the City of Davis. The independent variables were the length of residency in the City of Davis, home ownership status, age, education level, household income, and whether an individual felt there was an inverse relationship between the quality of life in a community and the population level of that community.

Data was collected from a one page questionnaire distributed by the researcher in downtown Davis and also in a neighborhood shopping center in Davis. Sampling was nonrandom as the author wanted to survey nonstudent voting age residents of the City. The results revealed that 41.66 percent of respondents supported then current growth management policies, 5.55 percent were not familiar with current policies, 22.22 percent neither supported nor opposed the growth control efforts, and 30.55 percent opposed the growth control ordinances.

Variables and Measures Used

In the earlier study, parameters used to define supporters for and opponents to growth control measures were demographic in nature. These definitive characteristics were utilized for several reasons. People are accustomed to thinking in terms of demographic measures in a variety of descriptive and analytic situations. Whether the net effects of growth control on an individual or household are perceived to be positive or negative might well be determined by their overall demographic profile (Hamel and Schreiner 46). Also, discrete demographic data on the subject population is readily obtainable through written survey methods.

The specific intent of the prior research effort was to ascertain whether there are any demographic differences between the several existing constituencies vis a vis the growth control issue in Davis, California. Since the demographic characteristics utilized in the study would not be causal factors of the net effects, the previous research effort was correlational in nature.

Both analysis and intuition were utilized to develop the list of demographic independent variables tested in the written survey. Growth control policies in Davis, California focus on limiting the increase in the supply of housing. Microeconomic supply and demand analysis leads one to anticipate that limiting the supply of housing, in the context of extremely strong demand for single family housing, will result in both a scarcity of housing and a higher price for that housing which is available (Downing 391). In a simplistic sense, the anticipated constituencies for

and against the growth control policies might be divided into the "haves and have nots" (Downing 389).

Households that for a variety of reasons are able to purchase their desired housing in a growth control community might be less negatively affected by growth control. The ability to obtain their desired housing could be a matter of household income, past accumulated personal assets, or the purchase of their home in the community prior to the enactment of the growth control measures. Whatever the reasons for their ability to afford their desired housing situation, these households might perceive themselves as net beneficiaries of growth control policies. They have both the housing they desire and are able to enjoy the enhanced amenities in the community which result from controlling the rate of growth. These households might be anticipated to be supporters of growth control.

A converse assumption might apply to those households which are unable to purchase their desired housing situation in the growth control community. Those households whose income is just below the threshold of that required for home ownership in the growth control community might be especially reactive against growth control. In other adjacent nongrowth controlled communities they could very well afford to purchase the housing of their choice. However, in the context of growth control, they either must obtain that housing in another community or settle for less than their preferred housing in the growth controlled community. Frustration with the above housing alternatives created by growth control might well

develop into active political support for modification or removal of growth control measures.

Another demographic variable that might be related to home ownership and support for growth control is household income. To the extent that residential growth control creates more of an affordability problem than would otherwise exist in the affected community, the level of household income would determine whether the reduced housing affordability actually precluded the ability to purchase a desired home in the community. In the previous study, it was anticipated that the households most adversely affected by growth control would likely be those whose incomes approximated the community median household income. Households with incomes much higher than the community median would continue to be able to afford their preferred housing situation. Conversely, households with incomes much lower than the community median would likely not hold home ownership expectations and would therefor not harbor disappointment and resentment against growth control.

This assumption concerning lower income households and their anticipated apathy toward growth control has recently come into question. From 1986 to 1990, the annual increases in enrollment at the University of California at Davis have approached 1,000 students per year (Davis, CA Chamber of Commerce, Growth 1). These student population increases invariably cause secondary population increases in the community as the University and other local employers hire additional staff. The vast majority of students live in rental housing and do not have home

ownership expectations at this stage in their lives. Being precluded from home ownership should not be an issue with students. They therefor would not be expected to oppose the restriction on the construction of single family homes, which is the focus of growth control in Davis.

Changes in the Federal Tax Code in 1986 eliminated many incentives to construct rental housing. These changes, as well as the increased profitability of constructing single family homes since 1985, have recently resulted in a decrease in apartment construction in Davis. The decline in apartment construction in Davis, in conjunction with the dramatic increase in the student enrollment at U. C. Davis, has reduced 1990 rental housing vacancies to 0.1 percent ("Graduate Students" A12). "Five percent is regarded as a healthy vacancy rate" ("Graduate Students" A12). Many large apartment complexes have reservations for any possible vacancies almost one year in advance of the anticipated vacancies. As was mentioned in the introduction to this paper, landlords may find that they can raise rents far in excess of the increased cost of doing business when vacancies fall below a critical level. Tony Waters, treasurer of the U. C. Davis Graduate Student Association general assembly, recently "declared a housing crisis in Davis. There is a lot of concern about increasing rents paid by students due to the low vacancy rate. We are being pushed out of Davis by price or lack of availability" ("Graduate Students" A12).

There are nearly 24,000 full time students attending U. C. Davis in the Fall Quarter 1990 (Davis, CA Chamber of Commerce, Growth 1). The students at U.

C. Davis are eligible to vote in local elections if they are otherwise eligible to vote. If it is perceived in their interests to modify or eliminate the growth control policy of the City of Davis, and University student leaders organize their constituencies around the issue, the growth control policies in Davis could quickly be voted out of existence.

The irony of this possibility is that single family growth control is only marginally related to the rental housing crisis facing U. C. Davis students. As was previously mentioned, the lack of rental housing in Davis is more related to recent changes in the Federal Tax Code and the relatively higher profitability of building single family housing. Whether the single family residential growth control policies become victims of generalized University student discontent with the overall housing situation in the City of Davis remains to be seen.

Other demographic variables used in the original study included length of residency in the community, chronological age, and education level. As was mentioned in the introduction, the length of residency in the community would relate to how much an individual had adapted to the existing environment in the community. Somewhat related to the issue of adaptation to an existing environment is chronological age. It is commonly thought that older individuals are less prone to adapt to changes in their environment than younger people. A rapidly changing environment might be perceived as more threatening to older members of the community. The last variable, education level, was included because the author assumed that individuals who had completed a higher level of education would

believe in a stronger association between the size of a community and the overall quality of life available in that community.

Hypotheses

In conjunction with the previous discussion and series of postulations, six hypotheses were formulated to test the demographic and other variables. The hypotheses tested were:

H_0: There is no relationship between support for local growth control and length of residence in the affected community.

H_1: The longer an individual has lived in a community the greater is that person's support for local growth control.

H_0: There is no relationship between support for local growth control and home ownership status.

H_2: Persons who own their own home are more supportive of local growth control than non-homeowners.

H_0: There is no relationship between support for local growth control and a person's chronological age.

H_3: Older individuals are more supportive of local growth control than younger persons.

H_0: There is no relationship between support for local growth control and a person's educational level.

H_4: Persons who have obtained higher levels of formal education will be more supportive of growth control than persons who have not done so.

H_0: There is no relationship between support for growth control and a person's household income.

H_5: Person's who live in higher income households are more supportive of growth control than persons who live in lower income households.

H_0: There is no relationship between support for local growth control and a person's attitude about community size and its relationship to that community's quality of life.

H_6: Persons who perceive an inverse relationship between community size and its quality of life will be more supportive of local growth control than individuals who do not perceive that relationship.

Population and Sample

The population used in this research effort was the nonstudent voting-age residents of Davis, California. This group was selected for two reasons. Students are transient members of the community and do not take as much interest in local issues and policies as more permanent residents. Voting-age citizens are legally entitled to elect the city council, which selects the members of the planning commission. The city council writes the land use control ordinances and the planning commission helps enforce legislated land use policies. Growth control measures fall under this regulatory domain.

Sample Characteristics

Since several of the independent variables were demographic in nature, a partial profile of the sample was obtained. Over 60 percent of the sample had lived in Davis for a period of 10 years or less. Slightly over 38 percent had lived in the city for more than 15 years. Home ownership was the second independent variable. The ownership ratio in the sample was below national levels. Only 52 percent of the respondents owned their own home.

The age distribution of the sample was particularly unrepresentative of the larger population. Over 50 percent of the group sample fell in the 30 to 39 year old category. Only 3 percent were 50 to 59 years old.

Even for a university town, the education demographics were surprising. Over 27 percent of the sample had already completed a graduate level degree

program. An additional 47 percent had finished a bachelor degree educational course. Over 75 percent had received either a bachelor or higher level degree.

The final demographic profile of the sample relates to household income. Surprisingly, the mean and median household income closely approximated that in the 1980 Davis census tract analysis. Both the mean and median were slightly in excess of $26,000 per household. Dispersion was rather wide, however. The standard deviation was over $20,000.

Survey Instrument Used

An eight-item questionnaire was used to gather data. Five demographic variables and an attitudinal variable gathered corresponding information. Demographic variables included length of residence in the city of Davis, home ownership status, age, education level, and household income. The attitudinal variable measured the respondent's attitudes toward the relationship between population level in a community and the quality of life of the residents there. No attempt was made to either assess the respondents' concept of quality of life nor to define the concept for them. A copy of the survey is included in Appendix A.

Data Analysis Methods

Several types of statistical analytical methods were used to evaluate the survey data. Raw data was encoded, then entered into a data file for Statistics Package For The Social Sciences (S.P.S.S.) processing. Raw data was arranged into frequency, histogram, and standard statistical measures. Cross-tabulation of question responses was used to measure and visualize responses' value relationships

to each other. The Pearson correlation coefficient and significance level measured the relationship of the dependent variable and the independent variables. Finally, the stepwise multiple regression command was used to determine how much of support for growth control in Davis can be explained by the independent variables and to determine the significance of the relationship.

Hypotheses Testing

The S.P.S.S. output was utilized for the hypothesis testing. All hypotheses were tested at the 0.05 significance level.

Hypothesis 1

H_0:   There is no relationship between support for local growth control and length of residence in the affected community.

H_1:   The longer an individual has lived in a community the greater is that person's support for growth control.

The length of residence shows no relationship to support for growth control.

The null hypothesis is retained.

Hypothesis 2

H_0:   There is no relationship between support for local growth control and home ownership status.

H_2:   Persons who own their own home are more supportive of local growth control than non-homeowners.

Home ownership status shows no relationship to support for growth control.

The null hypothesis is retained.

Hypothesis 3

H_0:   There is no relationship between support for local growth control and a person's age.

H_3:   Older individuals are more supportive of local growth control than younger persons.

A person's age shows no relationship to support for growth control. The null hypothesis is retained.

Hypothesis 4

H_0: There is no relationship between support for local growth control and a person's educational level.

H_4: Persons who have obtained higher levels of formal education will be more supportive of growth control than persons who have not done so.

A person's educational level shows no relationship to support for growth control. The null hypothesis is retained.

Hypothesis 5

H_0: There is no relationship between support for local growth control and a person's household income.

H_5: Persons who live in higher income households are more supportive of growth control than persons who live in lower income households.

A person's household income shows no relationship to support for growth control. The null hypothesis is retained.

Hypothesis 6

H_0: There is no relationship between support for local growth control and a person's attitude about community size and its relationship to that community's quality of life.

H_6: Persons who perceive an inverse relationship between community size and its quality of life will be more supportive of local growth control than individuals who do not perceive that relationship.

The relationship of the preceding variable and the dependent variable was measured using the Pearson correlation computation. The S.P.S.S. calculated value of R for the dependent variable and the preceding variable was 0.5911. This

corresponded to a significance level of 0.000. Tested at the 0.05 significance level, the null hypothesis was rejected.

CHAPTER 4

Review of the Literature

Introduction

A comprehensive understanding of how the environment affects human experience is found in much of the published literature on growth control. A logical extension of that perceived linkage of environment and experience is the desire to control and shape the environment to optimize overall human quality of life. A rapidly evolving environment, such as that in an area experiencing human population growth, presents many challenges to the current inhabitants. Whether instinctively or after empirical research and analysis, the current residents in a high growth area often react by looking for methods of controlling and shaping the changes occurring in their environment. As the following review of growth control literature will indicate, different regions have experienced a variety of precipitating crises that led to enactment of some form of growth control. The many jurisdictions that have implicitly or explicitly decided to control growth have creatively formulated a wide variety of growth control policies and implementation techniques.

Increasing Utilization of Growth Control Measures

The high standard of living and generally desirable quality of life that often exist in communities with a growing economy can frequently combine with a strong local rate of job creation to attract significant net immigration into an area. Current residents of communities experiencing such growth are becoming more aware of some of the negative implications of the growth process. They also are now more

educated as to what they and their elected representatives can do to mitigate those

detrimental effects. Their locally elected legislative representatives are taking note

of the relatively new growth issue oriented political constituency and are integrating

appropriate growth control policy responses into their political campaigns.

"I will seek the creation of a California Growth Management Commission to

develop state policies to respond to the crisis of runaway growth" (Feinstein F1).

The preceding campaign pledge by Dianne Feinstein during her campaign for

Governor of California in 1990 illustrates the perception by politicians that the

general public in California is extremely concerned with the need to mitigate the

negative impacts of rapid population growth.

Dianne Feinstein's political opponent in the 1990 race for Governor, Pete

Wilson, further elaborates upon the growth management issue in an understated

and more detailed statement:

> California will grow by more than 10 million people by the year 2020. Each year we add more people, about 700,000, than the entire population of many states.
> As a major economic power in the world, the state of California must continue to promote and provide for economic expansion and growth.
> I believe that the critical challenge facing California is to effectively plan and accommodate the growth that is projected to occur. If we do not, the problems that we currently face--traffic congestion, air and water pollution, inadequate housing and insufficient public facilities-- will increase dramatically. (F1)

As other citations in this section will indicate, California is not alone among

the fifty states in needing to formulate comprehensive and dynamic policies to

effectively accommodate rapid population growth. What is relatively unique to

California is the statewide aspect of the problem, and therefore the need for a statewide approach to policy formulation and implementation. When an isolated community, such as Davis, California, restricts residential construction as part of its growth management policy, it often redirects growth to other neighboring communities. A sales representative for a residential subdivision in Woodland, California, a community located ten miles from Davis, remarked in December 1988 to the author that approximately 30 percent of the home purchasers in that subdivision worked in Davis but could not find suitable affordable housing in Davis. To attempt to generalize Davis' growth management strategy to other California communities would eventually create a significant housing shortage throughout the State.

In an effort to alleviate some of the statewide problems created by local growth management, Governor Deukmejian and the California Legislature in 1990 expedited enactment of legislation requiring every community in the State to provide its share of affordable housing.

> Last month, [Attorney General] Van de Kamp fired off a letter to 152 cities that failed to adopt state [California] approved housing plans, which are required by a . . . California law. Dubbed housing elements, the plans must identify the community's affordable housing needs and list ways for producing more low-cost homes. (Inman, "Attorney General" J1)

Many communities in areas of the United States with strong regional economies are becoming reluctant to accommodate population increases that accompany a rapidly growing economy. "Slow growth groups form the largest political movement in the country today", according to Christopher Leinberger, a

Santa Fe, New Mexico, consultant and expert on urban development issues (Hamel 43). An article in <u>American Demographics</u> by Ruth Hamel provides survey data to substantiate Leinberger's opinion:

> In 1986, Washington, D.C., environmental consultant Bob Gray polled leaders in 1,500 communities. He found that 300 communities had enacted some form of growth control, and he estimates the number has doubled since then.
> Citizen groups advocating slow growth have forced changes in communities as diverse as Cape Cod, Massachusetts; Austin, Texas; and the suburbs of Washington, D.C. (43)

In the same article by Hamel, a corollary observation is made that growth control politics are most prevalent in areas that are experiencing the fastest rates of growth. "The slow growth movement today is most active in southern California, where development proceeds on a scale unimaginable in many parts of the country. One San Diego subdivision now under construction will house between 40,000 and 60,000 people" (43). The rapid spread of the growth control movement was graphically described by Sanford Goodkin in 1987 when he wrote that "Southern California's anti-growth movement is spreading like wildfire" ("California's" 72).

The reason for the increasing prevalence of the growth control movement is subject to conjecture. One explanation is that the local antigrowth constituency already resides in and therefore votes in the political jurisdiction making the antigrowth decision. The households that might want to move into the community that is voting on a growth control measure are not residents of the community and therefore are precluded from voting on the issue. In the context of the argument that growth control is a form of lifeboat politics, the people already in the lifeboat

have exclusive control over whether those outside the lifeboat will be allowed on board, and if so at what cost (Frieden 16). This potential political disenfranchisement of prospective homeowners in antigrowth communities is further described by Bernard Frieden in an article in The Public Interest:

> The voters . . . have no interest in supporting new housing, since most of them are already comfortably established in their own suburban homes. . . . The localism of this regulatory system shuts out the people who have the greatest stake in its outcome; families who want to buy homes. (18)

Bernard Frieden in the same article also describes his perspective on the local political dynamics of the growth control issue:

> The fact that growth regulation is in the hands of local suburban governments makes it especially inviting to growth opponents . . . and encourages others to stop new housing. Local officials who preside over the process . . . have no incentive to strike a fair balance between the need for new housing and the antigrowth constituency. (18)

Brian O'Reilly reports that the results of numerous growth control issue oriented elections indicate a very successfully organized pro growth control constituency:

> In 1986, 69% of the voters in Los Angeles approved a plan to slash by half the allowable density of future commercial and industrial buildings in most of the city. . . . Across California 14 of 20 growth control initiatives carried the vote in 1987. . . . Eight of ten cities in Ventura County, just west of Los Angeles, have passed slow growth measures in recent years. . . . In all, 57 cities and eight counties in California have voted to limit growth. (119)

A Newsweek article by Eloise Salholz offers a similar view of the relative effectiveness of the two constituencies on the growth management issue. "Of 76 growth-control initiatives voted on in the last three years, 53 have passed; an

additional 25 will be on local ballots in November. A [California] statewide initiative could be on the ballot as early as 1990" (26).

O'Reilly writes that numerous commentators on the issue of growth control believe that the size of the pro growth control constituency will continue to increase dramatically in rapidly growing communities:

> Such sentiment in favor of slowing or halting growth could prove a more virulent national movement than the tax reform measures that began in California with Proposition 13 and spread to many other states. . . .
> Less vigorous strains of the antigrowth virus are already flourishing around the country in parts of New York, Virginia, and North Carolina. . . . Governor Thomas Kean in New Jersey declares growth management the "biggest looming public policy issue in the state." . . . J. Ronald Terwilliger, head of Trammel Crow Co.'s residential division, the biggest builder of apartments in the country, notes that antigrowth feeling was rare ten years ago. "Now," he says, "of the sixty cities where we operate, we see it in about half." (120)

The decade of the 1980s in the United Sates saw the widespread popular acknowledgment of the necessity of environmental control and protection to preserve a minimum ecological balance between man and his natural environment. The dynamic ecological balance between the human species and his global environment has a corollary in the dynamic balance between land development, construction, population growth and the ability of communities to plan and provide services that will be needed as a result of the growth. Just as many individuals have come to realize the need for environmental protection in order to preserve a minimum quality of life, they have also recognized the need to control and plan for population growth. This is due to the complexity of planning and providing for public services that must accompany growth.

Conditions Precedent to Enactment of Growth Control

While population growth and its accompanying land development create numerous impacts on affected communities, there are often particular conditions cited in specific campaigns to enact growth control. Sanford Goodkin notes in a February 1986 issue of California Business that the most frequently publicized issue leading to a growth control movement is traffic congestion.

> Voters in Walnut Creek, for example, stifled Contra Costa County's future expansion in last November's elections by banning commercial development until downtown traffic is reduced--but, according to local builders, there is little hope Walnut Creek's traffic problems will ever improve. (48)

Goodkin again emphasizes the role of transportation issues in the growth control debate in a September 1987 article in Professional Builder. "Voters feel that they will realize less traffic (the cars are blamed on builders) and their homes will grow in value with the slowing of growth. . . . Traffic is the big catalyst that drives the anger" (72). The reaction of residents of the Seattle area to transportation problems exacerbated by the rapid rate of population growth is described in an article in American Demographics by Ruth Hamel as being a leading basis of political support for Seattle's slow-growth organizations:

> They [slow-growth organizations] argue the economic boom of the late 1980s has brought congested freeways . . . to Seattle. Critics of local governments complain that planning for today's growth is inadequate. . . . Steps are now being taken to remedy some of the problems, particularly in transportation. The state is investigating a light-rail system to relieve the strain on area freeways. (46)

Other jurisdictions have relied on growth control measures to preserve a particular lifestyle enhanced by a unique natural environment around the

community. The unincorporated town of Malibu, California, is located on Malibu Beach in Southern California. In the late 1980s, many of the residents of Malibu began campaigning for some form of growth control to preserve their exclusive beach front lifestyle. Their efforts were complicated by the fact that Malibu was an unincorporated community and had no planning jurisdiction to control growth. Los Angeles County, which had jurisdiction over the Malibu area, was planning to install a large integrated sewer system to replace the septic system in Malibu. Fearing that the increased sewer capacity would further stimulate growth, residents of Malibu began a combined campaign for municipal incorporation and growth control. The results of their efforts await future elections (Beauchamp 120).

Another community in a much different natural environment that resorted to restrictions on residential development to preserve the ecological integrity of the region was Boulder, Colorado. After high rates of population growth in the 1960s, many of the area's residents believed that the pristine natural beauty that attracted them to the Boulder area would be irreversibly damaged by uncontrolled land development and population growth. Several land development and population growth oriented ballot measures were supported by Boulder voters in the 1970 elections. As a result, the Boulder City Council and Boulder County Board of Supervisors created a citizen commission in 1972 to determine a maximum annualized growth rate and the optimum built out population level for the area. The commission recommended a 3 percent annual growth rate for the Boulder

Valley Planning Area. The population growth rate was subsequently reduced from 6 percent per year to 3.7 percent (Cooper 13).

A different set of aesthetic concerns helped prompt many residents of Seattle to organize a slow-growth initiative. Reacting to the planned construction of numerous high rise office towers that exceeded any existing construction by several hundred feet, downtown residents formulated a Citizens Alternative Plan (CAP) and qualified the measure for the May 1989 election. The Citizens Alternative Plan won the election with 62 percent of the vote. The plan requires a height limitation on proposed construction and establishes annualized growth limits for the downtown area based upon total square footage of office building construction. The aesthetic concerns that originally prompted the plan are reflected in the project evaluation criteria administered by the Seattle Design Commission (Corr 18).

Another less tangible impact of land development on a local jurisdiction that often stimulates a growth management response is economic in nature. This much researched aspect of urban growth has focussed on a few key parameters to evaluate the net effects of potential growth. Some researchers have "discovered that household income earned and the cost of public service requirements of the new residents are the key parameters determining the net fiscal impact of new developments" (Downing 387). Those instances where proposed development will create a net fiscal loss for a jurisdiction prompt scrutiny, control, and possible rejection. This quantitative economic evaluation is central to Pete Wilson's 1990 campaign to rationalize growth control in California:

> San Diego became a laboratory for the entire nation. Develop-
> ment was encouraged in the central areas of the city, where services
> and facilities were readily available. In the outlying areas, it was
> allowed only after an analysis of costs, weighing the relationship
> between providing new services with the revenues from broadening
> the property tax base. (F1)

The fact that a particular impact of growth becomes a community focus to

justify creating a growth control policy does not minimize the other impacts of

growth that must be managed. Even though a community may emphasize traffic

congestion in its internal debate on growth control, it still must respond to pressures

on the other myriad public services impacted by land development and population

growth.

Political Processes Utilized to Enact Growth Control

A politically significant aspect of the growth control movement is its broad

based constituency. "No-growth is more fundamentally grass roots than Proposition

13," says Dwight Worden, a Solana Beach, California, attorney who has written

nearly a dozen growth-control measures for different ballots (O'Reilly 119).

"Proposition 13 had a charismatic leader in Howard Jarvis," observes Worden.

"This movement has no single leader. It is spontaneous in city after city" (O'Reilly

119).

Perhaps because growth control has become such a politically volatile issue

in many high growth areas, it is the citizen activist and not the elected politician who

has spearheaded the growth control effort. Accordingly, the general ballot measure

has been much more prevalently used in the enactment of growth control measures

than elected representative body legislation. Some of the forms of political

processes used to implement growth control measures are the referendum, initiative, ordinance, and moratorium. Sanford Goodkin comments in the September 1987 issue of <u>Professional Builder</u> on the nature and severity of city council versus grassroots action on the growth issue.

> Initiatives are different from council legislation in that they are much more punitive and much more nebulous. . . . Now the San Diego city council passes a cap of 8000 housing permits in an area which could take at least twice that amount. Council members rationalized that if they did not pass it, a citizen's initiative would have been more vengeful against development, perhaps taking it down to 4000 permits. (72)

Referendum

The literature reviewed described the utilization of the referendum as a means of allowing the voters in a jurisdiction to provide policy direction on selected issues to the elected representatives of that jurisdiction. Sandra Cooper describes the referendum process used by the voters in Boulder, Colorado, to set a policy goal for the Boulder General Plan. "The political movement toward growth control in Boulder, Colorado began when the Zero Population Growth movement proposed a 100,000 population limit for Boulder and put the proposal before the voters in 1971 via a citizen-initiated referendum" (13).

As the community-wide debate in Boulder progressed through the 1970s, a series of voter initiated referenda further defined and refined policies toward growth control. By the mid 1970s, Sandra Cooper writes that the proposed policies had become quite specific.

> On November 2, 1976, a measure to create an ordinance limiting the number of residential building permits issued annually within the

city of Boulder, Colorado, to an average of 450 was passed by the voters. . . . the thrust of the voter initiated referendum was to establish a per annum rate of growth in the Boulder Valley comprehensive planning area. (13)

Initiative

In the context of grassroots political action on the growth management issue, the political initiative is the preferred vehicle when the electorate desires the opportunity to directly enact a program that addresses areas of concern to the general community. For example, growth control in Seattle was initiated when a local attorney, Ted Inkley, "joined with other Seattle residents to put a slow growth initiative on the ballot" (Corr 18).

City Council Ordinance

In certain municipalities in the United States, it is more customary for the elected legislative body to debate the growth management issues and then to enact appropriate legislation. Since the growth control issue in urban areas is the province of the municipal city council, the municipal ordinance is the vehicle for implementing policy concerns. One municipality, Coon Rapids, Minnesota, has opted to have the city council deal directly with controlling the rate, type, and location of growth. (Cottingham 21)

On the Pacific Coast, San Francisco's city council in 1986 took a different approach to growth control when it

passed an ordinance that adds a whopping $13-plus per-square-foot fee to commercial development to pay for everything from child care facilities to art work. . . . San Francisco's solution--a complex downtown ordinance to manage growth through developer fees--is

attracting city planners from Los Angeles to London. (Goodkin, "Holding" 48)

Moratorium

When a community or region has either limited jurisdiction or few policy alternatives, it often resorts to an outright moratorium on growth. A moratorium on development is often declared until a planning jurisdiction can prepare or update the general plan for its area. At other times a moratorium is declared when a particular aspect of public infrastructure or public services becomes so impacted by rapid growth that it cannot possibly accommodate more intensive use. This is often the case with public schools, roads, water services, and sanitary sewer services. "Self limiting growth policies are waxing strong in the suburbs . . . the sewer moratorium in Fairfax County, Virginia, is a well known example." (Downing 387)

Implementation Techniques of Growth Control Measures

Just as there have been a wide variety of political processes utilized to enact growth control measures, there have also been numerous implementation techniques developed to actually control the rate of growth.

Residents of Malibu, California, who supported growth control decided that the refusal to allow Los Angeles County to improve their sanitary sewer facilities would be the best method of restricting growth. If the septic systems utilized by existing residences would restrict the density and type of development, then the lack of more modern sanitary sewer facilities would be a bona fide reason to restrict future development (Beauchamp 120). While Fairfax County, Virginia, already had installed a modern sanitary sewer system, the citizens decided that restricting the

number of hookups per year would be the best method of controlling the rate of residential development and population growth (Downing 387).

The residents of Boulder Colorado, passed a ballot measure in 1976 that attempted to preserve the high quality of life in the area by restricting the rate of residential construction. The ballot measure, which became a municipal ordinance, "limits . . . residential development projects to an average of 450 dwelling units per year" (Cooper 13). This was accomplished by controlling the rate of project approvals and indirectly the number of building permits (Cooper 13). Petaluma, California, is another well known example of a city that has utilized building permit rationing to control the rate of residential development (Downing 387).

The Citizens Alternative Plan (CAP) approved by the voters of Seattle, Washington, in a May 1989 election utilized varying height restrictions in different zones of the city as well as annual quotas on total square footage to be constructed to control the rate of growth (Corr 18).

The city council of Coon Rapids, Minnesota, establishes exclusive development areas at the perimeter of the city. These designated areas are released for development only after all necessary public infrastructure and services have been planned for the entire area. Attempts by developers to obtain approval for projects located outside the designated perimeter areas have been denied by the city council. The rate of growth is indirectly controlled by the rate at which the community facilities and services can be planned and created for the selected growth areas (Cottingham 20).

Results of Existing Growth Control Measures

There have been many critics of the methods and results of the growth control process. As was previously noted, the group most negatively affected by the growth control process often has no voice in the formulation of the growth management policy for the community. Bernard Frieden thinks that housing inflation, one of the typical effects of growth control, tends to perpetuate that situation by creating an even more exclusive and unaffordable community.

> Growth controls have laid heavy cost burdens on California home buyers. They have been contributors to the exceptional inflation of house prices there; yet they have produced few corresponding benefits for the public at large. The benefits have gone mainly to established suburbanites in the tightly regulated communities that have protected themselves against the inconvenience of growth. (16)

Sandra Cooper, in more ambiguous language, articulates similar observations on the net impacts of growth control in Boulder, Colorado.

> There seems to be little argument that the cost of housing has increased in the city of Boulder. . . . Housing demand, improved quality and increased size of new homes, and increased cost of new construction are primary reasons for the dramatic rise in housing costs. . . . in Boulder, increased demand and relatively constant supply of housing due to the declining growth rate imposed by the . . . growth policies is seen to have aggravated the situation. (16)

Alternatives to Growth Control

Any viable alternative to growth control would need to remedy the problems perceived to be mitigated by growth management and also address the needs of underrepresented constituencies on the issue. Economist Paul Downing has created a public service costing and pricing system that addresses some of the concerns of current and future residents of a community.

> The problem of suburban growth is one of inefficient institutions. Public services are underpriced to new residents, and public goods are not explicitly priced. . . . The solution to the problems of suburban growth limitation lies in new institutions which cause each party to each locational decision to agree to choose the most preferred location in terms of the full real resource implications. (391-392)

Downing thinks that once the costing and pricing of public services and community amenities is adjusted to reflect more completely the net effects of land development and construction on all affected parties, that the marketplace can effectively manage growth. Utilizing microeconomic pricing theory, he develops a detailed model of how such a public sector costing and pricing system would function (391-399).

CHAPTER 5

Current Survey Research Effort

Synopsis

A second survey research effort on the demographic profiles of the various constituencies on the growth control issue in Davis, California was conducted by the author in October 1990. Some of the independent variables used in the second written survey were similar to the ones used in the original research. Additional variables included in the later survey and not utilized in the original were: (1) the length of time a person had owned a home in Davis; (2) whether the respondent thought that the growth control policies created a higher quality of life for the entire community; (3) whether the non-homeowners thought that growth control was the reason that they could not afford to own a home in Davis; (4) the respondent's gender.

A copy of the two page written survey is included in the appendix. The respondents were approached by the author in various public places in Davis and asked whether they would complete the survey. If the response was positive, the people were given a copy of the survey and a self addressed stamped envelope. One hundred surveys were distributed and 59 completed surveys were returned in the mail to the author.

The histograms in the appendix containing the Minitab printout graphically show the responses to the different survey questions. The responses to the dependent variable question indicated that 5 percent of the people were not

familiar with Davis' growth control policies, 17 percent strongly supported the policies, 44 percent supported the policies, 8 percent had no opinion on the policies, 17 percent opposed the policies, and 8 percent strongly opposed the policies. In aggregate, 61 percent supported the policies and 25 percent did not support Davis' growth management policies.

Variables and Measures Used

As in the earlier study, the parameters used to define supporters for and opponents to Davis' growth control measures were demographic in nature. Chapter 3 in this paper discusses the basis for utilizing demographic variables and the reasons for selecting the specific demographic variables that were used.

The independent variables added in the second survey were included for a variety of reasons. Questionnaire item number 5 asked how long homeowners had owned their home in Davis. This was directed at detecting whether people who recently purchased their home in Davis were more supportive of growth control than individuals who had owned their home in Davis for a longer period of time. The cumulative impacts of Davis' growth control policies are commonly perceived as having increasingly created a premium price differential for housing in Davis over similar housing in surrounding communities. People who more recently purchased their home in Davis would have paid more of a price premium for their Davis home and therefor would possibly have more reason to maintain the growth control policies than longer term homeowners.

Question number 9 asked the gender of the respondents. This was included to obtain a more complete demographic profile of the survey respondents as a whole. When analyzed as an independent variable, the two genders of the respondents showed some differences in their attitudes towards growth control. The Minitab generated histogram in the appendix reveals that 52.5 percent of the respondents were female and 47.5 percent of the respondents were male.

Another independent variable added to the second survey was whether the respondents thought that Davis' growth control policies had been effective in maintaining a higher quality of life for the entire community. The histogram of the responses to this question is remarkably similar to the response histogram for the dependent variable. This should not be surprising given the similar nature of the two questions and the measurement scale used to evaluate the responses.

A final question asked the non-homeowners whether they thought that the Davis growth control policies were the primary reason why they could not afford to own a home in Davis. This issue is at the core of the affordability problem that is exacerbated by the limitation on new residential construction, which is the primary implementation technique of growth control.

Hypotheses

The following hypotheses were tested utilizing the survey data for the dependent variable and the independent variables.

Hypothesis 1

H_o: There is no relationship between support for growth control and home ownership status in the affected community.

H_1:   There is a significant relationship between support for growth control and home ownership status in the affected community.

Hypothesis 2

H_0:   There is no relationship between support for growth control and duration of home ownership in the affected community.

H_2:   There is a significant relationship between support for growth control and duration of home ownership in the affected community.

Hypothesis 3

H_0:   There is no relationship between support for growth control and whether a person thinks that growth control policies have prevented his owning a home in the affected community.

H_3:   There is a significant relationship between support for growth control and whether a person thinks that growth control policies have prevented his owning a home in the affected community.

Hypothesis 4

H_0:   There is no relationship between support for growth control and a person's age.

H_4:   There is a significant relationship between support for growth control and a person's age.

Hypothesis 5

H_0:   There is no relationship between support for growth control and a person's gender.

H_5:   There is a significant relationship between support for growth control and a person's gender.

Hypothesis 6

H_0:   There is no relationship between support for growth control and a person's length of residency in the affected community.

H_6:   There is a significant relationship between support for growth control and a person's length of residency in the affected community.

Hypothesis 7

H_0:   There is no relationship between support for growth control and a person's level of formal education.

H₇: There is a significant relationship between support for growth control and a person's level of formal education.

Hypothesis 8

H_0:   There is no relationship between support for growth control and a person's household income.

H_8:   There is a significant relationship between support for growth control and a person's household income.

Population Sampled

As in the previous study, the population sampled was the current nonstudent voting age residents of Davis, California. No attempt was made to obtain input from the U. C. Davis student constituency. The rationale for the student exclusion from the population in the study was that students typically do not become as involved in community politics. This is due to the transitory nature of their stay in the community. As was mentioned in the previous quotation of the leader of the U. C. Davis graduate student general assembly, the student constituency is becoming more concerned about housing issues and the growth control policies of the City of Davis. The recent rapid increase in enrollment at U. C. Davis has worsened a chronic rental housing shortage in Davis. The U. C. Davis student leadership is currently campaigning in the community for more construction of rental housing. If student frustrations with the rental housing situation increase, the student constituency could alter the current political balance supporting present growth control policies.

Sample Characteristics

The convenience sampling technique utilized to distribute the 100 written surveys resulted in an unrepresentative respondent demographic profile. Among respondents, 83 percent were homeowners, much higher than recent Davis census data figures. More than 60 percent of the people responding were over 40 years of age, which is higher than would be anticipated in a college community. The ratio of female to male respondents was remarkably close to larger population percentages; 52 percent of the respondents were female. This was not the result of any deliberate survey distribution technique.

A remarkably high percentage of the sample had obtained graduate level university degrees. Of the 59 respondents, 49 percent had graduate or professional degrees, 46 percent had B.A. or B.S. degrees, and a remarkably low 5 percent had only obtained a high school diploma. Even for a college community, this is an extremely high sample level of education.

Given the anticipated relationship between education and income, it would be assumed that the sample household income would be uncharacteristically high. Indeed, 34 percent of the respondents had household incomes in excess of $70,000.00 per year. Another 19 percent had household incomes between $60,000.00 and $70,000.00 per year. Slightly more than 20 percent of the sample households had incomes between $50,000.00 and $60,000.00 per year. A rough estimate of the sample household median income would be in the $60,000.00 to

$65,000.00 per year range. The latest community wide estimate of median household income is in the $37,000.00 per year range.

Survey Instrument Used

A copy of the two page written survey utilized in the second research effort is included in the appendix. The second survey attempted to obtain a more sensitive overall evaluation of the respondents' attitudes towards growth control and its effects upon the community. More complete demographic information about the survey sample was obtained in the second survey by asking questions concerning respondents' gender and duration of home ownership. Also included in the second survey was a direct question to non-homeowners as to whether they thought that the Davis growth control policies had been responsible for their not being able to purchase their own home. Another addition to the second survey was a space to allow for written comments. This was done to allow more open responses from people concerning their evaluation of the growth control policies. Individuals were asked to provide written comments on reasons for supporting or opposing growth control. Not surprisingly, many of the arguments were the same as those mentioned in the urban planning literature debating the growth control issue.

Data Analysis Methods

Minitab statistical software was used to analyze the survey data on a microcomputer. A wide variety of Minitab generated computer printouts are included in the appendix. These include Pearson Correlations, linear and multiple

regressions, histograms, dot plots, and descriptive statistics of the responses to individual questions.

Hypothesis Testing

The hypotheses were tested with a t-ratio value calculated from the Pearson Correlation R values contained in the Minitab Cross Correlation printout. A copy of the Pearson Correlation table is contained in the appendix. The t-ratio and the p values from the Minitab linear regression printout were utilized to cross check the hand calculated t-ratios and t-test results. The hypotheses were tested at a .05 level of significance.

Table 1

Calculated Statistical Values for Hypotheses Testing
and Hypotheses Test Results

Hypothesis #	R-value	t ratio	p-value	Test result (.05)
1 (Own Home)	0.135	1.03	0.308	Retain H_O
2 (Time Own)	-0.003	-0.02	0.983	Retain H_O
3 (Cant Own)	0.059	0.44	0.659	Retain H_O
4 (Age)	-0.060	-0.45	0.651	Retain H_O
5 (Gender)	0.196	1.51	0.136	Retain H_O
6 (Yrs indvs)	-0.028	-0.21	0.834	Retain H_O
7 (Degrees)	-0.143	-1.09	0.278	Retain H_O
8 (Income)	-0.246	-1.92	0.060	Retain H_O

As the table indicates, when the hypotheses were tested at the 0.05 significance level, all of the null hypotheses were retained. Some independent variables did have notable correlations with the dependent variable. The strongest relationship was between household income and support for growth control. A surprisingly strong relationship between gender and support for growth control is also indicated in the data.

CHAPTER 6
Summary and Conclusion

This research paper and accompanying field research efforts have attempted to explore the increasingly pervasive and contentious issue of community based population growth control policies. Growth control policies have spread from fringe political environments like Boulder, Colorado; Davis, California; and Petaluma, California to large numbers of communities in the Pacific and Atlantic Coast regions. This increasingly diverse mix of communities has enacted a correspondingly diverse range of growth control measures. The anticipated benefits of growth control are enjoyed by certain members of the community and the associated costs perhaps borne disproportionately by different members of the community.

The failure of two separate survey efforts to discover statistically significant demographic differences between the two constituencies on the growth control issue in Davis, California does not lead this author to any definitive conclusions for a variety of reasons. The lack of formal scientific sampling of the subject population is a major methodological limitation. Further development of the survey instrument might better ascertain public attitudes about growth control and other related urban planning issues. Other demographic variables could be included in the survey instrument.

The survey data analysis revealed more than the hypotheses test results. The Minitab data analysis indicated that the direction of many relationships between the dependent and independent variables conformed to initial expectations. There was

a positive relationship between home ownership and support for growth control. Individuals with higher levels of education were more supportive of growth control than persons with lower levels of formal education. The final demographic variable on the written survey concerned household income. As was expected, persons from higher income households were more supportive of growth control than persons from lower income households. What is supported by the survey data is only the direction of the relationships between the dependent and independent variables. The tested hypotheses all resulted in retained null hypotheses, i.e., there were found to be no statistically significant relationships between the dependent variable and the independent variables.

Housing in the United States has historically been a focus of local, state, and federal legislation. Since World War II, the federal government and other political jurisdictions have made housing a quasi-public good to be made available to all persons and households who desire to take advantage of publically provided housing. Only since 1980 has that trend toward providing more public housing been reversed.

Also an increasing trend since 1980 has been the tendency for communities to restrict the rate of residential construction in regions experiencing rapid population growth. The housing shortage often found in rapidly growing regions is further exacerbated by growth control. The differential impacts of that shortage raises both practical and fairness issues. Since the mid 1980s the California

legislature has passed several programs to help ensure the availability of affordable housing in all communities in the state.

Past approaches to residential growth control may need to by modified for a variety of reasons. The parochial nature of typical community based growth management policies often is too limited for what is realistically a regional problem and issue. There is a strong tendency for one community to develop growth management policies at the expense of neighboring communities. A more regionally focussed political jurisdiction is required to appropriately balance community and regional needs. The broader based political jurisdiction may also be better able to balance the interests of different constituencies within individual communities.

The field of growth control in urban planning is rapidly evolving as communities become more aware of the impacts of rapid population growth. Growth control policies are also being legislatively forced to become more considerate of a broader range of constituents on the issue. Community activists, legislators, and urban planners will all find the growth management issue both a contentious and potentially rewarding issue challenging them in the 1990s and beyond.

APPENDIX A

Survey Instrument (1985 Research Effort)

DAVIS, CALIFORNIA GROWTH CONTROL SURVEY

Thank you for agreeing to cooperate and assist in this survey. Please indicate your answers by circling the appropriate response or filling in the blank provided. The anonymity of your response is ensured by mailing the completed survey form in the stamped envelope attached to the survey. Thank you again for taking the time and effort to assist this project.

1. How long have you been living in the city of Davis, CA?

    _____ Years   _____ Months

2. Do you currently own your own home in Davis?

    _____ Yes   _____ No

3. What is your date of birth?

    _____ Month   _____ Day   _____ Year

4. What is the highest level of education you have completed? (Circle One)

    -----A-----   -----B-----   ------C------   -------D-------
    Elementary School High School   College Degree   Graduate Degree

5. What is your annual household income? (Circle One)

    ---A---   ---B---   ---C---   ---D---   ---E---   ---F---   ---G---
    Under $10,000 $20,000 $30,000 $40,000 $50,000   OVER
    $10,000   to   to   to   to   to $60,000
               $19,999 $29,999 $39,999 $49,999 $59,999

6. Do you support the current growth control policies being administered in the city of Davis? (Circle One)

    ----A---   ---B---   -------C-------   ---D--   ----E---   ------F-----
    Strongly   Support   Neither Support   Oppose   Strongly   Not Familiar
    Support   nor Oppose   Oppose   with Current
                                                               Policies

7. Do you feel that current growth control policies are too restrictive toward population growth? (Check One)

    _____ Yes   _____ No   _____ No opinion

8. The July 1985 population within the Davis city limits was 40,524. Do you feel that there would be a decline in the quality of life in Davis if the city were to grow beyond a population level of 50,000?

    ----A---   --B--   ------C------   ----D---   ----E---
    Strongly   Agree   Not Sure   Disagree   Strongly
    Agree   Disagree

THANK YOU AGAIN FOR HAVING ANSWERED THIS SURVEY. THE SURVEY SHOULD BE RETURNED TO ME IN THE STAMPED PRE-ADDRESSED ENVELOPE ATTACHED TO THE BACK OF THIS PAGE BY NOVEMBER 22, 1985. Thank You.

APPENDIX B
Survey Instrument (1990 Research Effort)

DAVIS, CALIFORNIA GROWTH CONTROL SURVEY

Thank you for agreeing to cooperate and assist in this survey. Please indicate your answers by circling the appropriate response or filling in the blank provided. The anonymity of your response is ensured by mailing the completed survey form in the stamped envelope attached to the survey. Thank you again for taking the time and effort to assist this project.

1. Do you support the current growth control policies being administered in the City of Davis? (Circle One)

```
----A---    ---B---    -------C-------    ---D--    ----E---    ------F-----
STRONGLY    SUPPORT    NEITHER SUPPORT    OPPOSE    STRONGLY    NOT FAMILIAR
SUPPORT                   NOR OPPOSE                 OPPOSE     WITH CURRENT
                                                               POLICIES
```

2. Do you support the statement that Davis' policy of restricting the rate of residential development has been effective in maintaining a higher quality of life for the entire community? (Circle One)

```
----A---    ---B---    -------C-------    ---D--    ----E---    ------F-----
STRONGLY    SUPPORT    NEITHER SUPPORT    OPPOSE    STRONGLY    NOT FAMILIAR
SUPPORT                   NOR OPPOSE                 OPPOSE     WITH CURRENT
                                                               POLICIES
```

3. Do you think that Davis' current growth control policies are too restrictive, appropriately balanced, or not restrictive enough on residential development? (Circle One)

```
-------A-------        ------B------        -------C-------
TOO RESTRICTIVE        APPROPRIATELY        NOT RESTRICTIVE
                         BALANCED               ENOUGH
```

4. Do you currently own your own home in Davis? If no, go to questionnaire item number 6. (Circle One)

```
         YES          NO
```

5. If you currently own your home in Davis, when did you purchase that residence?

_____ MONTH _____ YEAR

6. If you do not own your home in Davis, do you feel that the current growth control policies in Davis have prevented your owning your home? [If you do own your own home in Davis, please go to question- naire item number seven.] (Circle One)

```
----A---      --B--      ------C------      ----D---      ----E---
STRONGLY      AGREE      NEITHER AGREE      DISAGREE      STRONGLY
 AGREE                    NOR DISAGREE                    DISAGREE
```

DAVIS, CALIFORNIA GROWTH CONTROL SURVEY
(page 2)

7. IF YOU DO NOT support growth control in Davis, list below the reasons WHY YOU DO NOT support growth control. IF YOU DO support growth control in Davis, please list below the reasons WHY YOU DO support growth control.

A._____

B._____

C._____

D._____

E._____

8.   What is your date of birth?

_____ MONTH _____ DAY _____ YEAR

9.   What is your gender? (Circle One)

FEMALE   MALE

10.   How long have you been living in the City of Davis, CA?

_____ YEARS _____ MONTHS

11.   What is the highest level of education you have COMPLETED? (Circle One)

| -----A----- | -----B----- | ----C--- | -------D------- |
| JUNIOR HIGH | HIGH SCHOOL | BACHELOR | GRADUATE DEGREE |

12.   What is your annual household income? (Circle One)

---A---	---B---	---C---	---D---	---E---	---F---	---G---
Under	$20,000	$30,000	$40,000	$50,000	$60,000	OVER
$20,000	to	to	to	to	to	$70,000
	$29,999	$39,999	$49,999	$59,999	$69,999	

Thank you again for agreeing to participate in this study and complete this survey form. After answering the survey questions, please enclose the survey in the attached self addressed stamped envelope and put it in the mail. The anonymity of your survey response is assured by returning it in the mail. If you have any further questions about the survey or any interest in its results, feel free to contact John Russell Batchelder at (916) 758-3296. Thank you once again.

APPENDIX C

Minitab Microcomputer Generated Printouts

```
MTB >  hist c1-c11

Histogram of SUPPORT   N = 59

Midpoint    Count
       0        3   ***
       1       10   **********
       2       26   **************************
       3        5   *****
       4       10   **********
       5        5   *****


Histogram of QUALITY   N = 59

Midpoint    Count
       1        9   *********
       2       29   *****************************
       3        4   ****
       4       12   ************
       5        5   *****


Histogram of RESTRICT   N = 59

Midpoint    Count
       1        9   *********
       2       29   *****************************
       3       21   *********************


Histogram of OWN HOME   N = 59

Midpoint    Count
       1       49   *************************************************
       2       10   **********


Histogram of TIME OWN   N = 59

Midpoint    Count
       0       10   **********
       1       23   ***********************
       2        9   *********
       3        5   *****
       4        5   *****
       5        4   ****
       6        3   ***
```

```
Histogram of CANT OWN    N = 59

Midpoint    Count
       0       49   *****************************************************
       1        1   *
       2        1   *
       3        2   **
       4        5   *****
       5        1   *


Histogram of AGE     N = 59

Midpoint    Count
       1        4   ****
       2       18   ******************
       3       24   ************************
       4        8   ********
       5        5   *****


Histogram of GENDER    N = 59

Midpoint    Count
       1       31   *******************************
       2       28   ****************************


Histogram of YRSINDVS    N = 59

Midpoint    Count
       1       15   ***************
       2       14   **************
       3        9   *********
       4       10   **********
       5        6   ******
       6        1   *
       7        4   ****


Histogram of DEGREES    N = 59

Midpoint    Count
       2        3   ***
       3       27   ***************************
       4       29   *****************************


Histogram of INCOME    N = 59

Midpoint    Count
       1        3   ***
       2        5   *****
       3        2   **
       4        6   ******
       5       12   ************
       6       11   ***********
       7       20   ********************
```

```
MTB > print c1-c11
```

ROW	SUPPORT	QUALITY	RESTRICT	OWN HOME	TIME OWN	CANT OWN	AGE
1	1	1	2	1	1	0	3
2	1	1	2	1	1	0	3
3	1	2	1	1	1	0	2
4	1	1	1	1	2	0	3
5	1	2	2	2	0	2	3
6	1	1	2	1	4	0	5
7	1	1	2	1	1	0	3
8	1	1	2	1	3	0	3
9	1	2	2	1	1	0	2
10	1	1	1	1	6	0	5
11	2	2	2	2	0	3	2
12	2	2	1	1	1	0	2
13	2	2	1	1	4	0	3
14	2	2	2	1	1	0	3
15	2	2	2	1	1	0	2
16	2	2	2	1	3	0	4
17	2	4	2	1	1	0	1
18	2	2	2	1	1	0	2
19	2	2	1	1	1	0	3
20	2	2	2	2	0	4	1
21	2	2	2	1	3	0	4
22	2	2	2	1	1	0	3
23	2	2	2	1	1	0	3
24	2	2	2	1	2	0	3
25	2	2	1	1	6	0	5
26	2	2	2	1	1	0	2
27	2	2	3	1	1	0	3
28	2	2	2	1	2	0	3
29	2	2	2	1	2	0	2
30	2	2	2	1	5	0	4
31	2	2	3	1	2	0	2
32	2	2	2	1	1	0	2
33	2	2	2	1	6	0	5
34	2	1	2	1	1	0	4
35	2	2	2	1	2	0	3
36	2	2	2	1	5	0	4
37	3	4	3	1	4	0	3
38	3	3	3	1	1	0	3
39	3	4	3	1	1	0	1
40	3	3	1	1	2	0	3
41	3	4	3	1	4	0	5
42	4	4	3	1	1	0	3
43	4	4	3	2	0	4	2
44	4	4	3	1	2	0	2
45	4	3	3	1	4	0	4
46	4	4	3	1	5	0	4
47	4	2	3	1	3	0	4
48	4	5	3	2	0	4	2
49	4	4	1	1	2	0	3
50	4	4	3	1	3	0	3
51	4	4	3	1	5	0	3
52	5	4	3	1	1	0	2
53	5	5	3	2	0	1	2
54	5	5	3	1	1	0	2
55	5	5	3	2	0	3	2
56	5	5	3	2	0	4	3
57	0	2	2	1	1	0	2
58	0	3	3	2	0	5	1
59	0	1	2	2	0	4	3

ROW	GENDER	YRSINDVS	DEGREES	INCOME
1	2	1	4	7
2	1	1	4	7
3	1	3	4	6
4	1	4	4	6
5	1	2	3	4
6	1	5	4	6
7	2	1	3	7
8	2	7	4	4
9	1	1	3	7
10	1	7	3	7
11	2	2	2	5
12	2	1	4	6
13	1	4	4	5
14	2	3	3	5
15	1	3	3	2
16	1	3	3	2
17	1	2	3	4
18	1	1	4	7
19	2	2	2	7
20	1	1	4	3
21	2	2	3	7
22	1	3	4	5
23	2	2	4	7
24	1	2	4	7
25	1	7	4	2
26	2	2	4	6
27	1	3	3	5
28	1	4	3	7
29	2	4	3	4
30	2	5	2	4
31	1	2	4	7
32	2	2	4	6
33	1	7	3	5
34	1	1	4	6
35	1	2	4	7
36	1	5	3	5
37	1	4	3	4
38	2	5	4	7
39	2	3	4	7
40	2	2	4	5
41	2	5	3	6
42	2	4	3	6
43	1	1	3	5
44	2	4	3	5
45	2	4	3	7
46	2	5	4	6
47	1	6	4	7
48	1	1	3	2
49	1	3	4	7
50	1	4	3	6
51	2	2	4	5
52	1	1	3	3
53	2	2	4	1
54	2	1	3	7
55	2	1	3	1
56	2	3	3	1
57	1	1	4	5
58	2	1	3	2
59	2	4	4	7

```
MTB > describe c1-c11
```

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
SUPPORT	59	2.407	2.000	2.396	1.328	0.173
QUALITY	59	2.576	2.000	2.528	1.221	0.159
RESTRICT	59	2.2034	2.0000	2.2264	0.6893	0.0897
OWN HOME	59	1.1695	1.0000	1.1321	0.3784	0.0493
TIME OWN	59	1.932	1.000	1.811	1.721	0.224
CANT OWN	59	0.576	0.000	0.396	1.367	0.178
AGE	59	2.864	3.000	2.849	1.025	0.133
GENDER	59	1.4746	1.0000	1.4717	0.5036	0.0656
YRSINDVS	59	2.949	3.000	2.830	1.766	0.230
DEGREES	59	3.4407	3.0000	3.4906	0.5951	0.0775
INCOME	59	5.237	6.000	5.377	1.832	0.239

	MIN	MAX	Q1	Q3
SUPPORT	0.000	5.000	2.000	4.000
QUALITY	1.000	5.000	2.000	4.000
RESTRICT	1.0000	3.0000	2.0000	3.0000
OWN HOME	1.0000	2.0000	1.0000	1.0000
TIME OWN	0.000	6.000	1.000	3.000
CANT OWN	0.000	5.000	0.000	0.000
AGE	1.000	5.000	2.000	3.000
GENDER	1.0000	2.0000	1.0000	2.0000
YRSINDVS	1.000	7.000	1.000	4.000
DEGREES	2.0000	4.0000	3.0000	4.0000
INCOME	1.000	7.000	4.000	7.000

```
MTB > correlate c1-c11
```

	SUPPORT	QUALITY	RESTRICT	OWN HOME	TIME OWN	CANT OWN	AGE
QUALITY	0.842						
RESTRICT	0.567	0.617					
OWN HOME	0.135	0.307	0.262				
TIME OWN	-0.003	-0.137	-0.148	-0.512			
CANT OWN	0.059	0.263	0.258	0.941	-0.481		
AGE	-0.060	-0.295	-0.180	-0.340	0.748	-0.349	
GENDER	0.196	0.221	0.214	0.113	-0.141	0.097	-0.107
YRSINDVS	-0.028	-0.154	-0.091	-0.297	0.737	-0.288	0.663
DEGREES	-0.143	-0.213	-0.180	-0.184	-0.021	-0.190	-0.042
INCOME	-0.246	-0.386	-0.189	-0.532	0.120	-0.475	0.192

	GENDER	YRSINDVS	DEGREES
YRSINDVS	-0.050		
DEGREES	-0.135	-0.028	
INCOME	0.025	0.030	0.235

```
MTB > regress 'support' 1 over 'quality'

The regression equation is
SUPPORT = 0.046 + 0.916 QUALITY

Predictor       Coef       Stdev      t-ratio        p
Constant      0.0463      0.2210         0.21    0.835
QUALITY       0.91624     0.07765       11.80    0.000

s = 0.7218      R-sq = 71.0%      R-sq(adj) = 70.4%

Analysis of Variance

SOURCE        DF          SS         MS          F        p
Regression     1      72.538     72.538     139.22    0.000
Error         57      29.699      0.521
Total         58     102.237

Unusual Observations
Obs. QUALITY    SUPPORT      Fit Stdev.Fit   Residual   St.Resid
 17     4.00     2.0000   3.7113    0.1451    -1.7113     -2.42R
 47     2.00     4.0000   1.8788    0.1041     2.1212      2.97R
 57     2.00     0.0000   1.8788    0.1041    -1.8788     -2.63R
 58     3.00     0.0000   2.7950    0.0996    -2.7950     -3.91R

R denotes an obs. with a large st. resid.
```

```
MTB > regress 'support' 1 'restrict'

The regression equation is
SUPPORT = - 0.001 + 1.09 RESTRICT

Predictor        Coef       Stdev     t-ratio        p
Constant      -0.0012      0.4846       -0.00    0.998
RESTRICT       1.0929      0.2101        5.20    0.000

s = 1.103        R-sq = 32.2%     R-sq(adj) = 31.0%

Analysis of Variance

SOURCE         DF          SS          MS        F        p
Regression      1       32.916      32.916    27.07    0.000
Error          57       69.322       1.216
Total          58      102.237

Unusual Observations
Obs.RESTRICT    SUPPORT       Fit Stdev.Fit  Residual   St.Resid
  49    1.00      4.000      1.092     0.291     2.908      2.73R
  58    3.00      0.000      3.277     0.220    -3.277     -3.03R

R denotes an obs. with a large st. resid.
```

```
MTB > regress 'support' 1 'own home'

The regression equation is
SUPPORT = 1.85 + 0.473 OWN HOME

Predictor        Coef      Stdev     t-ratio        p
Constant        1.8531     0.5656       3.28     0.002
OWN HOME        0.4735     0.4605       1.03     0.308

s = 1.327       R-sq = 1.8%      R-sq(adj) = 0.1%

Analysis of Variance

SOURCE          DF          SS          MS         F        p
Regression       1       1.862       1.862      1.06    0.308
Error           57     100.376       1.761
Total           58     102.237

Unusual Observations
Obs.OWN HOME     SUPPORT      Fit Stdev.Fit  Residual   St.Resid
  52   1.00       5.000     2.327     0.190     2.673      2.04R
  54   1.00       5.000     2.327     0.190     2.673      2.04R
  58   2.00       0.000     2.800     0.420    -2.800     -2.22R
  59   2.00       0.000     2.800     0.420    -2.800     -2.22R

R denotes an obs. with a large st. resid.
```

```
MTB > regress 'support' 1 'time own'

The regression equation is
SUPPORT = 2.41 - 0.002 TIME OWN

Predictor        Coef       Stdev      t-ratio         p
Constant       2.4110      0.2634         9.15     0.000
TIME OWN      -0.0022      0.1022        -0.02     0.983

s = 1.339       R-sq = 0.0%      R-sq(adj) = 0.0%

Analysis of Variance

SOURCE        DF          SS          MS         F         p
Regression     1       0.001       0.001      0.00     0.983
Error         57     102.236       1.794
Total         58     102.237

Unusual Observations
Obs.TIME OWN     SUPPORT      Fit Stdev.Fit  Residual   St.Resid
  10      6.00     1.000    2.398     0.451    -1.398    -1.11 X
  25      6.00     2.000    2.398     0.451    -0.398    -0.32 X
  33      6.00     2.000    2.398     0.451    -0.398    -0.32 X
X denotes an obs. whose X value gives it large influence.
```

```
MTB > regress 'support' 1 'cant own'

The regression equation is
SUPPORT = 2.37 + 0.057 CANT OWN

Predictor        Coef       Stdev      t-ratio          p
Constant       2.3740      0.1891        12.55      0.000
CANT OWN       0.0569      0.1284         0.44      0.659

s = 1.337        R-sq = 0.3%      R-sq(adj) = 0.0%

Analysis of Variance

SOURCE         DF          SS          MS        F        p
Regression      1       0.351       0.351     0.20    0.659
Error          57     101.886       1.787
Total          58     102.237

Unusual Observations
Obs.CANT OWN    SUPPORT      Fit Stdev.Fit   Residual    St.Resid
  20    4.00      2.000    2.602    0.473     -0.602     -0.48 X
  43    4.00      4.000    2.602    0.473      1.398      1.12 X
  48    4.00      4.000    2.602    0.473      1.398      1.12 X
  56    4.00      5.000    2.602    0.473      2.398      1.92 X
  58    5.00      0.000    2.659    0.594     -2.659     -2.22RX
  59    4.00      0.000    2.602    0.473     -2.602     -2.08RX

R denotes an obs. with a large st. resid.
X denotes an obs. whose X value gives it large influence.
```

```
MTB > regress 'support' 1 'age'

The regression equation is
SUPPORT = 2.63 - 0.078 AGE

Predictor        Coef        Stdev      t-ratio          p
Constant       2.6299       0.5206         5.05      0.000
AGE           -0.0779       0.1713        -0.45      0.651

s = 1.337        R-sq = 0.4%      R-sq(adj) = 0.0%

Analysis of Variance

SOURCE        DF          SS          MS          F          p
Regression     1        0.370       0.370       0.21      0.651
Error         57      101.868       1.787
Total         58      102.237
```

```
MTB > regress 'support' 1 'gender'

The regression equation is
SUPPORT = 1.64 + 0.517 GENDER

Predictor        Coef       Stdev     t-ratio          p
Constant       1.6440      0.5330        3.08      0.003
GENDER         0.5173      0.3424        1.51      0.136

s = 1.313       R-sq = 3.9%      R-sq(adj) = 2.2%

Analysis of Variance

SOURCE          DF          SS          MS         F         p
Regression       1        3.937       3.937      2.28     0.136
Error           57       98.301       1.725
Total           58      102.237

Unusual Observations
Obs.   GENDER    SUPPORT      Fit Stdev.Fit  Residual    St.Resid
 52      1.00      5.000     2.161    0.236     2.839       2.20R
 58      2.00      0.000     2.679    0.248    -2.679      -2.08R
 59      2.00      0.000     2.679    0.248    -2.679      -2.08R
R denotes an obs. with a large st. resid.
```

```
MTB > regress 'support' 1 'yrsindvs'

The regression equation is
SUPPORT = 2.47 - 0.0209 YRSINDVS

Predictor        Coef       Stdev      t-ratio        p
Constant        2.4684      0.3414        7.23     0.000
YRSINDVS       -0.02090     0.09955      -0.21     0.834

s = 1.339        R-sq = 0.1%       R-sq(adj) = 0.0%

Analysis of Variance

SOURCE          DF          SS          MS         F        p
Regression       1         0.079       0.079      0.04    0.834
Error           57       102.158       1.792
Total           58       102.237

Unusual Observations
Obs.YRSINDVS    SUPPORT       Fit Stdev.Fit   Residual    St.Resid
   8    7.00     1.000      2.322     0.439     -1.322      -1.05 X
  10    7.00     1.000      2.322     0.439     -1.322      -1.05 X
  25    7.00     2.000      2.322     0.439     -0.322      -0.25 X
  33    7.00     2.000      2.322     0.439     -0.322      -0.25 X

X denotes an obs. whose X value gives it large influence.
```

```
MTB > regress 'support' 1 'degrees'

The regression equation is
SUPPORT = 3.51 - 0.320 DEGREES

Predictor         Coef       Stdev      t-ratio        p
Constant         3.508       1.021         3.44     0.001
DEGREES        -0.3201      0.2924        -1.09     0.278

s = 1.325       R-sq = 2.1%      R-sq(adj) = 0.3%

Analysis of Variance

SOURCE          DF           SS          MS         F        p
Regression       1        2.105       2.105      1.20    0.278
Error           57      100.132       1.757
Total           58      102.237

Unusual Observations
Obs. DEGREES    SUPPORT      Fit Stdev.Fit  Residual   St.Resid
  11    2.00     2.000     2.868     0.455    -0.868     -0.70 X
  19    2.00     2.000     2.868     0.455    -0.868     -0.70 X
  30    2.00     2.000     2.868     0.455    -0.868     -0.70 X
  53    4.00     5.000     2.228     0.238     2.772      2.13R

R denotes an obs. with a large st. resid.
X denotes an obs. whose X value gives it large influence.
```

```
MTB > regress 'support' 1 'income'

The regression equation is
SUPPORT = 3.34 - 0.178 INCOME

Predictor        Coef        Stdev       t-ratio         p
Constant       3.3402       0.5157          6.48     0.000
INCOME       -0.17822      0.09304         -1.92     0.060

s = 1.298        R-sq = 6.0%        R-sq(adj) = 4.4%

Analysis of Variance

SOURCE          DF          SS          MS          F          p
Regression       1       6.183       6.183       3.67     0.060
Error           57      96.054       1.685
Total           58     102.237

Unusual Observations
Obs.   INCOME    SUPPORT       Fit  Stdev.Fit   Residual    St.Resid
 53      1.00      5.000      3.162     0.429      1.838       1.50 X
 54      7.00      5.000      2.093     0.235      2.907       2.28R
 55      1.00      5.000      3.162     0.429      1.838       1.50 X
 56      1.00      5.000      3.162     0.429      1.838       1.50 X
 58      2.00      0.000      2.984     0.345     -2.984      -2.38R

R denotes an obs. with a large st. resid.
X denotes an obs. whose X value gives it large influence.
```

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