

THE DEMAND FOR RESIDENTIAL
HOUSING IN STILLWATER

By


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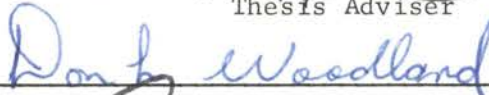
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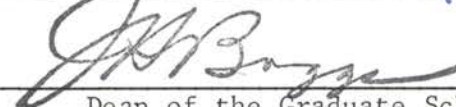
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PREFACE

The houses in which we live play a very important part in our lives. This fact made the study which is the subject of this report especially interesting to me. I hope it will prove so to other persons.

I wish to thank my adviser, Mr. Robert D. Erwin, without whose patience and invaluable guidance the study could never have been completed. I also wish to acknowledge the assistance of Mr. Frederick A. Russell, Director of Urban Development in Stillwater, Oklahoma for the background data which he supplied. I cannot praise too highly the contribution of Mrs. Judith Johnson, who spent many hours typing the final draft of the report. I also wish to thank Miss Ayla S. Taluy for assistance in typing the rough draft, and Mrs. Molly Reid who prepared the copies of the questionnaire and cover letter. Finally, I wish to thank the many citizens of Stillwater who completed and returned the questionnaire.

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CHAPTER I

INTRODUCTION

The purchase of a house is the most expensive acquisition undertaken by most consumers. This fact amply justifies the expenditure of considerable time and effort on the study of the housing market. Heretofore, more particularly in recent years, extensive research by sociologists and architects has provided valuable insights into the features of the ideal home, and both direct and projective techniques have been utilized in endeavors to determine likes and dislikes of consumers. Notable, however, has been the lack of any published material aimed at determining the economic demand for residential housing, who generates this demand, and for what type of housing the demand exists. The value of such information for the planning of housing development is manifest.

Architects and planners have undertaken largely unpublished research related to specific housing developments, to determine interior and exterior design features, and the type of environment, which would appeal to occupants. Such efforts have solicited opinions from the general public, rather than the opinions of those members of the public who were prospective occupants of the new developments. In addition, the developments are past the embryonic stage when research is initiated, and findings are used for modification rather than formation of plans.

The market study incorporated in this paper was developed and carried out without any preconceptions as to the form which future developments

should or should not take. Such information would be utilized by developers at an earlier stage in the planning process than would be the results of the type of study described in the previous paragraph.

Statement of the Problem

The attempt to increase consumer orientation in the planning of residential housing developments involves answering three questions.

1. What is the magnitude of the demand for new residential housing?
2. What interior and exterior design features, and what type of environment do prospective occupants demand?
3. From whom does the demand come?

The answers to these questions will provide valuable aid in planning the size of future developments, the type of housing they would contain and the promotional techniques employed as selling aids.

Limitations of the Study

The type of study envisaged would obviously only have local applicability. Present housing styles and standards, socio-economic levels, local building materials, employment characteristics and other factors would all be expected to influence housing preferences. The city chosen for performing this study was Stillwater, Oklahoma; therefore, specific findings will be limited to Stillwater. It is hoped, however, that the method of approach may prove more widely applicable.

A further limitation is that in determining the magnitude of the demand for residential housing in Stillwater, it is clear that a sizable proportion of the demand flows from consumers not presently residing in

Stillwater. Evidently, such a population is virtually impossible to contact, and hence, the study was limited to present Stillwater residents, among whom it was expected that a reasonable demand would exist.

Stillwater is a town of about 27,000 persons, including approximately 15,000 university students for the majority of the year. It was in one sense a limitation, albeit a chosen one, that the study was restricted by the delineation of the population of interest to the permanent residents of Stillwater. The needs of the student body are rather specialized and frequently studied, and for the most part adequately catered to by the university itself.

Organization of the Paper

The topic of the paper has now been presented, and the limitations, intentional and unintentional, have been explained. Chapter II will present the results of a personal survey of research into the housing market, obtained from a review of the literature extant, and Chapter III will give a description of the city of Stillwater which was used for the study.

Chapter IV will explain the methodology employed in the research. The method of surveying, the isolation of the population of interest, and the determination of the sample size will be described. Chapter V will present the survey data and its analysis. Both graphical and tabular display is utilized. Finally, Chapter VI will summarize the findings and present the conclusions and recommendations of the author.

CHAPTER II

REVIEW OF THE LITERATURE

All people consume housing throughout their life span. Some purchase housing as a service by renting their home; others, by taking title to their home, purchase housing as a good. For both these groups, a home provides a place in which to eat and sleep, a center for family activities, a setting for many leisure time activities, a store for family possessions, and the environment for many other undertakings peculiar to specific individuals. Hence, it is not at all surprising that various aspects of housing requirements have been subject to extensive research. The following pages present a synthesis of findings appropriate to the topic of this paper.

Speaking at a symposium at the University of Wisconsin in 1948, James C. Downs pointed out the need for measured demand in the housing market.¹ He explained that in the housing market the need has always been greater than the ability to consume, due principally to purchasing power deficiencies. Nevertheless, accurate information is valuable to fabricators, dealers, distributors and developers, a viewpoint consistent with the arguments in Chapter I.

The conceptual differences between need and demand were further underscored by A. Benjamin Handler at the same symposium.² He pointed

¹James C. Downs, Jr., "Measuring Effective Demand in the Housing Market," Land Economics, XXV (1949), pp. 105-106.

²A. Benjamin Handler, Jr., "Housing Needs and Housing Standards," Ibid., pp. 117-123.

out that quantification of housing needs, based on macro-economic data, had led to a hybrid "demand-need concept"³, which was in fact neither a demand nor a need. He argues that need and demand are distinct entities, each of which is separately determinable. Housing needs are predicated on considerations of human welfare, and are the life requirements which individuals attempt to satisfy by means of housing. Needs may be subjectively experienced by individuals, or may be imputed to people by external standard-setting bodies, or would-be benefactors. In contrast, housing demand never involves what ought to be, but depends on hypotheses relating to incomes, prices of houses and other similar variables. Handler advocates a common approach to the subject of housing by economists and sociologists, an approach which is cognizant of the interrelatedness of needs and demands, but nonetheless aware of the conceptual differences.

Glenn H. Beyer, perhaps the most prolific worker in this field, has produced a number of studies and some very comprehensive books on the subject of housing.⁴ He emphasizes the local nature of the housing market, stating that demand can be studied most meaningfully with reference to local conditions. He delineates the ability to pay as being a critical determinant of the amount and kind of housing to be provided. Obviously, the ability to pay distinguishes between need and effective demand. Beyer provides guidelines for housing market analyses which include defining the market area, analyzing its economic base, examining population and income statistics, and considering present and anticipated housing supply.

³Ibid., p. 118.

⁴Glenn H. Beyer, Housing: A Factual Analysis (New York, 1958).

Beyer personally conducted an extensive analysis of farm housing, based on census information, and data obtained from the Housing Research Center at Cornell University.⁵ The findings suggested that migration from farms would continue, and would result in diminution of subsistence level farms, where dilapidated houses predominated. The migration contributes to the demand for non-farm housing.

In his latest publication, Beyer has given more consideration to the historical influence on housing, and has explored problem areas in both the United States and Europe more exhaustively.⁶ He accentuates the difference between market demand, and needs which are based on standards of minimum social acceptability. He is alarmed by disproportionate increases in house prices, and believes that further research and development expenditures are needed. Refined market analysis is also given developmental priority by Beyer, who feels that personal values and their influence on housing preferences need further study, possibly by projective techniques.

Another major contributor to housing studies was the late John P. Dean.⁷ Dean analyzed the pro's and con's of home ownership in a straight forward and lucid manner. He was motivated by concern over the potential hazards of home ownership, since most consumers are relatively inexperienced as purchasers in the housing market. His more recent work examined the influence of family values on housing design.⁸ Expressed desires and

⁵Glenn H. Beyer and J. Hugh Rose, Farm Housing (New York, 1957).

⁶Glenn H. Beyer, Housing and Society (New York, 1965).

⁷John P. Dean, Home Ownership: Is It Sound? (New York, 1945).

⁸John P. Dean, "Housing Design and Family Values," Land Economics, XXIX (1953), pp. 128-141.

dislikes experienced while living in a house provide some assistance to architects, but by intensive observation of family activities in the home, social scientists and architects were able to infer the suitability of present quarters and obtain guidelines for improvement. Dean hypothesizes that environmental factors, such as location of the house with regard to social environments in which the occupants participate, the orientations of neighborhood dwelling units, and the influence of the environment on living functions performed inside or outside the home, are crucial considerations to good housing design.

Thus, in 1955, housing research by Beyer, Mackesey and Montgomery illustrated the effect of housing values as they are reflected in patterns of living and as they relate to housing design.⁹ Their research indicated market segmentation into groups which they designated as the "economy group", the "family group", the "personal group" and the "prestige group".¹⁰ Among house owners, the family and economy groups were the largest, being approximately equal in size, and together accounting for over 60 percent of the sample.¹¹ The family group stressed environmental features and availability of good schools for the children;¹² whereas, the personal group was concerned with privacy and design of the house.¹³

⁹G. H. Beyer, T. W. Mackesey and J. E. Montgomery, Houses Are for People: A Study of Home Buyer Motivations, Cornell University Housing Research Center, Publication No. 3 (Ithica, 1955), p. iii.

¹⁰Ibid., p. 3.

¹¹Ibid., p. 56.

¹²Ibid., p. 4.

¹³Ibid., p. 5.

Under the aegis of the United States Government, both statistics and analyses relating to the housing market have been published. Predictably, the former have predominated over the latter. Thus, government statistics show that in 1960 there were 58,326,357 housing units in the United States, 91 percent of which were occupied.¹⁴ Also in 1960, 62 percent of all units were owner occupied, the highest figure ever recorded. The persons per room ratio has also been decreasing, indicating that Americans are enjoying more space in their homes. Census statistics have proved valuable in indicating housing needs, but other factors, such as prevailing incomes, economic outlook, and house prices make predictions of demand at the macro-economic level a somewhat more complex task.

Rapkin, Winnick and Blank¹⁵ conducted a penetrating examination of the housing market for the Division of Housing Research of the Housing and Home Finance Agency. They showed how the use of existing statistics, such as occupancy ratios, housing supply, income and employment data-- family compositions and economic base studies, may be used to make predictions of housing demand at the local, regional and national levels. They acknowledge the potential role of marketing research in the housing market,¹⁶ and state that "survey techniques provide a firmer basis for evaluating the constituent elements in housing demand,"¹⁷ than does the type of analysis based on secondary data.

¹⁴U. S. Bureau of the Census, U. S. Census of Housing, 1960, Vol. I, States and Small Areas, Part 1, U. S. Summary (Washington, D. C., 1963).

¹⁵C. Rapkin, L. Winnick and D. M. Blank, Housing Market Analysis (Washington, D. C., 1953).

¹⁶Ibid., p. 75.

¹⁷Ibid., p. 77.

Obviously, such reasoning provided the motivation for this study; though as Rapkin, et al point out,¹⁸ the value of the approach is probably limited to the short term. Analytical evaluations will continue to be employed for long term estimates.

Summary

A review of the literature has indicated the increasing volume of research being undertaken to determine consumer preferences, needs and values. Results of such research are being applied to the design of new houses and neighborhoods.

A careful distinction should be made between the concept of need and the concept of demand. It is the latter concept which will constitute the major concern of this paper.

Beyer emphasized the local nature of the housing market and delineated a need for better market analysis. Rapkin and his co-workers described market analyses based on secondary data, and suggested the use of a survey as a potentially more accurate method for determining short term demand.

The suggestion of Rapkin, et al seems to be a valid method of compensating for the deficiencies in conventional housing market analysis which were observed by many workers in the field. The remainder of this report describes the development and execution of a survey designed to overcome the limitations of conventional analytic techniques.

¹⁸ Ibid.

CHAPTER III

ANALYSIS OF THE SITUATION

A Brief History of Stillwater

The first settlers attempted to establish a town on the present site of Stillwater in 1884.¹ However, it was not until 12 noon on April 22, 1889 that the Oklahoma Lands, including Stillwater, were officially opened to settlement. The Stillwater Town Company was organized and chartered under the laws of Kansas. On June 11, 1889 the first town government was organized, the population at the time being some three hundred souls.

The 1890 census determined Stillwater's population to be 569, and on April 7, 1891 Stillwater citizens voted unanimously to incorporate the town. The elected officials' second recorded action was to propose a \$10,000 bond issue to aid in the construction of an Agricultural and Mechanical College. The proposal passed unanimously, and by 1892 seventy-six students were enrolled. The first graduates received their diplomas in 1896.

In less than eighty years, Stillwater's population has grown to about 27,000 in 1966, and enrollment at the college, since renamed Oklahoma State University, to 16,000 students. Future expectations are for continued growth.

¹The basic sources of most of the data in this chapter are Business Extension Service, The Economic Factors of Stillwater and Payne County (Stillwater, 1962), and City of Stillwater, Community Renewal Program (Stillwater, 1963).

Economic Base

The five factors which constitute the economic base of Stillwater are:

1. Oklahoma State University
2. Personal services
3. Retail trade
4. Entertainment and recreational services
5. County government

The university is the primary source of employment. Its permanence is evident, and anticipated enrollment increases should generate further employment opportunities. Enrollment is expected to exceed 20,000 students within the next three years.

With increases in enrollment, attendant growth in both personal services and retail trade establishments may be expected to take place. Increasing need for entertainment and recreational facilities will also be a natural consequence of the growth of the university.

The employment provided through Payne County government may be regarded as permanent and dependable. The relative stability of the university has spared Stillwater from the problems often associated with lack of diversity of the economic base of a community. Nevertheless, efforts are being made to broaden the base, including the establishment of a 53 acre Industrial Park, adjoining the Municipal Airport. A major result of these efforts was the recent announcement that Moore Business Firms Incorporated intend to build a factory employing over 200 persons in the Park.

Population and Income

The study of population and income statistics is an integral part of conventional housing market analysis. Total population projections are important not only to predictors of housing needs, but also for suppliers of the auxiliary services, such as sewage facilities, gas, electricity and streets, which new houses necessitate. Table I shows the past, and projected, population growth for Stillwater.

TABLE I
POPULATION GROWTH--STILLWATER, OKLAHOMA

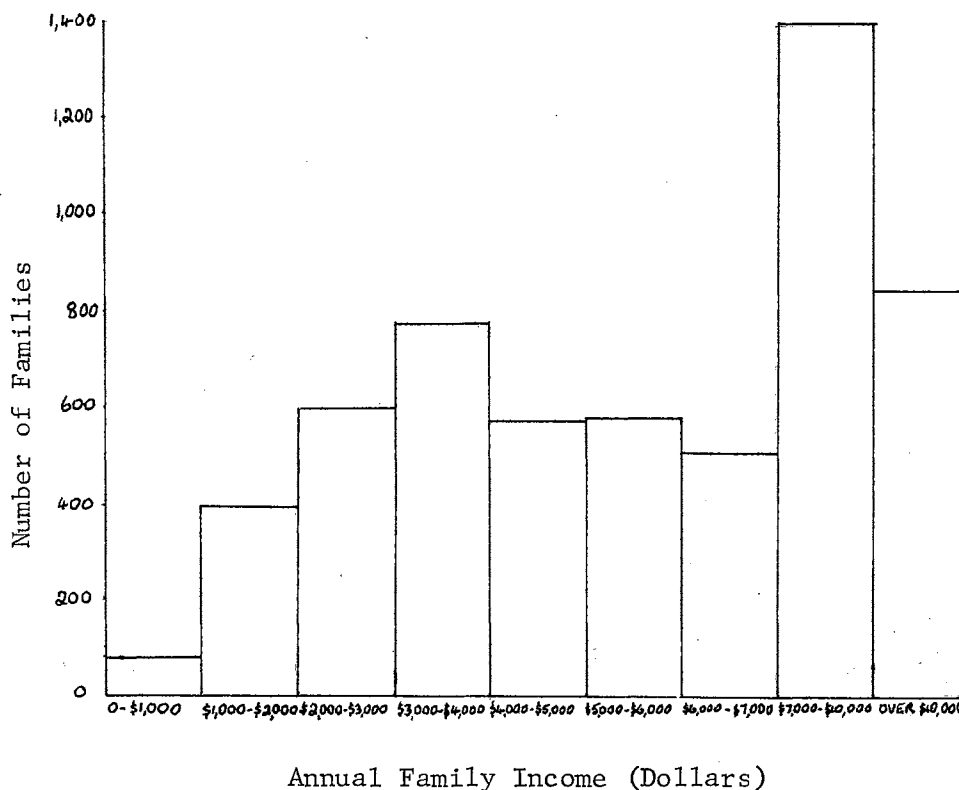
Year	Total Population
1940	10,097
1950	20,238
1960	23,965
1965	27,315
1966	27,880
1967	28,445
1968	29,010
1969	29,575

Source: City of Stillwater, Community Renewal Program
(Stillwater, 1963).

The age distribution of the population is important when estimating future housing needs, since the type, size and situation of new housing will be affected by the age of prospective occupants. Fifty percent of the population of Stillwater is under 21 years of age, and city officials expect this ratio to be maintained over the next ten years. However, the over 65 age group is expected to show one of the greatest percentage increases in the next 10 years, of almost 25 percent, while the under six

age group will increase by 28 percent. The median age of the population at the time of the 1960 census was 22.6 years.

Figure 1 shows the distribution of family incomes for Stillwater in 1966. All the figures are projected from 1960 census information by the planning staff of the city of Stillwater.



Source: City of Stillwater, Community Renewal Program (Stillwater, 1963).

Figure 1. Projected Family Income Distribution--
Stillwater, Oklahoma, 1966.

The percentage of families with incomes of less than \$4,000 is expected to decrease by one third over the next five years. It has been forecasted that the percentage of families with incomes of over \$7,000 per year will increase by over 34 percent over the next five years, when it will represent almost 48 percent of the total number of families compared with a little under 40 percent at the present. This group would appear to offer the most lucrative opportunities for private developers.

Present Housing Situation

The housing situation in Stillwater is subject to periodic influxes and effluxes of a migratory student population; however, the market for residential family housing may be examined separately, a procedure appropriate to the purpose for which the survey was conducted.

Stillwater planners project a growth rate of approximately 90 families per year for the next few years. During the same period they project construction of about 120 houses and 14 duplexes per year. In fact, cross-checking of predictions for 1964 and 1965 against actual building permits issued,² indicates these projections are too high; figures of 100 and 4 respectively would probably be more realistic. Approximately 140 used houses are expected to become available annually for the next three years.

The urban renewal program of the city of Stillwater will throw a strain on the supply of used housing units, since relocation of 523 families is eventually planned. Hence, existing families who wish to relocate of their own volition will probably find a smaller supply of used houses available, in which case effective demand for new units could increase.

Movement patterns for Stillwater indicate that over 70 percent of the population in 1960 had moved to new houses during the period 1955 to 1960. Hence, the demand for new and used housing will definitely be higher than the need indicated by the projected growth of families. Projected new housing and used housing becoming available, even if it were of exactly the type desired by prospective occupants, which seems unlikely to happen, will probably not be sufficient to satisfy anticipated demand.

²City of Stillwater, Building Inspection Department, Annual Report, Year 1963-64 (Stillwater, 1964) and Year 1964-65 (Stillwater, 1965).

CHAPTER IV

METHODOLOGY

Method of Data Collection

The mail survey was the chosen method for the study. This choice necessitated sacrificing certain advantages inherent in other survey techniques. Using personal interviews allows more flexibility, and opportunity for worthwhile gentle probing on the part of the interviewer. Potentially contradictory statements are generally reconcilable immediately. Telephone interviews provide more interviewer flexibility than a mail survey, though less than a personal interview.

When a large quantity of information is required, mail questionnaires are generally not preferred, since recipients tend to disregard them without even reading them. Another unfortunate possibility is that respondents may enlist the aid of other persons in completing the questionnaire, which could introduce bias. A potential disadvantage is that the recipient has a comparatively long time to mull over his responses to the questions before he answers them. However, in certain circumstances this behavior could prove advantageous.

A further considerable disadvantage of mail surveys is the problem of non-response. Schreier states¹ that a forty percent return ratio is considered good for a mail survey. If the group of non-respondents were similar to the respondents, the only problem would be that of sample size.

¹Fred T. Schreier, Modern Marketing Research (Belmont, 1963), p. 198.

Unfortunately, persons interested in the subject are more likely to respond than those who are not, hence, introducing bias of non-response.

Despite the aforementioned disadvantages, a number of which also apply to other methods of obtaining information, there are distinct advantages to a mail survey. In addition, many of the above limitations may be ameliorated by careful design of the study.

Major advantages accruing to mail surveys are savings in time and costs. While some time is involved in addressing and mailing questionnaires, this is very small compared with the time involved in conducting personal interviews, or to a lesser extent, time for telephone interviews. The use of an interviewing team can speed the total lapsed time to complete a personal interview survey, at the expense of more administrative time. However, the nonavailability of interviewers precluded the possibility in this case. The total lapsed time to complete a mail survey is difficult to control once questionnaires have been mailed, and is generally conceded to be longer than for personal or telephone interviews. The elimination of interviewer bias is a distinct advantage of the mail survey, though it is possible for a questionnaire to be biased. In the description of the construction of the questionnaire and the design of the study which follows, the means by which factors generally thought of as disadvantages of a mail survey were avoided will become clear.

Construction of the Questionnaire

In constructing the questionnaire, several general principles were applied.² In order to answer the three questions stated in Chapter I,

²A copy of the questionnaire comprises Appendix A.

quite a large amount of information was required. To distinguish characteristics of demanders from those of nondemanders required collecting data on family composition, income, education, occupation and present housing conditions from each of the two groups. In addition, to determine the type of housing desired by demanders required a fairly long series of questions relating to house specifications, neighborhood preferences and desired price ranges. Hence, the questionnaire was designed so that almost every question could be completed with a check mark, the only open end question being left to the very end of the questionnaire.

It should be evident that the result of designing the questionnaire in this way was that it became highly structured, as is generally the case for mail surveys. Nevertheless, it was felt that the options offered were comprehensive enough to permit a very wide range of expression of preferences. These impressions were confirmed by the results of pretesting the questionnaire, which yielded only a few very minor changes, and a minimum of respondent confusion.

Since it was desired to determine the economic demand for housing, and not preferences, needs or characteristics of the ideal home, only persons anticipating moving to a new home in Stillwater within the next three years were requested to complete questions relating to house types and neighborhood preferences. The effectiveness of the questionnaire design can be judged from the fact that pretesting gave a maximum time of ten minutes for completing the questionnaire for these persons. Those not anticipating a move required a maximum time of three minutes for completion of the relevant questions.

A vital component of any mail questionnaire is the covering letter³ which can play an important role in improving the response ratio. Hence,

³A copy of the letter comprises Appendix B.

considerable thought went into the letter, each copy of which had the respondent's name typed in so as to convey as personal an impression as possible. In addition, a deadline was provided in the letter for about two days after it was received. It was felt that the longer the respondent held the letter, the less likely a response would become. A further attempt to improve the response ratio was the personally written postscript on each letter, requesting return of the questionnaire on the day when it was received. A stamped addressed envelope was enclosed with each questionnaire. Follow up telephone calls were planned for approximately one week after mailing.

Sampling the Population

It was the intent of the study to examine the permanent, rather than the student, population of Stillwater. To isolate this population, the current Stillwater City Directory was employed. The Census defines a housing unit as a "group of rooms or a single room occupied as separate living quarters by a family".⁴ Hence, the list of addresses by street and number constituted the population to be sampled. Such a list conforms closely to the census definition, and questionnaires were personally addressed to the heads of families of these units. University apartments were eliminated from the address list before sampling, since they were not of interest.

The list of sample units were obtained through the use of a systematic method of probability sampling. The population as described above consisted of approximately seven thousand addresses. The critical

⁴U. S. Census of Housing, 1960, Vol. I, Part 1, p. 1-240.

characteristic of interest was the percentage of this population which anticipated moving to a new home in Stillwater within the next three years. This proportion was estimated to be 0.2 of the population, an estimate which was conservatively high. The actual proportion anticipating moving was desired within $\pm 5\%$ at the 95% level of confidence.

Hence, sample size

$$N = \frac{P s^2}{s^2 + P \sigma_p^2}$$

where P = population

s = the standard deviation of the sample proportion

σ_p = the standard error of the distribution of sample proportions

Therefore,

$$\begin{aligned} N &= \frac{7,000 \times 0.8 \times 0.2}{(0.8 \times 0.2)^2 + 7,000 (0.05/1.96)^2} \\ &= 238. \end{aligned}$$

In taking a systematic sample, the population is divided by the desired sample size giving a ratio r. The nearest integer, n, immediately below r is then determined. A random digit between zero and n is obtained from a table of random numbers, and every nth sampling unit in the population is selected, beginning with the random digit. In this study n was 30, and every thirtieth address was selected as a sampling unit. Using this method, in conjunction with addresses listed by street, a very wide geographic distribution of the sample was attained. Before mailing out the questionnaires, the addresses of sample units were up-dated using the current Stillwater telephone directory.

CHAPTER V

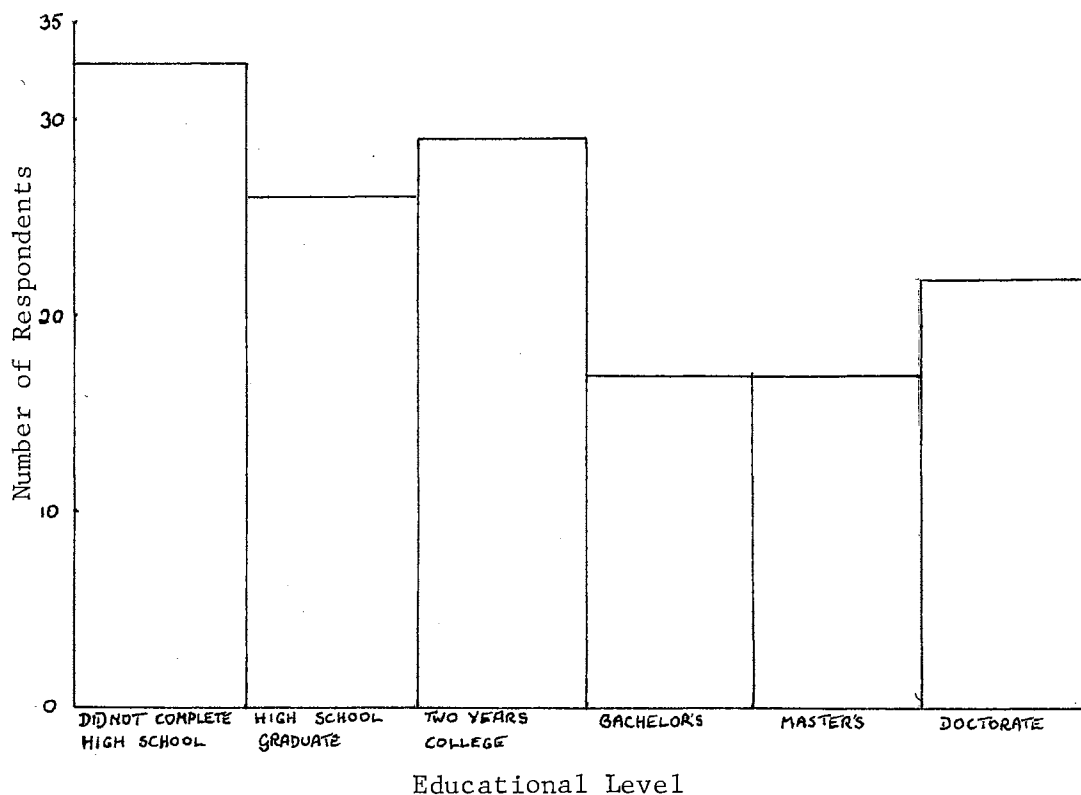
PRESENTATION AND ANALYSIS OF RESULTS

Approximately one week after mailing of the questionnaires, when the ratio of responses to nonresponses had reached only thirty-five percent, the flow of returned questionnaires was reduced to a mere trickle. Hence, follow up procedures were then initiated. Phone calls indicated that many respondents had destroyed or misplaced their original copies of the questionnaire. As a result, approximately sixty more questionnaires were mailed out. Less than a week after the supplementary mailing 146 out of the sample of 238, or 61 percent, had returned completed questionnaires. Seven questionnaires were returned blank. Of the nonrespondents remaining it was impossible to contact forty of them, who had apparently moved or left their homes temporarily.

Description of the Sample

The average married person returning the questionnaire had been married for 23.8 years, the mean number of children living at home in each married household being 1.71, of average age 10.3 years. Married persons constituted 77 percent of the respondents, 10.4 percent were single persons who had never been married, 9.4 percent were widows, and 3.2 percent were presently unmarried, divorced persons.

Figure 2 is a histogram showing the distribution of educational levels for the respondents.



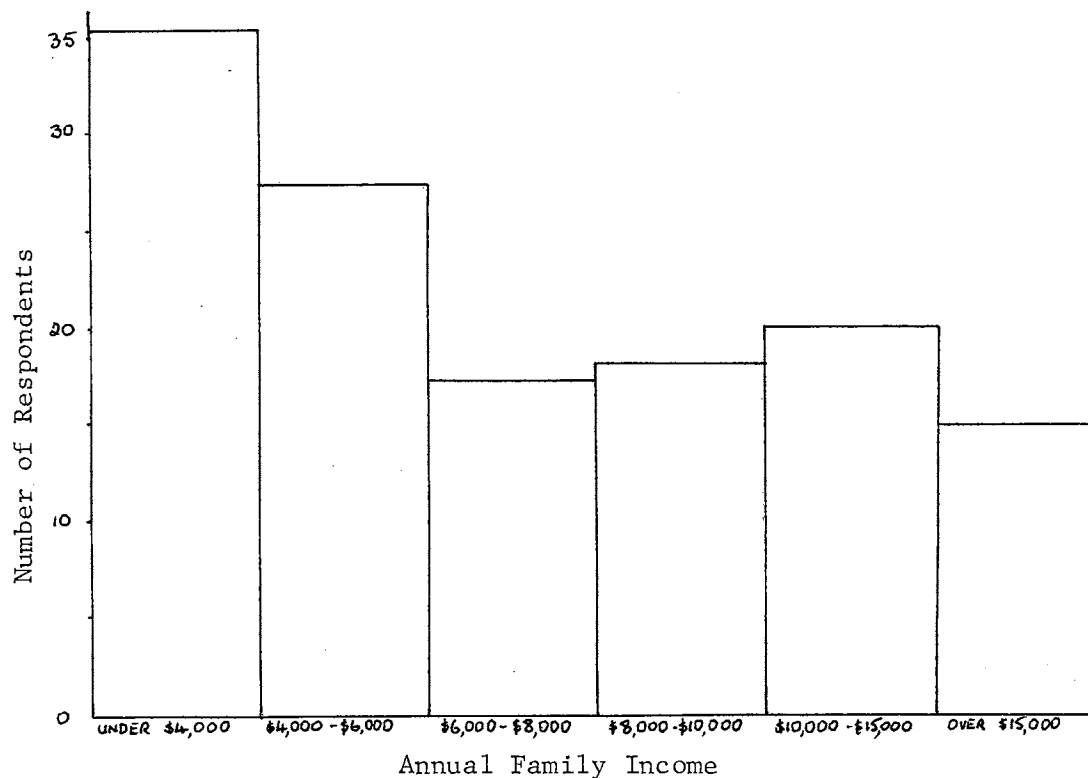
Source: Data collected by Survey

Figure 2. Educational Level Distribution of Respondents

The influence of the university on the distribution of education levels is apparent from the very high proportion of doctorates. Twenty percent of the respondents were employed by Oklahoma State University, 70 percent of whom were members of the faculty or administration. In contrast, the percentage of students in the respondents was less than 6 percent, which, when compared with their proportion of the total population of Stillwater (which is over 60 percent), indicated considerable success in the choice of the population to be studied.

Figure 3 is a histogram showing the distribution of the family incomes of respondents. Single persons were requested to show their personal incomes. In many mail surveys difficulty is experienced with

questions relating to income, especially if the survey is taken in a small town. 133 out of 146 respondents, a little over 91 percent completed this question, a figure that was regarded as quite satisfactory. Over 36 percent of the respondents having incomes of less than \$4,000 per year were students and retired persons.



Source: Data Collected by Survey

Figure 3. Income Distribution of Respondents

Considering the present housing of respondents, it was found that respondents had lived an average of 9.4 years in their present home. Retired persons had occupied their present home for an average of 19.0 years, and non-retired persons for an average of 8.1 years. Over 86 percent of the respondents owned their own home, and for retired persons the corresponding ratio was over 94 percent. There was an average of

2.7 bedrooms per home, and 80 percent of the homes had either a garage or a carport.

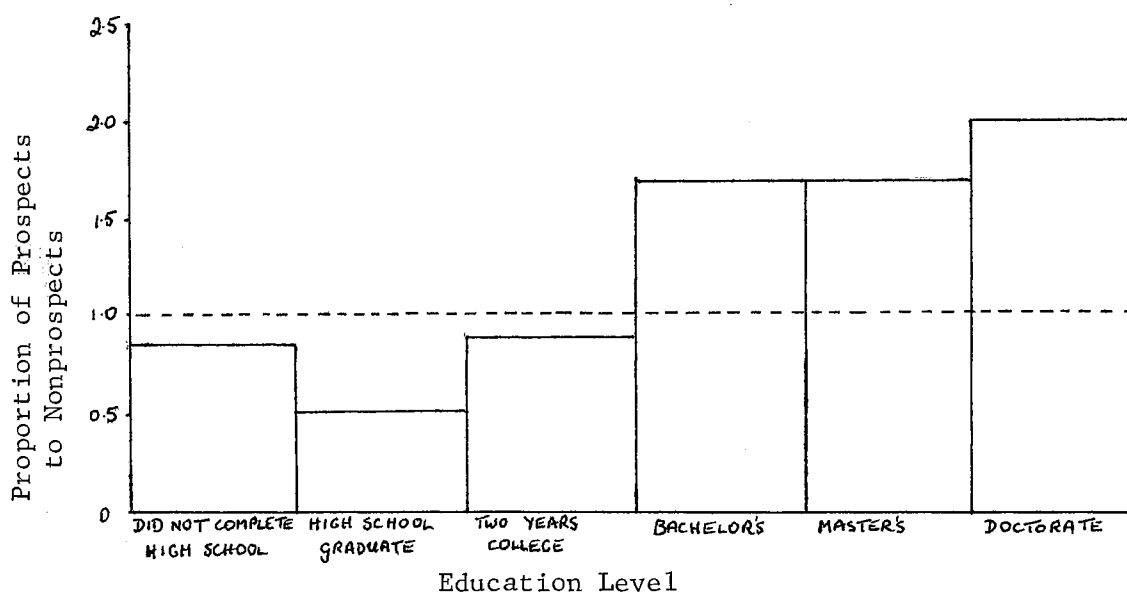
Description of Prospective Occupants of New Housing

The tenth question asked to the respondents was whether or not they anticipated moving to a new home in Stillwater within the next three years. Twelve of the 146 respondents or 8.2 percent, answered affirmatively. The characteristics of these persons, tentatively named new housing prospects, will now be examined.

Separate compilation of statistics for persons who anticipated moving and those who did not revealed a number of significant differences. Married new housing prospects had been married for an average of 15.1 years, compared with 24.5 years for the remainder of the sample. The latter group averaged 1.7 children living at home per family, compared with 2.0 per family for new housing prospects. Hence, the ratio of bedrooms per child is lower at 1.35 for new housing prospects than for non-prospects, for whom it was 1.6. Naturally, relative overcrowding is a rational motive for wishing to move to a larger home.

Only three of the twelve new housing prospects were single, one a widow living with a child, and the two others engaged persons who were to be married in six months. Three were employed by Oklahoma State University, two as faculty members, the other as a member of the administration. Two sales representatives, a farm manager, a government employee, a district judge, a builder, an accountant, an optometrist and a service employee comprised the remainder of the group. Although the group encompassed a fairly wide range of occupations, there was a predominance of the professional-managerial group. Figure 4 illustrates this point by

comparing the educational level distribution of prospects and nonprospects. The figure was prepared by multiplying the number of persons in each educational classification for demanders by 12.8, to adjust for differences in the size of the groups of demanders and nondemanders. The number thus derived was divided by the number in the equivalent classification for nondemanders. Hence, a ratio of 1.0 would mean perfect equivalence. A ratio greater than 1.0 would mean that there was a greater proportion of persons in this classification in the group of demanders than in the remainder of the respondents.



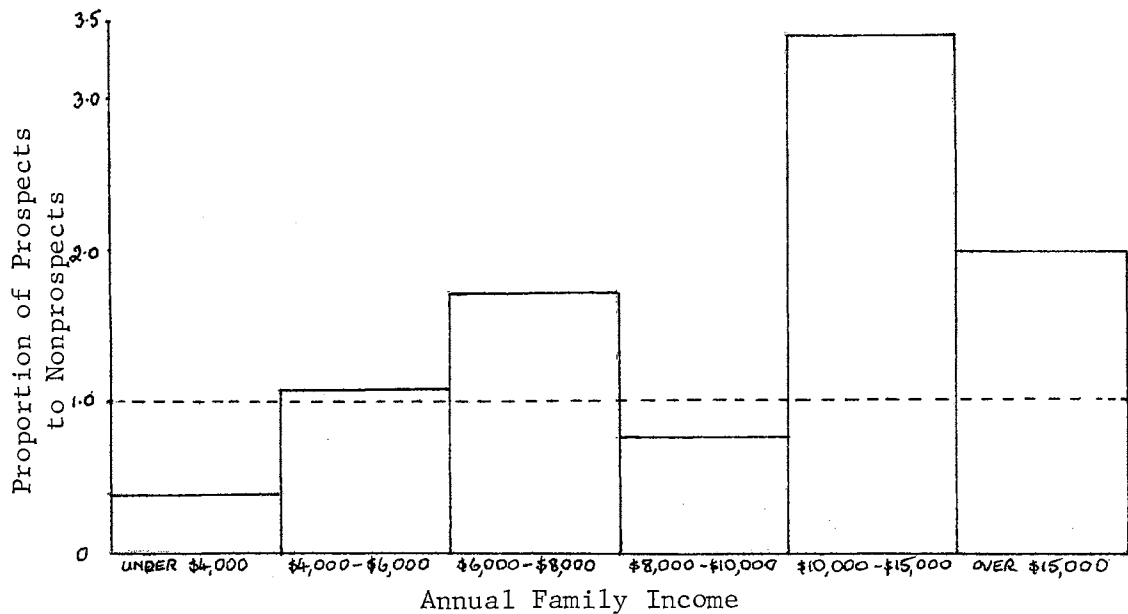
Source: Data collected by Survey.

Figure 4. Relative Education Level Distribution of Prospects and Nonprospects.

Figure indicates that the lower levels of education are conspicuously under represented in the group of new housing prospects. These persons are far more likely to possess at least one college degree than

are persons not anticipating moving. The doctoral level is the one with the greatest relative representation among prospects.

The income statistics for the new housing prospects, presented in a similar manner in Figure 5, produce an almost equally striking comparison.



Source: Data collected by Survey.

Figure 5. Relative Income Distribution of Prospects and Nonprospects.

From these statistics emerges a profile of new housing prospects as the more affluent, generally better educated members of the populace, whose present home is comparatively overcrowded, and who have been married for a rather shorter period of time than the average Stillwater couple. In addition, this group has only lived in their present homes for an average of 6.0 years, compared with 10.6 years for the nondemanders. However, since no retired persons were included among demanders, it was felt that it would be interesting to examine tenure of nondemanders with

retired persons excluded. It was found that retired persons had occupied their present homes for an average of 19.0 years, and their exclusion yielded an average tenure of 8.1 years for nondemanders, which was not very much longer than demanders. Significant, however, was the fact that whereas almost 85 percent of the nondemanders already owned their own home, only 50 percent of the demanders did so. The delineation of the potential market becomes even clearer here.

The Type of Housing Demanded

The sample has now been described, as have the characteristics of the group of demanders. This section will depict the type of housing in which demanders are planning to live.

Ninety percent of the demanders planned to live in a house, rather than an apartment or a duplex. However, one of the respondents who was engaged to be married intended to live in an apartment. Among the eleven prospective new house dwellers, six opted for a single story house, two for a split level, two for a two story home, and one did not reply to the appropriate question. In view of the lucrative student rental market in Stillwater, there was a possibility that a demander might be prepared to live in one half of a duplex and rent the other half as a means of supplementing his income. In fact, only one respondent stated that he would consider this possibility.

Plans to include two bathrooms in their new home were expressed by seven respondents, three mentioned two and a half bathrooms and only one person desired a single bathroom. The latter case was one of a person anticipating building a small home for retirement purposes. There seemed little conformity of ideas about living and dining areas among the

respondents; six of the eleven persons who replied to this question preferred a combined living room and dining room, three expressed a desire for separate living rooms while being apparently unconcerned about the dining room, and three explicitly demanded separate living and dining rooms.

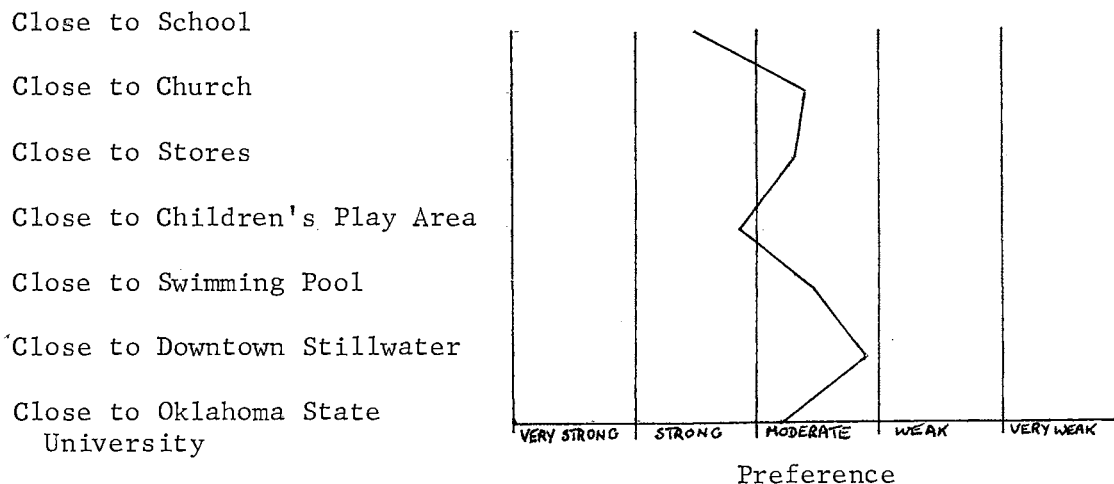
Ideas were in greater concordance on the subject of a separate laundry or utility room, which was preferred by all of the respondents completing this question. However, only four respondents expressed a wish for a separate family room, although these prospects were those with the largest families. Three was the median number of bedrooms selected, the mean number being 3.30. This figure represents a considerable increase over the average for their present homes of 2.7. Assuming no increase in family size, admittedly quite possibly rather unrealistic, the bedroom per child ratio would increase from 1.35 to 1.65, a figure greater than the corresponding figure for nonprospects. This was true despite the fact that a considerable proportion of the latter group are retired persons, whose children have now left them, yet who are still living in the homes in which they raised their families, which would tend to inflate the overall bedroom per child ratio for nonprospects.

There was a clear preference for heating the new home by gas, this sentiment being expressed unanimously. This is obviously a rational choice due to the relatively cheap supply of natural gas available in Oklahoma. Only four respondents had mentioned planning for a family room, but five wished to have a fireplace in their family room. This was the first contradiction to evidence itself, and no doubt is the result of carelessness in completing the questionnaire. In view of the fact that a mail survey was used, it seems a little surprising that

other instances did not occur. Three other respondents favored a fireplace in the livingroom, and one wished to have a fireplace in both the living room and the family room.

Nine of the ten persons completing the question were planning to have a two car garage; the person planning a retirement home for himself was the only one to prefer a one car garage. Preferences on style and building materials for the home showed much variety. Thus, three persons planned on building in contemporary style, two in brick, one in wood. Four other persons wished to build a colonially styled home; brick was again preferred by two persons, the third wishing to use both brick and wood. Two respondents were planning a brick and wood ranch-styled home, while the prospective apartment dweller preferred contemporary styling.

A factor almost as important as the characteristics of the house itself, is the environment in which the house is situated. Awareness of this fact led to the incorporation into the questionnaire of a question in which respondents were asked to rate situational preferences. Obviously any such rating is very subjective, and results must not be interpreted too literally. To enable average preferences to be obtained, numerals were assigned to preferences. Figure 6 shows the average environmental preferences of demanders.



Source: Data collected by Survey.

Figure 6. Average Environmental Preferences of Prospects

As one respondent so appropriately remarked, these preferences depend on characteristics of individual families. Hence, the employees of the university both expressed strong desire to live close to the university, and respondents with school age children wished to live close to a school and a play area. There seemed to be a lack of interest in living either close to a swimming pool or downtown Stillwater. Respondents also expressed wishes to be close to city utilities and services and to have paved roads. One respondent also wished to be close to a hospital and fire and police protection.

When asked what they thought were the most important features of their new home, most respondents expressed concern about the design and quality of materials and workmanship of their home. Others felt suitable location was the most important feature. Two respondents felt the family room was a major feature.

New housing prospects were also asked to give specifications of the size of their planned house, size of the lot, and prices they expected to

pay. Estimates of living area ranged from 1100 to 7800 square feet. The latter estimate seemed inordinately large. If it is included in the calculation, the mean living area desired was 2770 square feet. If it is excluded, the mean becomes 2100 square feet, a figure more representative of the majority of responses. Nine respondents completed the question on living area but ideas about lot size seemed far less definite. Only six respondents completed the question, the average lot size being 36,000 square feet, of average front dimensions 155 feet, and average depth of 204 feet.

Nine respondents of the eleven completing the relevant question desired to buy their home. Both engaged persons wished to rent their homes, one desiring an apartment for \$120 per month and the other a brick ranch style home for \$150 per month. For those wishing to buy their houses, the mean price which they anticipated paying was \$22,400, with estimates ranging from \$12,500 to over \$40,000. A fairly large down payment was anticipated, averaging \$14,700; two respondents wished to pay for their home outright. Those anticipating taking out a mortgage desired to make an average payment of \$165.00 per month, the range of estimates being from \$100 per month to \$250 per month.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Procedure

The study which constituted the subject matter of this report represented an attempt to apply marketing research techniques to the housing market. It was designed to find out the size of the demand for new residential housing among permanent residents of Stillwater, from what type of persons such a demand came, and for what type of housing the demand existed. Earlier workers in the area have pointed out the confusion which exists between the concepts of need for housing and demand for housing, a confusion which arose from the use of secondary economic data in the study of the housing market. The critical differentiating factor between need and demand is the ability to pay. A survey approach was suggested by certain previous workers in the field as being potentially fruitful.

This study utilized a mail survey, which was received by a probability sample of 238 Stillwater residents, who were selected by a systematic sampling procedure from the list of addresses by street and by house number given in the Stillwater city directory. Through the use of follow up phone calls, and supplementary mailings of additional copies of the questionnaire, the ratio of responses to nonresponses was eventually raised to 61 percent. It was impossible to contact 40 percent of the nonrespondents, who were assumed to be permanently, or temporarily away from Stillwater.

Findings and Conclusions

It was found that 8.3 percent of the sample were anticipating moving to a new home in Stillwater within the next three years, 90 percent of these wishing to live in a house, as opposed to a duplex or an apartment. Assuming no bias of nonresponse, it can be stated that the proportion of the Stillwater population anticipating a move to a new home in Stillwater within the next three years is 8.2 ± 0.5 percent, at the 95 percent level of confidence. This would represent a market for approximately 570 new homes for present residents of Stillwater, within the next three years.

Certain characteristics were found to be typical of persons wishing to move to a new home. Such families were found to have more children than families not wishing to move. The number of bedrooms in their present homes was the same as the number for those persons not wishing to move, suggesting relative overcrowding. Married new housing prospects had been married for an average of ten years less than nonprospects. The distributions of educational levels and family incomes were skewed more toward the higher levels than were those of the nonprospects. Three of the ten prospects held doctor's degrees, and six had incomes of over \$10,000 per year.

Prospects were far less likely to own their present home than were nonprospects. However, prospects of higher socio-economic status owned their own home in every case except one, which was that of a single person. Hence, care must be taken to ensure that this information is not misinterpreted. Prospects were found to have lived in their present homes for an average of only 6.5 years, considerably less than the equivalent time for the nondemanders.

The type of housing desired took the form of a house, rather than a duplex or an apartment, in every case except one. The most frequently expressed preferences were for a single story brick home, in contemporary or colonial style. Two bathrooms, three bedrooms, a separate utility room and a two car garage were desired by most persons. Those with children expressed strong preferences for a location close to a school and a childrens' play area. University employees wished to live close to the university, but no other environmental preferences were stated very strongly. Several respondents expressed the opinion that the quality of the design and workmanship of their future houses were matters of prime importance and concern to them. Other respondents regarded access to city services as a major factor when considering location.

Most respondents planned on spending over \$20,000 for their house, the mean figure being \$22,400. The average living space mentioned was 2,100 square feet. This represents an average anticipated cost per square foot. This represents an average anticipated cost per square foot of \$10.70. Quotations from local builders range from \$12.00 to \$15.00 per square foot. This suggests that prospects may have been a little unrealistic in their estimates, and may have to revise their living area plans downwards, or their estimated prices upward. Nevertheless, it is felt that their estimates are fairly realistic and indicate considered thought rather than mere speculation.

Recommendations

It is felt that the marketing research approach to the study of the housing market proved an interesting method which yielded worthwhile results. Nevertheless, a survey using personal interviews would be a better

method than a mail survey. The problem of the bias of nonresponse is inherent in all mail surveys, but could be avoided through using personal interviews, should the time and money necessary to conduct the interviews be available.

Despite this evident limitation to a mail survey, consider the most unfavorable hypothesis, which is that all nonrespondents who were capable of completing the questionnaire were not anticipating moving to a new home in Stillwater within the next three years. The percentage of prospects would still be five percent of the population, indicating a potential market for approximately three hundred and fifty new houses in Stillwater within the next three years.

It is believed that the validity of the survey approach to estimating the demand for residential housing has been affirmed by this study. It has yielded more detailed information than could be obtained from the study of standard economic data, particularly with regard to the type of houses which prospective occupants prefer. Obviously, there are weaknesses; perfect knowledge of the future can never be attained. However, any type of information which can make a contribution to decreasing future uncertainty also makes some contribution to providing a more rational basis on which to make decisions on future courses of action. It is hoped that the type of approach utilized in this study may be applied more widely in the future, and will help to provide housing better suited to the needs of its occupants.

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APPENDIX A
COPY OF THE QUESTIONNAIRE

OKLAHOMA STATE UNIVERSITY

idential Questionnaire

J. Hulbert, M.B.A. Candi

SURVEY OF CHARACTERISTICS OF THE DEMAND FOR RESIDENTIAL HOUSING IN STILLWATER

ly Data

u are married, please complete la; if single, lb.

- (i) How long have you been married? _____ years.
- (ii) Number of children living at home? _____
Please give their ages: _____, _____, _____, _____, _____, _____, _____.
- (iii) Ages of other persons living with you. _____, _____, _____, _____.
(Excluding wife and children)

Please proceed to question 2.

- (i) Are you engaged to be married? Yes _____ No _____
- (ii) If the answer to (i) is yes, when will you be getting married? _____
- (iii) How many people live with you in your present home? _____

Please proceed with question 2.

tion and Employment Data

ease show with a / the highest level of education you have reached:

Did not graduate	High School	Two years	Bachelor's	Master's	Doctorate

hat is your occupation? _____

re you employed full time by Oklahoma State University? Yes _____ No _____

5) Please show with a ✓ into which range your family income for the last year (before taxes) falls. (Single persons please show your personal income).

Under \$4000	\$4000-\$6000	\$6000-\$8000	\$8000-\$10,000	\$10,000-\$15,000	Over \$15,000
--------------	---------------	---------------	-----------------	-------------------	---------------

Data about present home

6) How many years have you lived in your present home? _____ years.

7) Do you own _____ or rent _____ it? (Please show with a ✓).

8) How many bedrooms does it have? _____

9) Does your present home have (show with a ✓) car port? _____
garage? _____
Neither? _____

Data about future plans

10) Do you anticipate moving to a new home in Stillwater within the next three years?
_____ Yes _____ No

(If the answer to 10 is yes, please complete the rest of the questionnaire.)

(If the answer to 10 is no, it is NOT necessary to answer any more questions, please return the questionnaire as it is).

Data about future home

1) Do you plan to live in a duplex _____, apartment _____, or house _____. (Show with a ✓).

If a house, do you plan a one story _____, two story _____, or split level _____.

2) Would you consider buying a duplex, living in one-half, and renting the other half for rental income? Yes _____ No _____

3) Please show with a ✓ the rooms which you plan to have in your new home.

a) Number of bathrooms:

One _____

Two _____

Other _____

b) Combined living/dining room? _____

Separate living room? _____

Separate dining room? _____

c) Separate laundry or utility room? _____

d) Separate family room? _____

e) How many bedrooms? _____

b) How many square feet of living area do you plan for your home? _____

i) Please show with a \checkmark which of the following features you plan to have in your home.
(If you are interested in an apartment, some may not apply).

a) Heating by gas? _____
electricity? _____

b) Exterior of home? Brick _____

Stone _____

Wood _____

Other _____

c) Fireplace? Living room _____

Family room _____

Other _____

d) Style of home? Ranch _____

Colonial _____

Contemporary _____

e) Automobile shelter? 1 car 2 car

Carport _____

Garage _____

Neither _____

f) Size of lot? Front footage _____

Depth _____

6) Please show with a ✓ how important you think each of the following is when considering a new home.

	Very Strong	Strong	Moderate	Weak	Very Weak
Close to school	_____	_____	_____	_____	_____
Close to church	_____	_____	_____	_____	_____
Close to stores	_____	_____	_____	_____	_____
Close to children's play area	_____	_____	_____	_____	_____
Close to swimming pool	_____	_____	_____	_____	_____
Close to downtown Stillwater	_____	_____	_____	_____	_____
Close to Oklahoma State University	_____	_____	_____	_____	_____

Please list other facilities you feel are important:

7) Will you rent _____; buy _____ the home? (Show with a ✓)

8) If you plan to rent, how much per month do you plan to pay? _____

9) If you plan to buy, how much do you plan on paying for the home you described? _____

How much down payment do you plan to make? _____

How much per month do you plan to pay on the mortgage? _____

10) What do you feel are the important features of your new home?

APPENDIX B -

COPY OF THE COVER LETTER



OKLAHOMA STATE UNIVERSITY • STILLWATER

College of Business
FRontier 2-6211, Ext. 258

74074

May 5, 1966

A knowledge of the type of neighborhoods and homes in which Stillwater people wish to live would be of great value to the community, and help to guide future developments. The attached survey is designed to obtain this information, and the results will be used for a Master's thesis.

Your name was randomly selected for inclusion in the study. It is essential to the quality of the findings that each person, thus selected, completes and returns the questionnaire. Your privacy will be respected and replies are anonymous. Won't you please read the questionnaire carefully, complete it, and return it in the enclosed stamped, addressed envelope. This will only take from three to ten minutes, depending on the questions which apply to you.

We would appreciate your replying by May 12, as processing of replies will begin on May 13.

We look forward to receiving your reply.

Sincerely,

J. Hulbert.

J. Hulbert
M.B.A. Candidate

Robert D. Erwin

Robert D. Erwin
Faculty Adviser

JH:mr

Enclosure

P.S. We would be deeply grateful if you would complete and return the questionnaire today.

VITA

James Hulbert

Candidate for the Degree of
Master of Business Administration

Report: THE DEMAND FOR RESIDENTIAL HOUSING IN STILLWATER

Major Field: Business Administration

Biographical:

Personal Data: Born in Clevedon, Somerset, England, July 16, 1942, the son of Alfred George and Ruth Constance Ivy Hulbert.

Education: Attended primary school at Knowle, Bristol and Bathwick, Bath; graduated from Cirencester Grammar School, Cirencester, Gloucestershire in 1961; received the Bachelor of Science degree from King's College, University of London, England, with a major in advanced electricity and electronics and nuclear physics in July 1964; completed requirements for the Master of Business Administration degree in June, 1966.

Professional Experience: Worked as a laboratory technician at Telearchics Limited, Lechlade, Gloucestershire, England in the summer of 1963; worked as a salesman in Baltimore, Maryland in the summer of 1964, and in Oklahoma in the summer of 1965; graduate assistant in the marketing department at Oklahoma State University during the fall semester of 1965, and the spring semester of 1966.

Professional Organizations: Graduate of the Institute of Physics and the Physical Society, Beta Gamma Sigma.