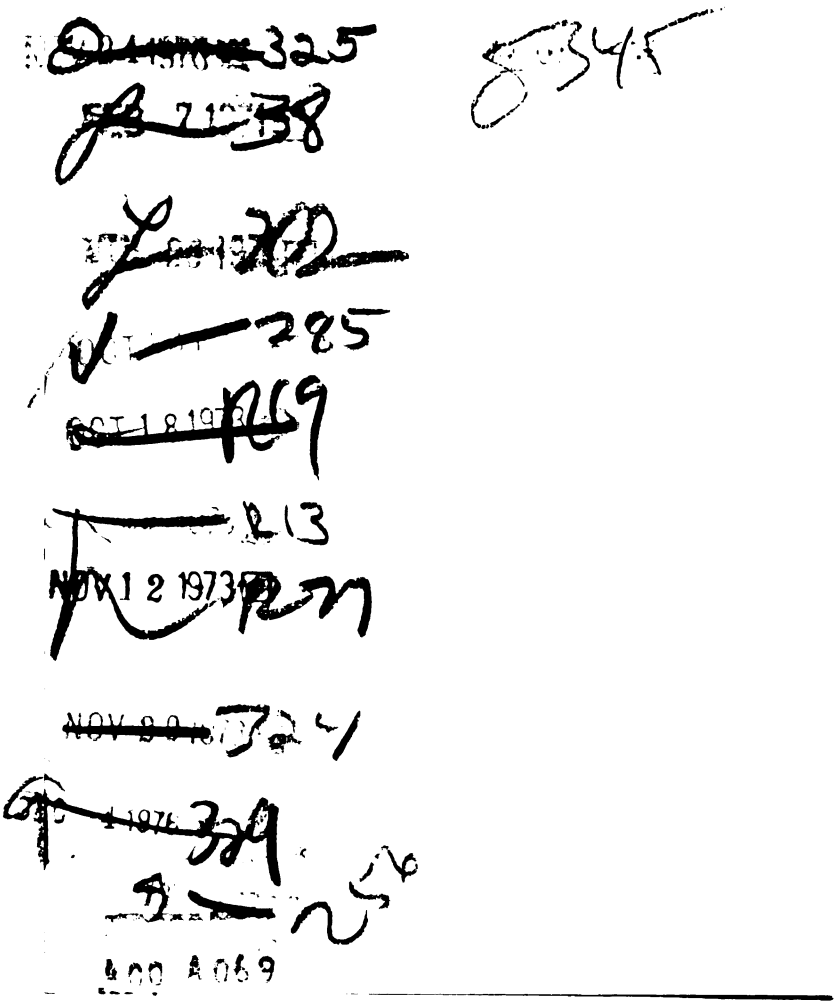

ABSTRACT

ANALYSIS OF SELECTED SOCIO-ECONOMIC VARIABLES AND THEIR EFFECT ON CONSUMER TEMPORAL BEHAVIOR IN DIFFERENT SIZE SHOPPING AREAS

By

Alfred Morton Falthzik

Central business districts of central cities, regional, community and neighborhood shopping centers differ with respect to the number of stores contained within them as well as the variety and quality of goods sold. There exist constraints on consumers who shop in them with respect to the time devoted to shopping. One such constraint is the time devoted to travel to the shopping facility. Other variables which may correlate with or influence shopping time include family income, occupation and the head of the household, household life cycle stage, wife working outside the home and the number of automobiles owned by the household.

Therefore, five questions are investigated. One, does the amount of time devoted to travel on a single shopping trip influence the amount of time devoted to shopping in a central business district and in different size shopping centers? Two, is the size of the shopping area related to

the average amount of time consumers devote to shopping on a single shopping trip? Three, do some consumers shop more frequently in one kind of shopping area than another? Four, can differences between the average amount of time consumers devote to shopping on a single shopping trip in the areas in which they do shop be explained by selected socio-economic variables? Five, can differences between the part of the day and part of the week in which consumers shop where they do shop be explained by selected socio-economic variables?

The data used in the study were obtained from an origin and destination study conducted in a tri-county area of central Michigan. The size of the sample consisted of 6,933 households derived from a 5 percent systematic sample design.

The major findings of the study indicate that the average amount of time consumers devote to in-store shopping on a single shopping trip increases as the size of shopping area increases. Twenty percent of all consumers sampled shopped in a central business district. Sample consumers most frequently shopping there came from households whose incomes are less than $5,000 and $10,000 and over and whose heads are professional, managerial and white collar employees. The income groups referred to above also devoted the greatest amount of time on a single shopping trip. More than twice as many of the consumers sampled shopped in a regional shopping center than shopped in a central business district. Sample consumers who most frequently shopped in a regional

shopping center came from households whose annual incomes are under $7,000 and $15,000 and over and whose heads are professional, managerial and blue collar employees. More than 18 percent of all consumers sampled shopped in a community shopping center. Sample consumers who most frequently shopped there came from households whose annual incomes are between $7,000 and $15,000 and whose heads are blue collar employees. More than 19 percent of all consumers sampled shopped in a neighborhood shopping center. Sample consumers who most frequently shopped there came from households whose annual incomes are between $5,000 and $7,000 and $10,000 and over and whose heads are professional, managerial and white collar employees. The sample data demonstrated an inverse relationship between household level of income and the average amount of time household members devote to shopping on a single shopping trip to a neighborhood shopping center. A majority of the consumers sampled shopped in the middle of the week and in the afternoon, with approximately equal amounts in the morning and evening regardless of the size of shopping area.

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By

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CHAPTER I

INTRODUCTION

The temporal aspects of consumer behavior are an area which has received little attention in the marketing literature. Yet there have been and continue to be changes both in the market place and in the consumer which indicate opposing forces operating to influence the amount of time consumers devote to shopping activity.

Greater leisure, increased automobile ownership, higher incomes and new products are indications that the consumer has the opportunity to devote more time to shopping. Yet more product information available through the various communications media and an increase in catalog, telephone and vending machine buying are factors which indicate a lessening of the time and effort devoted to shopping. In addition, the increase in shopping centers, the growth of the suburbs and the decline of retail sales in the central business districts of most large metropolitan areas are indicative of the growing number of decentralized areas in which consumers may shop.

Background

The following indicates some specific changes that have taken place both in the market place and with the consumer.

The Market Place

The market place has experienced considerable change in recent years with respect to new products, retail sales in central business districts and new methods of retailing. Currently the consumer has a wider range of product choices than ever before. New products are being introduced so rapidly that 50 percent or more of them were not even in the planning stage five to ten years earlier.[1]

Also taking place in the market is a decentralization of retail sales from the central business districts of large metropolitan cities outwards to their suburbs and even beyond. Retail sales in central business districts are declining on a per capita basis and many are declining on an absolute basis. At the same time, retail sales in suburban areas are increasing at a rate greater than population changes in these areas, while non-metropolitan areas are gaining retail sales at a rate greater than their population increases.[2]

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[1]Jerome E. McCarthy, Basic Marketing, A Managerial Approach (Homewood, Illinois: Richard D. Irwin, Inc., 1968), p. 202.

[2]Eli P. Cox and Leo G. Erickson, Retail Decentralization (East Lansing, Michigan: Michigan State University, Bureau of Business and Economic Research, 1967), pp. 18-19.

Other changes have taken place in methods of retailing. Within the past decade, the number of shopping centers has grown from 1000 in 1955 to more than 10,000 in 1967 with a predicted increase to more than 25,000 by 1977.[3] The most important reasons given by consumers for shopping in them are more convenience for one stop shopping, nearer to home, less traffic congestion, easier parking and more convenient store hours.[4]

Another change in retailing methods that is receiving increased emphasis in recent years is the increase in catalog and telephone selling. The major catalog companies, Sears and Montgomery Ward, have upgraded the merchandise selection in their catalog, built new catalog stores and promoted order-by-phone services in metropolitan areas. For example, Sears has increased the number of its catalog sales offices from 950 in 1959 to 1,934 in 1968.[5] During the same period, Montgomery Ward has increased the number of its catalog stores from 407 to 1,499.[6]

Still another aspect of changing retail methods is the rapidly expanding sales of the vending machine industry.

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[3]"Decade of Opportunity Seen for Shopping Center Industry," Chain Store Age, Executive Edition (July, 1967), E34.

[4]C. T. Jonassen, Downtown Versus Suburban Shopping (Columbus, Ohio: Ohio State University, Bureau of Research, 1955), p. 58.

[5]Sears, Roebuck and Co., 1968 Annual Report, p. 24.

[6]Marcor, 1968 Annual Report, p. 60.

Most recent census year comparisons show an increase in vending sales from $842 million in 1958 to $1.45 billion in 1963 representing a percentage gain of 73 percent versus a percentage gain of 22 percent for total retail trade.[7]

These trends are expected to continue as evidenced by the following quotation:

> A large portion of our consuming public wants to save shopping time and shopping weariness. . . . Hence, a counter trend towards shopping at home is evolving. Closed-circuit television and the 'phone will play an important role in spreading this development. So will coin vending machines.[8]

An important development contributing to shopping at home has been the establishment, through national and local advertising, of thousands of brand names. Such knowledge has served not only to establish standards of quality in the minds of consumers but also to establish a basis for price comparison. Thus, the consumer can make many important purchases with lessening amounts of shopping effort.

The Consumer

The consumer is also experiencing change in the form of greater leisure, higher income and greater mobility. In less than fifty years, the amount of leisure time available to the average American has approximately doubled. This has

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[7]Bernard J. LaLonde, "The Retailer's Dilemma: Full Service and Full Employment," Journal of Retailing (Winter 1966-67), 43.

[8]"Antidotes to Shopping Weariness," Grey Matter, Grey Advertising, Inc., Volume 34, Number 12, December, 1963.

been the result of a number of trends. First, earlier retirements are much more frequent than they were a few years ago; and with social security and pensions, the average retiree's income has not been drastically impaired. Second, both work days and work weeks have been shortened. Third, there has been a tremendous increase in labor saving devices in the home. With some variation, these trends have occurred throughout the whole population regardless of location, occupation and income; and they have occurred without any impairment of purchasing power.

Along with increased leisure there also has been an increase in family incomes and expenditures. Between 1950 and 1966, per capita disposable income based on 1958 prices had increased from $1,646 to $2.294.[9] During the same period and with 1958 prices as a base, per capita consumption expenditures increased from $1,520 to $2,111.[10]

In terms of constant dollars, there were relatively fewer families at the lower income levels and more at the upper levels. Incomes of over $10,000 were reported by only seven percent of the families in 1959, but by 1964 this had increased to 22 percent. In 1949 more than 50 percent of

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[9] Economic Report of the President (Washington, D.C.: United States Government Printing Office, January, 1967), p. 232.

[10] Ibid., p. 232.

all families had incomes of under $5,000, but by 1964 only 35 percent were below that amount.[11]

Coupled with greater leisure and higher incomes, the consumer has acquired more mobility due to his increased automobile ownership. Thanks to installment credit and the almost universal tendency to regard the automobile as a necessity, ownership has spread throughout all income classes. As of 1960, there were approximately 1.9 adults for every automobile registered, and by 1980 the forecast is for 1.1 adults for every automobile registered.[12] Furthermore, as income increases, so does the possibility of a household owning more than one automobile. The incidents of second car ownership increased from one percent in households at the lowest levels of income to 39 percent among households in the $10,000 plus bracket.[13]

A new consumer has emerged--one with more money, a wider choice of goods to spend it on, more mobility, more leisure to enjoy his affluence and new retailing methods to cater to his wants.

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[11] U. S. Department of Commerce, Americans at Mid-Decade, Series P. 23, No. 16 (Washington, D. C.: Government Printing Office, 1960), p. 28.

[12] Hans H. Lansberg, et al., Resources in American's Future (Baltimore, Md.: Johns Hopkins Press, 1963), p. 129.

[13] Ibid., p. 130.

Scope of the Problem

The marketing literature reflects a number of distinct approaches to studying the consumer, namely, demographic, psychological, sociological, spatial and temporal or some combination of these.[1] The demographic approach consists of delineating consumers' behavior with respect to age, sex, color, income, level of education and kindred variables. The psychological approach consists of primarily of viewing the influence of such molar variables as motives, beliefs, attitudes, expectations, learning and personality on consumer behavior.[2] The sociological approach postulates the existance of reference groups and attempts to determine the effects of group influences on consumer choice and behavior. The spatial approach to consumer behavior is a study of the day-to-day travel patterns of consumers for the purpose of determining those factors which cause differences in propensities for travel. The temporal approach to consumer behavior deals primarily with the amount of time consumers devote to the shopping activity. Inasmuch as little research has been devoted to studying the temporal aspect of consumer behavior, the present investigation focusses on this.

Statement of the Problem

Shopping areas differ with respect to the number of stores contained within them as well as the variety and quality of goods sold. A central business district normally contains more stores and a greater variety of goods than

does a regional shopping center which in turn contains more stores and a greater variety of goods than a community shopping center. At the same time, a community shopping center contains more stores and a greater variety of goods than does a neighborhood shopping center. Since the size of shopping areas differ, a relationship may exist between the average amount of time consumers devote to shopping on a single shopping trip and the size of the area in which shopping occurs.

There exist constraints on consumer shopping time which might explain variations among individual households with respect to the time devoted to shopping in the areas in which they shop. One such constraint is the location of consumers in relation to shopping facilities which they most generally use. The time devoted to travel as a result of the distance to the shopping area as well as the varying road conditions which may exist may influence shopping time. Other variables which may correlate with or influence shopping time include family income, occupation, stage in the life cycle, wife working outside the home and automobile availability.

Therefore, there are five questions which will be investigated:

1. Does the amount of time devoted to travel on a single shopping trip influence the amount of time devoted to shopping in a central business

district and in different size shopping centers?

2. Is the size of the shopping area related to the average amount of time consumers devote to shopping on a single shopping trip?
3. Do some consumers shop more frequently in one kind of shopping area than another?
4. Can differences between the average amount of time consumers devote to shopping on a single shopping trip in the areas in which they do shop be explained by selected socio-economic variables?
5. Can differences between the part of the day and part of the week in which consumers shop where they do shop be explained by selected socio-economic variables?

Statement of Hypotheses

The hypotheses are presented in the following order. One, the relationship between travel time and shopping time in a central business district and different size shopping centers. Two, the general difference in shopping time as related to different size shopping areas. Three, the relationship of selected socio-economic variables and the frequency of shopping trips made between a central business district and different size centers. Four, the relationship between selected socio-economic variables and the average

amount of time households devote to in-store shopping on a single shopping trip in a central business district as well as the part of the week and part of the day shopping occurs. Five, the relationship of selected socio-economic variables to average amount of time households devote to in-store shopping on a single shopping trip in different size shopping centers as well as the part of the week and part of the day shopping occurs.

1. As the amount of time devoted to travel to a

   A. central business district
   B. regional shopping center
   C. community shopping center
   D. neighborhood shopping center

   increases, the amount of time devoted to in-store shopping on a single shopping trip increases.

2. There is no significant difference between a central business district, regional, community and neighborhood shopping centers and the average amount of time consumers devote to in-store shopping on a single shopping trip.

3. Frequency of shopping trips made to central business district, regional, community and neighborhood shopping centers is independent of

   A. household level of income
   B. occupations of heads of households
   C. household life cycle stages
   D. the wife working outside the home
   E. the number of automobiles owned by households.

4. There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a central business district and

   A. household level of income
   B. occupations of the heads of households
   C. household life cycle stages

D. the wife working outside the home
E. the number of automobiles owned by households.

5. There is no significant difference between the part of the week household members shop in a central business district and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

6. There is no significant difference between the part of the day household members shop in a central business district and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

7. There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a regional shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

8. There is no significant difference between the part of the week household members shop in a regional shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

9. There is no significant difference between the part of the day household members shop in a regional shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

10. There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a community shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

11. There is no significant difference between the part of the week household members shop in a community shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

12. There is no significant difference between the part of the day household members shop in a community shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

13. There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a neighborhood shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

14. There is no significant difference between the part of the week household members shop in a neighborhood shopping center and

    A. household level of income
    B. occupations of the heads of households
    C. household life cycle stages
    D. the wife working outside the home
    E. the number of automobiles owned by households.

15. There is no significant difference between the part of the day household members shop in a neighborhood shopping center and

    A. household level of income
    B. occupations of the heads of households
    C. household life cycle stages
    D. the wife working outside the home
    E. the number of automobiles owned by households.

To summarize the dependent and independent variables and their relationships to each other, the chart on the following page is presented.

Method of Approach

The Data used in this study were obtained from another study.[14] The sample from which the data were compiled was taken from April through June of 1965 and consisted of a 5 percent, systematically selected quota sample of households living within a tri-county area. The size of the sample consisted of 6,933 households.

Origin and destination data were compiled including trip purposes, the time of trip with respect to start and

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[14] Land-Use-Natural Resources-Transportation Study, Lansing, Michigan, Tri-County Regional Planning Commission, November, 1965.

Independent Variables	Dependent Variables		
	Time Per Trip	Part of Week	Part of Day
Income			
Level of Income			
Occupation			
Blue collar			
White collar			
Mgr. Professional			
Working Wife			
Non-working wife			
Stage in Life Cycle			
Single			
Married/no children			
Married/children preschool			
Married/elementary school children			
Married/high school children or older			
Retired			
Automobile Ownership			
None owned			
One owned			
More than one owned			

Minutes devoted to shopping per single shopping trip

Minutes devoted to travel

Figure 1.1.--Independent and dependent variables used in testing hypotheses dealing with a central business district and different size shopping centers.

arrival, mode of travel, car availability, number of passengers and type of parking utilized. Socio-economic data for each household sampled were coupled with the above information.

The effect of distance on the time devoted to in-store shopping will be minimized by analyzing the sample data to arrive at a travel time to shopping facilities which does not significantly effect the amount of time devoted to in-store shopping. The analysis will be performed for different size shopping centers and a central business district.

Limitations

1. Any trips which resulted in the respondent traveling less than two blocks, or any destination to which the respondent walked were not recorded in the Land Use Study.

2. No distinction was made between single purpose and multiple purpose shopping trips in the Land Use Study. Therefore, the time devoted to shopping on both single and multiple purpose shopping trips are combined for purposes of computing the average time devoted to shopping. This could have the effect of increasing averages in some cases and decreasing them in others.

3. The findings resulting from the investigation will reflect the shopping behavior of households residing in a tri-county area in a midwestern state. The typicality of the data and their application to other areas can be inferred but not proven.

Possible Contributions

The investigation will fill at least part of the void that exists in the marketing literature concerning the temporal aspects of consumer shopping behavior. It will also provide a benchmark against which future research on consumer temporal behavior can be compared to determine if any changes have occurred. Knowledge of consumer temporal behavior would be valuable to merchants comprising a retail complex with respect to any accommodations they might wish to make in order to serve more effectively the needs and wants of shoppers.

Previous research has indicated the decline of the central business districts of large communities. This decline has been attributed to the growth of shopping centers competing with the central business district as well as to the growth of suburbs. If the central business district is to impede or to stop its rate of decline, one must identify both those shoppers who shop most frequently and devote the greatest amount of their shopping time downtown as well as those who do not. Thus, retailing strategies could be developed which would be used as a means of maintaining present customers as well as luring former customers to return.

Knowledge of the amount of time consumers devote to shopping and to where they shop would not only be of aid to the central business district but also to shopping center developers. If shopping center markets can be segmented in

terms of types of customers and customer shopping habits, retail strategies could be developed to more closely appeal to consumers in those particular segments.

Organization

This research paper is organized into four additional chapters and four appendices. The second chapter is concerned with the search of the literature including a brief discussion of appropriate theory applicable to the research and a detailed discussion of other research findings related to the variables utilized in the investigation. The third chapter is concerned with a summary discussion of how the Tri-County data were collected and how the data are used in testing the hypotheses. The fourth chapter deals with the acceptance or rejection of hypotheses and the fifth chapter with a summary and conclusions reached. In Appendix A is a list of definitions. Appendix B includes a detailed discussion of the universe, sample design and how the sample households were selected in the Tri-County study. Appendix C is a map showing cities and townships of Ingham, Clinton and Eaton counties. Appendix D is a discussion of the public relations procedures used in gaining the cooperation of households in the Tri-County area. In Appendix E is the questionnaire used in the Tri-County study. Appendix F contains the data utilized in testing the hypotheses in the form of contingency tables for Chi-square and tables for Analysis of Variance.

CHAPTER II

CONSUMER SPATIAL AND TEMPORAL BEHAVIOR

The literature review will be presented in two main sections. The first section covers theory relevant to spatial behavior; the second section deals with relationships between the independent and dependent variables utilized in the research.

Theory

Theory of Central Places

Central Place theory assumes that (1) identical consumers are distributed at uniform densities over an unabounded plane and can move freely in any direction they choose, (2) prices of goods increase in direct proportion as distance from the point of supply increases, (3) goods are purchased from the closest place, (4) all consumers must be served and (5) complete freedom of entry of stores.

Because the price to the consumer increases as the distance to the store increases, a circle may be drawn around a store depicting the distance beyond which consumers will not travel to purchase goods. Since all consumers must be served, a number of stores will be established across the

plane each having its own circular trading area. Each store's circular trading area is tangential to six others. However, because of the geometric nature of tangential circles, open spaces exist between circles and therefore some consumers are not served. To meet the requirement that there be no unserved area between market areas, the circles must overlap. Businessmen will compete for consumers within the area of overlap. Since consumers will visit the closest store to save transportation costs, the areas of overlap will be bisected, and each store's trading area will become a hexagon. The number of hexagonal market areas will increase up to the point where all businessmen are earning normal profits.

A large number of goods and services have to be provided for each of the consumers on the plane. All such goods and services are provided for consumers living within each of the hexagonal trading areas described above. However, some goods and services can be profitably provided by businessmen through smaller hexagonal market areas than would be necessary for other goods. Given that existing centers already provide all goods, the most profitable location for businessmen providing a lower order of goods would be at the center of three tangential larger trading areas. Thus, every higher - order center is surrounded by a ring of six centers of next lower order located at the six points of its hexagon. The size of the hexagonal market area for the next lower order of goods is equal to the market area for

for the same goods as provided by the larger center. As many lower order centers are established as are profitable to do so. Thus, a hierarchy of centers based upon market area sizes are established providing lower and lower orders of goods with the larger centers providing the same goods as smaller ones, but more of them.[1,2]

Laws of Retail Gravitation

Central place theory deals primarily with alternative urban centers. Reilly and Converse utilized a gravitational model to explain the movement of retail trade among cities.

The studies conducted by Reilly and Converse have led to the development of models which are termed laws of retail gravitation. These laws apply specifically to the purchase of shopping and specialty goods rather than convenience goods. The original law developed by Reilly states:

> Two cities attract retail trade from any intermediate city or town in the vicinity of the breaking point approximately in direct proportion to the population of the two cities and in inverse proportion to the square of the distances from these two cities to the intermediate town.[3]

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[1]W. Christaller, Die Zentralen Orte in Süddeutschland (Jena: Gustav Fisher Verlag), 1933.

[2]August Lösch, Die räumliche Ordnung der Wirtschaft. 2nd Ed. Jena: Gustav Fisher Verlag. Translated by W. H. Woglom and W. F. Stolper, as The Economics of Location (New Haven: Yale University Press), 1954.

[3]W. J. Reilly, The Law of Retail Gravitation (New York: William J. Reilly Company, 1931), p. 9.

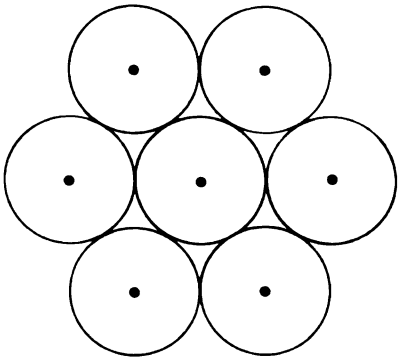

Figure 2.1--Maximum packing of tangent circles.

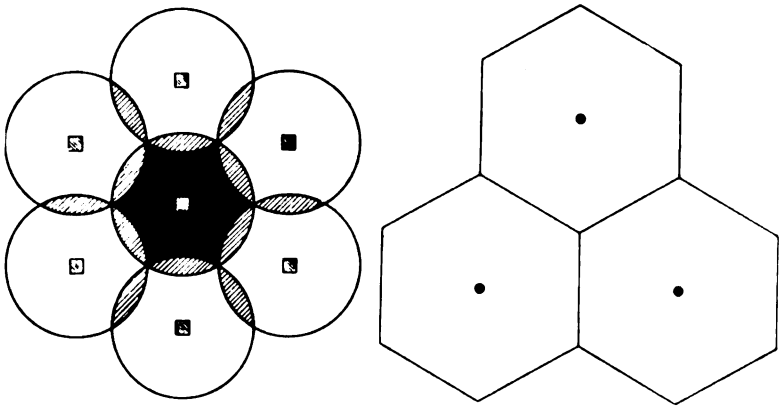

Figure 2.2--(left) Overlapping circles create areas of competition. Figure 2.3--(right) Consumer choice leads to hexagonal market areas.

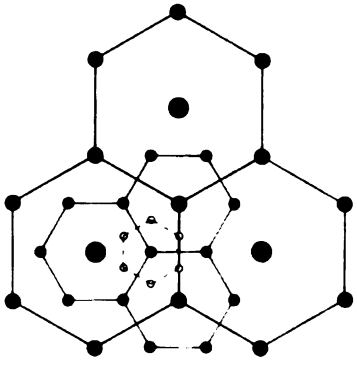

Figure 2.4--Hierarchy of market areas.

This statement can be expressed mathematically as follows:

$$\frac{B_a}{B_b} = \left(\frac{P_a}{P_b}\right)\left(\frac{D_b}{D_a}\right)^2$$

1. B_a is the proportion of retail trade from the intermediate town attracted by City A.
2. B_b is the proportion attracted by City B.
3. P_a is the population of City A.
4. P_b is the population of City B.
5. D_a is the distance from the intermediate town to City A.
6. D_b is the distance from the intermediate town to City B.

A second formula, derived from Reilly's formula and used to measure the movement of shopping goods trade, was developed by Converse and his associates. It is known as the breaking point formula and is written as follows:

$$D_b = \frac{D_a + D_b}{1 + \sqrt{\frac{P_a}{P_b}}}$$

In this formula the breaking point between two cities is the intermediate community which divides its shopping goods trade equally between the two cities.[4] Thus, the Converse

[4] George Schwartz, Development of Marketing Theory (Chicago, Illinois: Southwestern Publishing Co., 1963), p. 12.

formula can be utilized to determine the trading area of a city and the Reilly formula to determine the extent to which retail trade from intermediate towns should be divided between two trading centers.

Another law of retail gravitation developed by Converse concerns the proportion of retail trade a smaller town will lose to a larger trading center. The law is stated as follows:

> A trading center and a town in or near its trade area divide the trade of the town approximately in direct proportion to the populations of the two towns and inversely as the square of the distance factors, using 4 as the distance factor of the home town.[5]

Theories of Consumer Intraurban Travel Behavior

The Reilly and Converse laws of retail gravitation are related only to alternative urban centers and the transportation networks linking them. Other theories attempt to explain consumer travel behavior within a city. Troxel suggests that travel habits are formed by a desire to maximize net return of travel over a period of time.[6] That is to say, increased travel costs may be incurred if expectations of greater returns from trips are possible. Thus, consumers

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[5]Paul D. Converse, "New Laws of Retail Gravitation," Journal of Marketing, Vol. XIV (October, 1949), p. 382.

[6]Emery Troxel, Economics of Transport (New York: Rinehart and Company, Inc., 1955), ch. 7.

will travel further to a shopping area as the likelihood of achieving greater success in shopping increases.

An extension to Troxel's theory suggests that the minimum number of items necessary to induce a customer to shop at a given store will increase with distance.[7] That is, the high shopping costs of the distant customer can be overcome only by a high probability of a successful shopping trip. Furthermore, for every value N (the number of items carried) there will be a maximum distance the consumer will be willing to travel to a store.[8]

A more definitive expression of the above theories is based upon the gravity concept indicated below.

$$F_{ij} = k \frac{A_j}{D_{ij\alpha}}$$

where:

F_{ij} = expected frequency of interaction between point i and destination j

A_j = attraction to the jth destination

D_{ij} = distance from the point of origin i to the jth destination

k = a constant

α = a parameter to be estimated

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[7] William L. Garrison et al., Studies of Highway Development and Geographic Change (Seattle: University of Washington Press, 1959), p. 54.

[8] Ibid., p. 165.

The above formulation is based on the postulate that the potential interaction that exists between a consumer and various locational sources within an urban area varies directly with the size or attraction of each of these sources and inversely with the distance separating each of these sources from the consumer's point of origination.[9]

Huff points out, however, that the gravity concept is essentially an empirical notion and has very little, if any, theoretical substance. "It tells nothing about why observed regularities occur as they do under various situations and, as a consequence, leaves one at a loss when discrepancies occur that cannot be accounted for."[10]

In light of the lack of theory surrounding the gravity concept, Huff presents a conceptual analysis of consumer spatial behavior which includes five important factors that affect the spatial patterns of consumers.[11] The first of these is the impact of merchandise offerings. Consumers generally do not know in advance whether particular shopping areas will necessarily fulfill specified purchase desires.

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[9]David L. Huff, "Ecological Characteristics of Consumer Behavior," Papers and Proceedings, Vol. 7 (Philadelphia, Pa.: Regional Science Association, 1961), p. 19.

[10]Ibid., p. 20.

[11]For a broader conceptualization of consumer spatial behavior see David L. Huff, A Topalogical Model of Consumer Space Preferences, Occasional Paper Number 11, Seattle, Wash.: University of Washington, College of Business Administration, Bureau of Business Research, December, 1959.

However, they do have an a priori knowledge of the likelihood that various shopping areas might satisfy their needs and wants. This likelihood increases or diminishes depending upon the number of items of the kind that are desired and felt are carried by various shopping locations. Thus, the greater the number of items carried by a particular shopping area, the greater is the consumer's expectation of making a successful shopping trip. "Therefore, consumers will show a willingness to travel further distances for various goods and services as the number of such items available at various locational sources increases."[12]

The second is the impact of travel costs. As the consumer devotes more time to traveling to various shopping locations, the less time he has available to shop. Thus, in making a shopping trip the consumer will consider the benefit derived from incremental travel time against the possible loss of shopping time. Therefore, "The anticipated cost of transportation, the time and effort involved in preparing for, as well as making the trip, and other opportunities that must be foregone, tend to bring about a contraction in travel distances."[13]

A third factor affecting the spatial patterns of consumers is the variations that exist among products of various types as perceived by the consumer. For example, consumers would be willing to travel farther for products or brands for

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[12] Ibid., p. 21.

[13] Ibid., p. 21.

which they perceive no substitute. Consumers would also be willing to travel further for products for which they have no particular brand or style in mind when the possibility of finding a unique product from a specific product class might yield greater satisfaction. When consumers perceive price differentials between the same products, they would travel longer distances to purchase these lower priced products as long as the anticipated savings exceed the costs of travel. A consumer will travel further for products that have a relatively high price in relation to his income. Such products present considerable risk to the consumer and therefore, will expend time making comparisons in order to arrive at a decision which he feels is best with respect to his personal tastes and preferences as well as the money which he has allocated for such a purchase. Lastly, products exist which, in addition to their monetary value, have social significance as well, i.e., products that are ego enhancing. The consumer will want to make comparisons between different products within a product class. Therefore, the greater the social significance of such items, the more willing the consumer will be to travel further for their procurement.[14]

A fourth factor affecting the spatial patterns of consumers is the variations that exist among consumers of various economic classes. The demands of individuals of higher

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[14] Ibid., pp. 24,25.

economic levels are greater due to the added social significance that various purchases have for them. In addition, consumers of higher economic levels generally have better means of transportation at their disposal and therefore, experience somewhat lower shopping travel costs. Therefore, "Generally, consumers of higher economic status will travel further for shopping purposes than consumers of lower economic levels.[15]

The fifth and last factor affecting the spatial patterns of consumers is the variations in the density of population of urban areas. As the size of cities in which purchases are made increases, parking as well as other congestion problems add considerably to the time and effort of making a shopping trip.[16] Therefore, "The greater the density of population of a city, the greater is the friction of distance and therefore, the shorter will be the distances that consumers will travel in making their purchases."[17]

This section has dealt with the theoretical aspects of retail structure, drawing power and consumer spacial behavior. The next section will deal with empirical research on

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[15] Ibid., p. 26.

[16] For a discussion of urban congestion and shopping problems see C. T. Jonassen, Downtown Versus Suburban Shopping, Columbus, Ohio: Ohio State University, Bureau of Research, 1955, and Reavis Cox, "Consumer Convenience and the Retail Structure of Cities," Journal of Marketing, Vol. 23, April, 1959.

[17] David L. Huff, op. cit., p. 26.

relationships between specific independent and dependent variables, namely, socio-economic variables and time devoted to shopping in general, socio-economic variables and time devoted to shopping by shopping area, the effect of travel time on shopping time, and the part of the week and part of the day shopping takes place.

Shopping Time

General Considerations in Shopping Time

Considerable research has been performed demonstrating relationships between socio-economic variables and consumption expenditures. Examples of such research can be found on the relationships of income on consumption expenditures,[18,19,20] age and income on consumption expenditures,[21] stage in the life-cycle on consumption expenditures,[22,23] and

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[18] I. Friend and I. B. Kravis, "Entrepreneural Income Savings and Investment," American Economic Review, Vol. XLXII, No. 3 (June, 1957).

[19] Donald F. Blankertz, "A Marketing Analysis of Suburban and Urban Expenditure Patterns" in Theory in Marketing, ed. by Reavis Cox, Wroe Alderson, and Stanley J. Shapiro (Irwin, Homewood, Ill., 1964).

[20] Kurt Mayer, "Diminishing Class Differentials in the United States," in Marketing and the Behavioral Sciences, ed. by Perry Bliss (Allyn and Bacon, Boston, 1964).

[21] Harold Lydall, "The Life Cycle in Income, Savings, and Asset Ownership," Econometrica, Vol. XXII, No. 2 (April, 1955).

[22] Robert Ferber, "Research on Household Behavior," American Economic Review, Vol. XII, No. 1 (March, 1962).

[23] John B. Lansing and Leslie Kish, "Family Life Cycle as an Independent Variable," American Sociological Review, (October, 1957).

and income and occupation on consumption expenditures.[24] However, a paucity of research exists demonstrating relationships between socio-economic variables and time devoted to shopping. The following is a review of the literature that does exist in the area.

Frequency of shopping trips was found to be related to social class. A study in Cleveland demonstrated that over a period of a year 38 percent of the women in the upper class and 34 percent in the middle class shopped fifty-two or more times a year compared with 24 percent in the lower class who shopped fifty-two or more times.

The Cleveland Study also demonstrated that a relationship exists between importance of speed in shopping and social class. The importance of shopping quickly increased as the social class of a woman increased. For example, 39 percent of upper class women regarded it important always to shop quickly, though only 30 percent in the lower class and 34 percent in the middle class did.[25]

Age and stage in the life cycle in addition to social class and income are related to the amount of time devoted to shopping. Housewives under age forty spend less time on shopping, on the average, compared to their older

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[24]Mayer, op. cit., p. 204.

[25]Stuart U. Rich and Subhash C. Jain, "Social Class and Life Cycle as Predictors of Shopping Behavior," Journal of Marketing Research (February, 1968), p. 44.

counterparts.[26] However, housewives both under and over age forty with children put more stress on shopping quickly than those without children.[27]

Some evidence exists demonstrating the relationship of occupation and working wives to time devoted to shopping. Households in which the wife worked indicated the limited amount of time they had available for performing household tasks because of the time devoted to work.[28]

In addition to income and social class, the incidence of automobile ownership is also related to frequency of shopping trips. In a Pittsburgh area transportation study, it was found that as automobile ownership per family increased from zero to three so did the percentage of all shopping trips made by automobile.[29] Similar area transportation studies performed in metropolitan Washington, D. C. and Houston, Texas indicated a very close positive relationship between the number of automobiles owned and the number of shopping trips per dwelling unit.[30] From less than one

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[26]S. G. Barton, "The Life Cycle and Buying Patterns," The Life Cycle and Consumer Behavior, ed. by L. H. Clark (New York: New York University Press, 1955), p. 56.

[27]Stuart U. Rich and Subhash C. Jain, op. cit., p. 45.

[28]S. G. Barton, op. cit., p. 56.

[29]"Urban Travel Patterns for Airports, Shopping Centers, and Industrial Plants," National Cooperative Highway Research Program Report 24 (Washington, D.C.: Highway Research Board, 1966), p. 33.

[30]Alan M. Voorhees, Shopping Habits and Travel Patterns, Technical Bulletin No. 24 (Washington, D.C.: Urban Land Institute, March, 1955), p. 12.

shopping trip, on the average, per dwelling unit in a five-day week for units owning, on the average, less than two-tenths of an automobile, the frequency of shopping trips increased to an average of more than five for dwelling units owning, on the average, more than one automobile.[31]

Shopping in Central Business Districts

A study in Spokane, Washington, in 1952 dealing with the average time spent in selected stores in the central business district revealed that the greatest amount of time was devoted to shopping in department stores, 37.3 minutes, and the least amount of time, 4.8 minutes, in drug stores.[32] The study also indicated that the length of time devoted to shopping was not affected by the vehicular mode of travel used as both automobile and transit shoppers spent about the same amount of time inside a store.[33] However, the average time that shoppers parked downtown was 54 minutes indicating that shoppers visited more than one store.[34]

Research reporting the relationships between socio-economic variables and time devoted to shopping in the central business district is extremely sparse. What research has been performed does not refer to a specific amount of time devoted to shopping, but to more or less time with respect to a specific socio-economic variable. For example, in a study

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[31] Ibid., p. 12.

[32] Ibid., p. 9.

[33] Ibid., p. 9.

[34] Ibid., p. 9.

performed in Columbus, Ohio, it was found that middle and upper income groups are more strongly attracted to downtown as a place to procure shopping goods than are groups of lower economic status.[35] A study in New York City reported that as income increased so did the incidence of downtown shopping.[36] Similar findings were obtained in a Cleveland study.[37] However, when relating social class to incidence of downtown shopping, no significant differences were found to exist among women in the various social classes living in the city of Cleveland.[38]

In addition to income, age rather than stage in the life cycle of city dwellers was also reported to be related to incidence of shopping downtown. In both Cleveland and New York City stage in the life cycle had no effect on downtown shopping.[39] However, three-quarters of the older women, forty years of age or older with or without children, had a higher incidence of shopping downtown compared with 47 percent of the younger women, under forty with or without children.[40]

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[35] C. T. Jonassen, op. cit., p. 43.

[36] Stuart U. Rich, Shopping Behavior of Department Store Customers (Cambridge, Mass.: Harvard University, Division of Research, 1963), p. 142.

[37] Ibid., p. 142.

[38] Stuart U. Rich and Subhash C. Jain, op. cit., p. 45.

[39] Stuart U. Rich, op. cit., p. 141.

[40] Ibid., p. 142.

When considering the incidence of downtown shopping by city dwellers and suburbanites, the following comes to light. The majority of suburban women are doing less downtown shopping as the number and variety of suburban stores increase.

TABLE 2.1.--Incidents of Downtown Shopping by Women City Dwellers and Suburbanites.[41]

	Manhattan	Cleveland
City Dwellers	no change	40% decline
Suburbanites	43% decline	61% decline

There has been a general decline of suburban residents shopping downtown.[42] But among those who do shop downtown, differences exist in terms of social class and age. For example, in Cleveland there exists an inverse relationship between social class and shopping downtown. When defining high downtown shoppers as shopping there half or more of the time and low downtown shoppers as shopping there one-quarter or less of the time, 43 percent of lower-lower class suburban women and 37 percent of upper-lower class suburban women

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[41] Ibid., p. 156, 157.

[42] For a discussion of the movement of retail sales from central business districts of large cities to the suburbs, see Eli P. Cox and Leo G. Erickson, Retail Decentralization, East Lansing, Mich.: Michigan State University, Bureau of Business and Economic Research, 1967.

were considered high downtown shoppers.[43] Only 32 percent in the lower-middle and 27 percent in the upper-middle classes were considered high downtown shoppers while the percentages for the two upper classes further decreased to 22 percent and 18 percent respectively.[44]

As indicated above, both New York City and Cleveland older women residents with or without children shopped more frequently downtown than did their younger counterparts. However, among suburban women of these communities, life cycle had a more noticeable effect. Both younger and older women without children did more downtown shopping than older and younger women with children.[45]

Although no research could be found relating directly to the part of the week in which consumers shop in the central business district, some research exists reporting the part of the week consumers shop in general. A survey of all Nebraska cities of ten to twenty thousand population indicated that the most popular shopping days were Friday and Saturday.[46] Monday and Tuesday were reported as the days of least consumer traffic.[47] In Cleveland and New York City the most

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[43] Stuart U. Rich and Subhash C. Jain, op. cit., p. 45.

[44] Ibid., p. 45.

[45] Stuart U. Rich, op. cit., p. 143.

[46] "Retail Store Hour Survey in all the Nebraska Cities of 10,000-20,000 Population," Small Business Management Research Reports (The University of Nebraska, 1960), pp. 14, 34, 55, 77, 98, 139.

[47] Ibid., pp. 14, 34, 55, 77, 98, 139.

popular shopping times of women were weekday mornings and afternoons.[48] Data were also collected in Cleveland and New York City studies on the specific characteristics of women shopping at various times. It was found that suburbanites did more shopping on weekdays than did city dwellers, whereas the latter did more shopping on Saturdays.[49] In addition younger women, under forty years of age, shopped more often on Saturdays than did older women, and women who had full-time or part-time jobs shopped more often on Saturdays than women who did not work.[50]

The part of the day in which consumers shop in the central business district differs with the size of the city, but is consistent within city sizes. For cities of over 500,000 population such as Dallas, Texas, St. Louis, Missouri, Houston, Texas, and Pittsburgh, Pennsylvania, the highest rate of arrivals for shopping purposes occurs in the morning hours with the most common specific arrival time being 10:00 a.m.[51,52]

Although not directly related to shopping in the central business district, studies performed in Cleveland and New York

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[48] Stuart U. Rich, op. cit., p. 71.

[49] Ibid., p. 71.

[50] Ibid., p. 72.

[51] Alan M. Voorhees, op. cit., pp. 6,7.

[52] "Urban Travel Patterns for Airports, Shopping Centers and Industrial Plants," op. cit., p. 35.

City point out differences in the part of the day consumers shop and certain socio-economic variables. For example, suburbanites, women under age forty and working wives, did more shopping in the evening than did city dwellers, women over age forty and non-working wives.[53] In Cleveland income had little effect on evening shopping.[54] In New York City, however, middle income suburbanites, $5,000-$10,000, did more evening shopping than either the high or low income groups.[55]

Shopping in Shopping Centers

A study to determine the amount of time spent and the number of stores visited to purchase shopping, specialty and convenience goods at regional shopping centers showed clear differences in the amount of shopping effort related to each. For example, the findings indicate that the average time spent at a regional center, when the main purpose for going there was for shopping goods, was 44.5 minutes, and the number of stores visited was greater than twice that of a person seeking convenience goods.[56] When the main purpose for going to a center was for convenience goods, the average

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[53]Stuart U. Rich, op. cit., pp. 71,72.

[54]Ibid., pp. 71,72.

[55]Ibid., pp. 71,72.

[56]Arno K. Klumenhagen, "Shopping, Specialty, or Convenience Goods," Journal of Retailing (Winter, 1966-67), p. 37.

amount of time spent was 19.6 minutes, and the number of stores visited was less than for both shopping and specialty specialty goods.[57] When shopping for specialty goods, the average amount of time spent at the center was 32.7 minutes, and the number of stores visited was more than for convenience goods but less than for shopping goods.[58]

Although the findings above are related to differences in time devoted to shopping for certain types of goods at regional shopping centers, they do not apply to differences in time devoted to shopping at different size centers. However, a study of the relationship of shopping center size and frequency of shopping could be indicative of a relationship between shopping center size and time devoted to shopping. The findings of this study demonstrated that for unplanned centers some positive correlation existed between the frequency of shopping trips and the number of establishments located in the center.[59]

In addition to increased frequency of shopping trips as the size of the center increased, research also indicated that there is a positive relationship between the size of center and the distances consumers are willing to travel to

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[57] Ibid., p. 35.

[58] Ibid., p. 37.

[59] B. J. L. Berry, "Commercial Structure and Commercial Blight," Research Paper No. 85 (Chicago, Illinois: University of Chicago, Department of Geography, 1963).

shop in them. A Virginia transportation study showed that the average number of minutes devoted to travel by size of shopping center, measured by the number of retail employees, increased as the size of shopping center increased.[60] A southwestern Iowa study indicated similar findings.[61] A Cedar Rapids, Iowa study also indicated that in cases in which multipurpose shopping is involved, consumers will travel past a small center having some of the same kinds of stores which could supply desired goods for a larger center in which all or nearly all of their shopping goals can be achieved.[62] Studies in Minneapolis and Toledo have shown similar results. The Minneapolis study demonstrated that a larger center adjacent to a smaller one will attract shopping trips from beyond the smaller center, but the smaller center does not attract from beyond the larger.[63] The Toledo study indicated that between 70 and 76 percent of each shopping center's patrons reside within fifteen minutes

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[60] "Factors and Trends in Trip Lengths," National Cooperative Highway Research Program Report 48 (Washington, D.C.: Highway Research Board, 1968), p. 12.

[61] B. J. L. Berry, Gardiner H. Barnum, and Robert J. Tennant, "Retail Location and Consumer Behavior," Papers and Proceedings, Vol. 9 (Philadelphia, Pa.: Regional Science Association, 1962), p. 98.

[62] Garrison, et al., op. cit., p. 219.

[63] "Urban Travel Patterns for Airports, Shopping Centers and Industrial Plants," op. cit., p. 53.

driving distance to the center.[64] However, as the size of the center increased, so did the drawing power of the center in terms of the driving time necessary to reach it.[65] Although the drawing power of a center increases as the size of the center increases, no research could be found on the effects of driving time to various size centers and the time devoted to shopping in them.

Research data have demonstrated that the part of the week in which the greatest amount of shopping takes place is the same for both community and neighborhood shopping centers. A study performed in Detroit, Michigan in two community shopping centers indicated that Friday and Saturday are the days more frequently used for shopping with Saturday the bigger day of the two.[66] However, there was some discrepancy between the two centers with respect to the extent of shopping on the other days of the week. In one center Tuesday was a bigger day than either Monday and Thursday which were approximately equal in volume while Wednesday was the smallest day of all.[67] However, in the other center Tuesday was the smallest day of all, with Monday and Wednesday being approximately equal in volume, and

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[64] James A. Bruner and John L. Mason, "The Influence of Driving Time Upon Shopping Center Preference," Journal of Marketing (April, 1968), p. 59.

[65] Ibid., p. 59.

[66] Alan M. Voorhees, op. cit., p. 8.

[67] Ibid., p. 8.

Thursday being exceeded only by Friday and Saturday.[68] Studies of neighborhood centers indicated that the volume of visitors on Friday and Saturday was three times higher than on other weekdays.[69] No research data could be found on the part of the week in which shopping takes place in regional shopping centers.

Not only is the part of the week in which the greatest volume of shopping occurs similar among different size shopping centers, but so is the part of the day. However, a change has taken place in recent years with respect to the most significant peak shopping hours. A study in Houston in 1953 comparing the peak shopping hours of both neighborhood and community shopping centers indicated the existence of two peak shopping hours for both, one at 10:00 a.m. and the other at 5:00 p.m. with the latter being the more significant of the two.[70] However, studies of peak shopping hours in regional, community and neighborhood centers in a number of different cities since 1964 have shown similar peak hours among all centers, but a change has taken place with respect to the afternoon peak hour.[71,72] The change has been in the

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[68] Ibid., p. 8.

[69] Ibid., p. 8.

[70] Ibid., p. 8.

[71] "Urban Travel Patterns for Airports, Shopping Centers and Industrial Plants," op. cit., p. 41.

[72] Walter Stoll, "Shopping Center Characteristics," C.A.T.S. Research News, Vol. 8, No. 3 (Chicago, Illinois: September 30, 1966), p. 10.

form of greater shopping intensity taking place in the evening. Thus, the 10:00 a.m. peak hour has remained the same, but the 5:00 p.m. peak hour has moved to 7:00 p.m. Of the two peak shopping hours the evening hour still remains the more significant of the two.

Summary

Central place theory explains the size, spacing and functions of urban centers and laws of retail gravitation have been developed to measure the movement of retail trade between cities. Central place theory is also useful in explaining the sizes and spacing of retail activity within a single city i.e., central business, fringe and neighborhood districts as well as regional, community and neighborhood shopping centers. Huff and others have presented theories using retail gravitation models as a basis for explaining variations in consumer travel patterns within an urban area.

Literature search with respect to the time devoted to shopping in general indicates the following:

1. A positive relationship between level of income and consumption expenditures.
2. A positive relationship between social class category and frequency of shopping trips.
3. A positive relationship between the number of automobiles owned by a family and the frequency of shopping trips.
4. A positive relationship between social class category and the importance of speed in shopping.
5. An inverse relationship between age and the importance of shopping quickly.

Literature search with respect to shopping in a central business district indicated the following:

1. A positive relationship between social class category and incidence of shopping in a central business district.

2. A positive relationship between level of income and the frequency of shopping trips made to a central business district.

3. A positive relationship between age and frequency of shopping trips made to a central business district.

4. A decrease in the number of shopping trips made to a central business district of a large city by suburbanites.

5. The most popular shopping times for women are weekday mornings and afternoons.

Literature search with respect to shopping in different size centers indicated the following:

1. A positive relationship between frequency of shopping trips and the size of shopping center.

2. A positive relationship between size of shopping center and the distances consumers are willing to travel to shop in them.

3. Friday and Saturday are the days mose frequently used for shopping in community and neighborhood shopping centers.

4. The peak shopping hours for community and neighborhood shopping centers are in the morning and in the evening.

CHAPTER III

RESEARCH DESIGN

The chapter is divided into two sections, one dealing with a summary of the data collection methodology and the other with how the data are to be utilized for purposes of the analysis.

Summary of Data Collection Methodology

Organization and Purpose

The means by which the data were collected were prepared by National Analysts, Inc., of Philadelphia, Pennsylvania, for the Tri-County Regional Planning Commission located in Lansing, Michigan. There was a four-fold purpose for collecting the data. The first was to provide guidance for the development of an integrated transportation plan for the tri-county area. The second was to provide background information pertaining to housing, jobs, shopping and other facilities which may be assessed in terms of the transportation available to them. The third was to indicate the use and needs of recreational facilities in the area, and lastly, to determine the factors which people consider most important in selecting a community and a house or apartment in the area under study.

Methods of Collecting Data

The population consisted of all household residents of Eaton, Clinton and Ingham counties located in south central Michigan. Prior to the interview period, April through June in 1965, there were approximately 90,000 households in the tri-county region.

Selected as the sample was 5 percent of the households which yielded approximately 4,500 household interviews. The percentage was recommended to the Tri-County Regional Planning Commission by their transportation consultant, Alan M. Voorhees and Associates, who felt that it would yield sufficient data to facilitate the necessary statistical expansions and analyses for tri-county region as a whole and its sixty-four analysis areas. In order to obtain the 5 percent household sampling rate, it was necessary to oversample to allow for such circumstances as vacant houses, refusals and unusable interviews. Therefore, the final sample consisted of 6,933 households.

The particular sampling method utilized was the systematic sampling design. In the selection of a systematic sample, a sampling rate must be determined based on the estimated total population and the size of the sample desired. Therefore, from a population of approximately 90,000 households a sampling rate of one in every thirteen was used to yield the 6,933 required interviews.

Power company electrical records were selected for for purposes of compiling, in the most complete way possible, the population from which the sample was to be taken. It was found that all the residents of the tri-county region were being served by four power companies with the exception of two areas, City of Eaton Rapids and Michigan State University. These two received their power from Consumers Power Company but did their own billing. Therefore, the information sources from which the sample was selected consisted of the following:

1. Consumer Power Company (excepting Eaton Rapids City and Michigan State University).
2. Detroit Edison Company.
3. Tri-County Electrical Cooperative
4. Lansing Board of Water and Light
5. City of Eaton Rapids
6. Michigan State University

The information sources were ordered in the following manner for purposes of effecting a serpentine pattern for selecting the sample variates:

1. Tri-County Electrical Cooperative
2. Lansing Board of Water and Light
3. Michigan State University
4. Consumer Power Company combined with the City of Eaton Rapids
5. Detroit Edison Company

Each information source was completely sampled before sampling the second source. The sample variates were first selected from the Tri-County Electrical Cooperative, next from the Lansing Board of Water and Light, etc. Each information source was ordered in the township sequence portrayed in Appendix C. Thus, the first sample variates were selected from the northeast corner beginning with Greenbush Township. Additional sample variates were selected by moving west and horizontally across from Greenbush Township to the County line. At this point, a perpendicular drop was made to the next township, Dallas, moving eastward and horizontally to the county line. The serpentine procedure was continued throughout the tri-county area until all the sample variates were selected.

After the population was placed in the aforementioned order, the number of the first sample variate was selected by a random number chosen from a table of random numbers. The particular number chosen was three. Therefore, the third card in the Tri-County Electrical Cooperative deck was the first sample variate selected, the second variate was the sixteenth card and the third the twenty-ninth card. The procedure was continued until the Tri-County Electrical Cooperative deck was exhausted. Then the second information source was sampled, etc. If there remained less than thirteen cards at the end of any deck, the remainder constituted the

first part of the count in sampling the next information source.*

Personal interviews utilizing a questionnaire on which was recorded the specific questions to be asked including space for recording responses were the means by which the data were collected.** The Household Interview Questionnaire contains three segments. The first is the "Household Listing," the second is the "Internal Trip Report," and the third, "Residential Mobility." The Household Listing segment includes the age and sex of each member of the household, as well as the educational level and occupation of each member of the household eighteen years of age or over. The Internal Trip Report segment provides a trip-by-trip account of all auto-driver and passenger trips made by each member of the household five years of age or older. Included are the number and length of trips, modes of travel and reasons for selecting the modes used, purposes and frequencies of trips and the points of origin and destination of each trip. The Residential Mobility segment includes household level of income, three places of residence prior to the present one, the size of the family while at each address and reasons for moving.

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*See Appendix B for more detailed information on population, sample size and sampling methods.

**See Appendix E for questionnaire.

Each interviewer was given the following set of instructions:

1. A "trip" is defined as one-way travel, covering two or more blocks from one point to another for a particular purpose. Thus, round trips, to and from shopping, represent at least two trips. In general, stops are regarded as the end of one trip and the beginning of another, unless stops are made for relatively unimportant purposes which do not determine the route of travel, such as to drop a letter in a mailbox, buy a package of cigarettes, pick up a hitchhiker, purchase gasoline, or buy light refreshments. Stops which direct the route of travel, such as transacting business at a bank, visiting a friend, eating a meal, shopping, picking up or discharging a passenger at some specific location, should be considered the end of one trip and the beginning of another. A separate line is to be used for each trip reported, making certain that all trips made by an individual is identical to the number assigned to him as a household member. In addition, the trips made by any individual are all to be numbered serially always beginning with number 1 until all trips made by that person are recorded. The same procedure is to be followed with the next member of the household.

2. You will be provided with cards showing names and addresses which have been selected by a random sample of utility company records. In some cases the names may be incorrect, but the address is always correct. Therefore, you will always interview at the address as given on the listing, regardless of the name of the person who lives at that address. In some instances the name may be that of an absentee owner who pays the utility bills but who lives elsewhere and rents this particular apartment to someone else. You are to interview the person who lives there, not the absentee owner. In other instances, the person whose name is on the listing has moved since the listing was made, and a new family has moved into that address. You are now to interview the new person, regardless of the name of that person.

3. Separate interview forms should be completed for each family or household found at each address designated for interview. Where two or more

households are found at the sample address, each additional interview form should be designated by the same sample number, but with a suffix, as A, B, C, added to the sample number. However, should the structure at the sample address contain more than three housing units and the address does not distinguish (by name or apartment number) which housing unit is in the sample, interview the first three households at the sample address. Make a list of all housing units at the same address, indicate in which households interviews were completed, and turn the list over to the field supervisor.

4. Since travel varies by day of the week and by week of the year, we are spreading our interviewing period over as long a period of time as is practicable--the months of April, May and June, 1965 and over all (7) days of the week. During each of the three months we must complete approximately the same number of interviews on each of the 7 days of every week. Accordingly, you will be assigned a given number of interviews to complete on each day. If for some reason you cannot work on a given day, you must notify the supervisor in advance so that she can find a substitute interviewer for you on that day.

5. You are to make as many as three planned callbacks for a total of four calls on a household in an effort to complete an interview. In addition, you may have to make a telephone callback in order to obtain a report on trips taken yesterday by anyone who drove a car yesterday. These calls are not considered callbacks.

6. In case the interview is started on the first visit, that is, information is obtained regarding the trips for any members of the household, the trip information for all members of the household should be obtained for that same day regardless of when the "callback" interview is made. If considerable time (3 days) elapses before the missing members of the household can be interviewed, it may be better to discard the information received initially and record the travel of all members of the household for the day previous to the "callback" interview. In other words, the date for which travel information is obtained should be the same for all residents of any one household."

After interviews were checked by field supervisors for completeness and accuracy of interviewer coding, they were mailed to National Analysts, Inc. in Philadelphia, Pennsylvania. Responses which could not be coded by the interviewers were coded there.

Public Relations Procedures

Approximately one week before the first interviews were taken, a press conference was held to inform the various news media in the tri-county area including eight radio stations, three television stations and nineteen newspapers of the purpose and significance of the survey. An information packet was distributed to each of these thirty agencies. These packets contained (1) a letter from the Governor expressing the need for and his support of the Home Interview Survey; (2) a brochure entitled "Home Interview Survey" explaining the purpose, financing and other aspects of the Survey; and (3) three information reports entitled "Regional Planning Program: An Overview," "Background and General Information on the Regional Planning Program."

Prior to the beginning of the Survey, two hour long radio appearances were made by Survey officials explaining it and answering questions from the listening audience. In addition, during the course of the Survey, a Senior Planner on the Commission staff, in a fifteen-minute radio interview, described the Home Interview Survey, how the Survey was progressing, and some preliminary findings. Also, the progress

of the Survey was followed closely by the local newspapers, who were aided by news releases distributed by the Commission staff.

Each household and group quarters resident to be interviewed was mailed a copy of the Governor's letter and "Home Interview Survey" brochure about one week prior to the day their interview was to take place. Because of telephone calls made by prospective respondents to agencies other than the Tri-County Planning Commission, a slip was added to the letter contents emphasizing that, in the event of questions, the Tri-County Regional Planning Commission should be contacted by telephone or letter.

Although some interviewees refused to answer certain questions such as income, very few refused to respond to the entire questionnaire. Of those interviewees contacted, around two percent refused to be interviewed.

After the data were compiled and coded, it was stored on I.B.M. tapes. Permission was given by the Tri-County Planning Commission to use the tapes for purposes of the investigation.

Utilization Of Data

Data Inputs

The investigation was structured around a central business district, regional, community and neighborhood shopping centers. The first relationship to be investigated was the

influence of shopping area size on the average amount of time consumers devote to shopping on a single shopping trip. The second was the influence of travel time on shopping time within the aforementioned areas. The third was the relationship of household level of income, occupation of the head of the household, household life cycle stage, wife working outside the home and number of automobiles owned by the household to the frequency of shopping trips made by household members to different size shopping areas. Other relationships concerned the association of the socio-economic variables mentioned previously to the average amount of time consumers devoted to shopping on a single trip within different size shopping areas. The last relationships investigated concerned the association of selected socio-economic variables to the part of the week and part of the day shopping occurs in a central business district, regional, community and neighborhood shopping centers. Definitions of the aforementioned variables are given in Appendix A.

Central Business District and Shopping Center Listings

The Lansing, Michigan central business district was used to test hypotheses dealing with the relationship of selected socio-economic variables and frequency of shopping trips made and time devoted to shopping in a central business district. The Lansing central business district is bordered on the north by Ottawa Street, on the south by

Lenawee Street, on the east by Grand River Avenue and on the west by Capital Avenue.[1] Shopping trips to the central business district made by the members of each household were determined by the traffic zone of each shopping trip destination. The traffic zones used by the Tri-County Planning Commission to identify trips into the area are 3, 4, 5, 6, 7, 8, 9, 10, 12 and 13.[2] A traffic zone map of the Lansing central business district appears on page 64.

The shopping centers selected for purposes of testing the hypotheses are located in Lansing and East Lansing, Michigan. The traffic zones in which the centers are located are used to determine into which center each household member shopped. A traffic zone map of Lansing and East Lansing is presented on page 65.

To determine the store counts of each center for purposes of placing them in the appropriate shopping center category, the Lansing Store Directory was used or personal counts made. Table 3.1 shows a listing of the centers by category. Next to the name of the center is the traffic zone in which they are located.

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[1] Central City Development Plan (Lansing, Michigan: Lansing Planning Board, November, 1966), p. 11.

[2] Richard McGinty, Chief Planner, Tri-County Planning Commission, private interview held at Lansing, Michigan, August 1967.

TABLE 3.1.--Shopping Center Traffic Zones.

Regional	Traffic Zone	Community	Traffic Zone	Neighborhood	Traffic Zone
Frandor	254	Logan Center	150	Spartan Center	239
				Brookfield Plaza	266
				Jolly Logan	154
				Willow Plaza	46
				Colonial Village	149
				Edgemont Plaza	50

Influence of Travel Time on Shopping Time

The amount of time consumers devote to in-store shopping on a single shopping trip can be influenced by both the amount of time necessary to reach the shopping destination as well as the amount of time necessary to reach the next following destination other than for shopping. The amount of travel time to and from the shopping destination can in turn be affected by the nature of the roads utilized and the amount of traffic congestion occurring at different times of the day. One of the purposes of the investigation is to determine the average amount of time per shopping trip consumers devote to in-store shopping in different size shopping areas. Therefore, it was necessary to remove the effect of travel time on in-store shopping time in order to minimize any influence caused by travel time.

Linear correlation analysis was used to determine the extent and nature of relationship between travel time and in-store shopping time as the latter occurs in the central business district or in shopping centers. The time devoted to shopping is the dependent variable and defined as the time actually spent at a single shopping area. The time devoted to travel is the independent variable and defined as the time involved in traveling from an origin to a single shopping destination. When a non-shopping destination immediately follows a shopping destination,

the time devoted to travel to the non-shopping destination was considered as part of the travel time.

To the extent travel time influenced shopping time as shown by the correlation analysis, all the shopping time data used in the testing of hypotheses dealing with a particular shopping area were adjusted. For example, if the relationship between travel time and shopping time at a shopping area was positive, the part of total shopping time influenced by travel time was deducted from the shopping time of each consumer shopping in the area. If the relationship was negative, the part of total shopping time influenced by travel time was added to the shopping time of each consumer shopping in the area. The net effect of the additions to or subtractions from each consumer's shopping time was shopping time for each consumer void of the influence of travel time. It was the adjusted shopping times that was used in the computation of the average amount of time devoted to shopping by consumers in each of the shopping areas.

Time Per Trip Between Shopping Areas

Once the effect of travel time on shopping time has been determined and appropriate adjustments made to the shopping data, the testing of other hypotheses took place. The first hypothesis tested was the relationship of size of shopping area to average amount of time devoted to in-store shopping. The procedure for testing the hypothesis involved

the summation of all in-store shopping times for each shopping trip made to a central business district and different categories of shopping centers. The average amount of time devoted to in-store shopping on a single shopping trip made to each of the shopping areas mentioned above was derived by dividing the total shopping time in each shopping area by the number of shopping trips made to each area. Analysis of variance was used and a 5 percent level of confidence set in testing for significance.

Frequency of Trips Between Shopping Areas

The second set of hypotheses tested deal with the relationship of selected socio-economic variables and the frequency of shopping trips made between a central business district, regional, community and neighborhood shopping centers. For each socio-economic variable utilized in the investigation a separate hypothesis was tested. For example, a test was made of the relationship between household level of income and frequency of shopping trips made by household members between different size shopping areas. Other tests were made dealing with the relationship of frequency of shopping trips made between different size shopping areas by household members and the occupation of the head of the household, household life cycle stages, wife working outside the home and the number of automobiles owned by the household.

To test the hypothesis dealing with level of household income and the frequency of shopping trips made between a central business district, regional, community and neighborhood shopping centers, shopping trips were compiled by household level of income made to each type of shopping area. Chi-square analysis was used and a 5 percent level of confidence set in testing for significance.

Other hypotheses dealing with the relationships of the remaining socio-economic variables to the frequency of shopping trips made between shopping areas were tested using the same procedure described above. The only difference was the substitution of the appropriate socio-economic variable for level of income.

Time Per Trip Within a Central Business District

The third set of hypotheses was tested dealing with the relationship of selected socio-economic variables and the average amount of time devoted to in-store shopping on a single shopping trip to a central business district. As with the previous set of hypotheses, all socio-economic variables utilized in the investigation were tested separately. Therefore, the first in the set of hypotheses tested was the relationship between household level of income and the average amount of time household members devote to in-store shopping on a single shopping trip to a central business district.

In order to test the hypothesis, all central business district trips were identified. Then each household sampled was placed in its appropriate income category. The time devoted to in-store shopping per single shopping trip by each member of a household falling within each category was compiled. The total of shopping time per income category was divided by the number of shopping trips made to determine the average amount of in-store shopping time per trip by consumers of each income category. The following is an example of the procedure.

Income category	$5,000-$6,999	$7,000-$9,999
Total shopping time	80,000 min.	180,000 min.
No. of trips	1,000	2,000
Average time per trip	80 min.	90 min.

Once the averages were determined, analysis of variance was used and a 5 percent level of confidence set in testing for significance.

The procedure, statistical methodology and level of significance utilized for testing the hypothesis dealing with level of income and the average amount of time devoted to shopping per trip was used as a model for testing the hypotheses relating to level of occupation, working wives, stage in the life cycle and number of automobiles owned and shopping per trip. The only difference in the procedure was the different categories into which household shopping time was compiled. For example, when testing the hypothesis dealing with level of occupation and shopping time per trip, household shopping time was compiled by occupational category.

When testing the hypothesis dealing with whether the wife works or not and the time devoted to shopping per trip, household shopping time was compiled into two categories, namely, working wife and non-working wife. When testing the hypothesis relating stage in the life cycle with household shopping time per trip, household shopping time was compiled by life cycle categories. When testing the hypothesis relating number of automobiles owned and household shopping time per trip, household shopping time was compiled by the number of automobiles owned by a household.

Part of Week And Part of Day Within a Central Business District

The fourth and fifth sets of hypotheses tested deal with the relationship of selected socio-economic variables and the part of the week and part of the day shopping occurs in a central business district. As before, all socio-economic variables utilized in the investigation were tested separately for both the part of the week and part of the day.

The following methodology was used in testing hypotheses dealing with the relationship of selected socio-economic variables to part of the week and part of the day shopping occurs in a central business district. To test the hypothesis dealing with level of income and part of the week shopping occurs, each household shopping trip was compiled by income level and part of the week categories.

For example, the part of the week each household resident's shopping trips occur were placed in the appropriate income level and part of the week cell. Chi-square was used and a 5 percent level of confidence set in testing for significance.

Other hypotheses dealing with the relationships of the remaining socio-economic variables to part of the week shopping occurs in a central business district were tested using the same procedure described above. The only differences were the substitution of the appropriate socio-economic variable for level of income.

The same methodology described above was used to test hypotheses relating selected socio-economic variables to part of the day shopping takes place in a central business district. The only change from the above procedure was to substitute part of the day categories for part of the week.

Time Per Trip, Part of Week, Part of Day Within Regional, Community and Neighborhood Centers

The last sets of hypotheses tested deal with the relationship of selected socio-economic variables and the average amount of time consumers devote to in-store shopping on a single shopping trip to regional, community and neighborhood shopping centers. Other hypotheses tested deal with the relationship of selected socio-economic variables and the part of the week and part of the day shopping occurs in the aforementioned centers. All socio-economic variables

utilized in the investigation were tested separately for shopping time and when shopping occurs for each category of shopping center. The same procedures, statistical methodologies and levels of significance utilized above in testing hypotheses dealing with a central business district were used also in testing hypotheses for each category of center.

Summary

The data utilized in the investigation were supplied by the Tri-County Planning Commission located in Lansing, Michigan. The Commission had performed a transportation study during April through June, 1965, interviewing 6,933 households scattered throughout Eaton, Clinton and Ingham counties. Extensive data on household socio-economic characteristics was collected along with origin and destination of trips taken during the previous twenty-four hours by members of each household. The time each trip began and ended was also collected. A systematic sampling technique was used to select sample households from a universe listing supplied by the electrical power companies serving the tri-county area.

Selected household socio-economic and shopping trip time data was used for purposes of testing hypotheses. The hypotheses were tested utilizing Linear Correlation, Analysis of Variances and Chi-square.

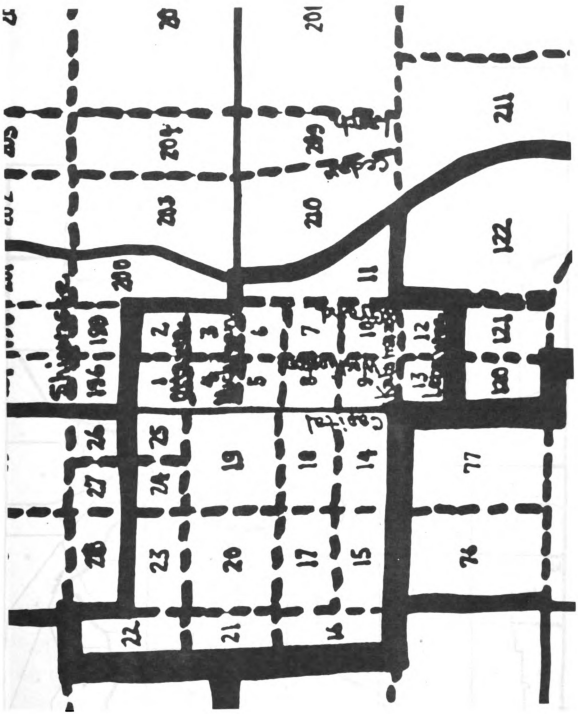

Figure 3.1--Lansing Central Business District traffic zones.

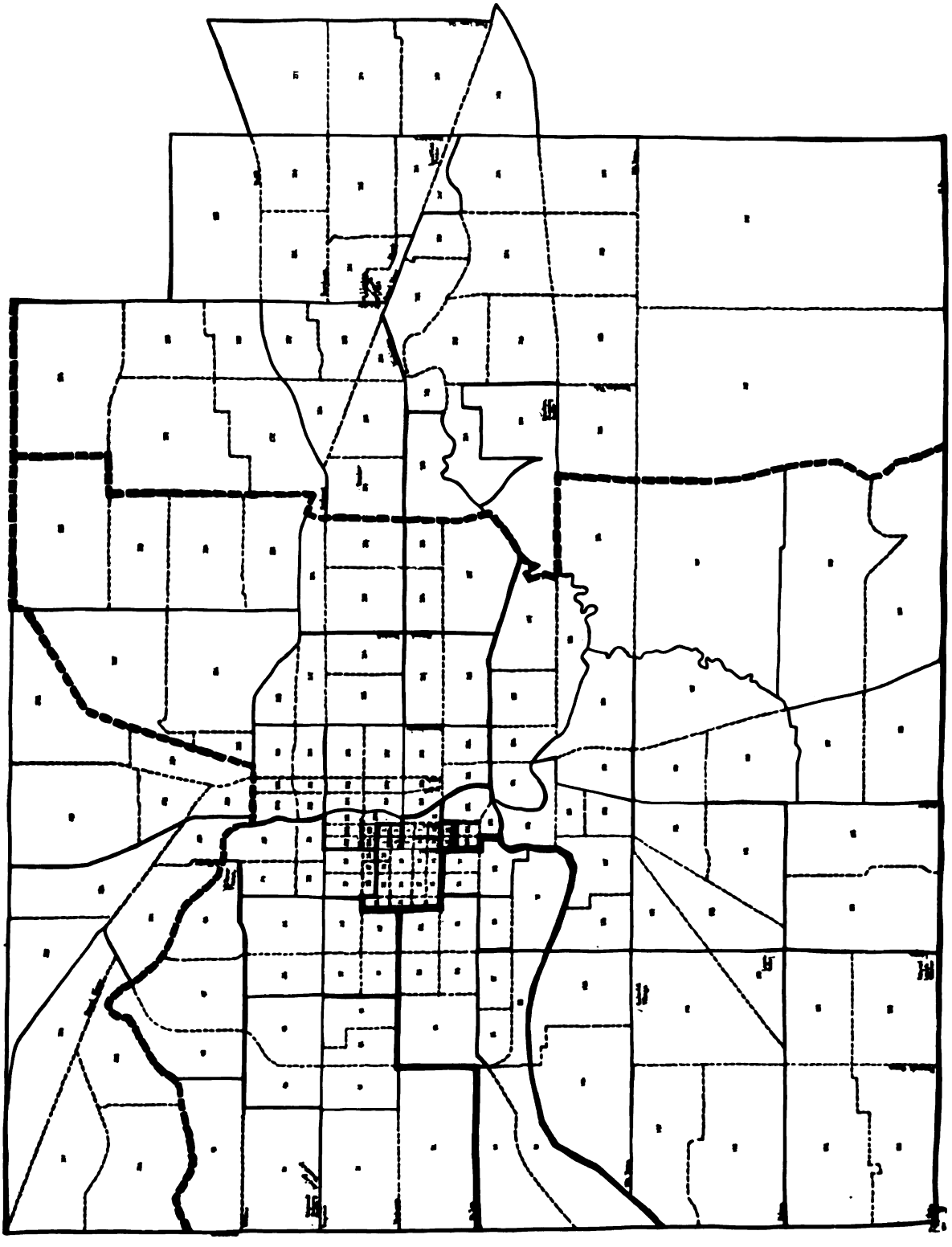

Figure 3.2--Lansing-East Lansing traffic zones.

CHAPTER IV

FINDINGS

The previous chapter discussed the research methodology and the statistical methods to be utilized in the testing of hypotheses. The discussion which follows reports the findings related to each hypothesis.

Travel Time and Shopping Time

Hypothesis One

As the amount of time devoted to travel to a

A. central business district
B. regional shopping center
C. community shopping center
D. neighborhood shopping center

increases, the amount of time devoted to in-store shopping on a single shopping trip increases.

Table 4.1 shows the statistical values derived from testing of the aforementioned hypothesis as well as the outcome of each test. The relationship between shopping time and travel time to different size shopping areas was found to be significant for a community shopping center only. As a consequence, only the time per shopping trip to a community shopping center need be adjusted for the influence of travel time.

TABLE 4.1.--Summary of Statistical Values Derived From Testing Relationships Between Shopping Time and Travel Time to Different Size Shopping Areas.

Hypotheses	Correlation Coefficient	Detrees of Freedom Numerator	Degrees of Freedom Denominator	Computed F Ratio	P Equivalents	Outcome
One A	0.824	1	195	1.33	>.05	Reject
One B	0.0113	1	412	0.05	>.05	Reject
One C	0.3527	1	172	24.29	<.01	Accept
One D	0.1019	1	185	1.93	>.05	Reject

Key:

A = Central business district
B = Regional shopping center
C = Community shopping center
D = Neighborhood shopping center

Shopping Time Per Trip Between Shopping Areas

Hypothesis Two

> There is no significant difference between a central business district, regional, community and neighborhood shopping centers and the average amount of time consumers devote to in-store shopping on a single shopping trip.

Table 4.2 shows the tabulation of overall mean shopping time per trip to a central business district, regional, community and neighborhood shopping centers regardless of the socio-economic status of household members. The hypothesis is rejected and it can be inferred that a significant difference exists between the average amount of time devoted to in-store shopping by sample consumers per shopping trip made to a central business district, regional, community and neighborhood shopping centers.

TABLE 4.2.--Average Shopping Time Per Trip Between Shopping Areas.

Shopping Area	Central Business District	Regional Shopping Center	Community Shopping Center	Neighborhood Shopping Center
Time in Minutes	76.72	59.96	58.12	33.92

F ratio = 7.80, d.f. numerator = 3, d.f. denominator = 968, $p < .01$.

Frequency of Shopping Trips To Different Size Shopping Areas

Hypothesis Three

Frequency of shopping trips made to central business district, regional, community and neighborhood shopping centers is independent of

A. household level of income
B. occupations of heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households

Table 4.3 is a summary table showing the statistical values derived from the performance of Chi-square analyses on the aforementioned hypothesis. The acceptance or rejection of each hypothesis also is stated in the table. The results indicate that the frequency of shopping trips made to a central business district, regional, community and neighborhood shopping centers by household members is significantly related to household level of income and occupation of the head of the household. Significant relationships were not found for household life cycle stage, wife working outside the home and the number of automobiles owned by households. Tables F-1 through F-5 are contingency tables for each of the selected socio-economic variables utilized. The tables are located in Appendix F.

TABLE 4.3.--Summary of Statistical Values Derived From Testing Differences Within Selected Socio-Economic Variables and Frequency of Shopping Trips Made to a Central Business District, Regional, Community and Neighborhood Shopping Centers.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Three A	15	25.7	<.05	Reject
Three B	6	25.6	<.005	Reject
Three C	15	8.2	>.05	Accept
Three D	3	2.9	>.05	Accept
Three E	6	5.0	>.05	Accept

Key:

A = Household income level
B = Occupation of Head of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Shopping Time, Part of Week And Part of Day In A Central Business District

Hypothesis Four

There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a central business district and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.4 is a summary table depicting the statistical values derived from the performance of Analysis of Variance on the aforementioned hypothesis. As to A, household level of income, the hypothesis is rejected and an inference may be drawn that a significant difference does exist between level of household income and the average amount of time sample household members devote to in-store shopping on a single shopping trip to a central business district. However, the remaining hypotheses are accepted and thus no significant relation can be postulated regarding B, occupations of the heads of households, C, household life cycle stages, D, the wife working outside the home, E, the number of automobiles owned by houseolds and time devoted to in-store shopping on a single shopping trip to a central business district. Tables F-6 through F-10 in Appendix F show the tabulation of overall mean shopping time per trip to a central business district for each of the selected socio-economic variables tested.

TABLE 4.4.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Average Amount of Time Devoted to Shopping Per Trip to a Central Business District.

Hypothesis	Degrees of Freedom Numerator	Degrees of Freedom Denominator	Computed F Ratio	P Equivalents	Outcome
Four A	7	195	2.50	<.05	Reject
Four B	2	196	1.60	>.05	Accept
Four C	5	196	1.04	>.05	Accept
Four D	1	196	0.61	>.05	Accept
Four E	2	196	1.01	>.05	Accept

Key:

A - Household income level
B = Occupation of head of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by household

Hypothesis Five

There is no significant difference between the part of the week household members shop in a central business district and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.5 is a summary table showing the statistical values derived from the performance of Chi-square analysis on the aforementioned hypotheses. The acceptance or rejection of each hypothesis also is stated in the table. Hypotheses B and D are rejected and an inference may be drawn that significant differences exist between the occupations of heads of households and whether the wife is employed outside the home and the part of the week household members shop in a central business district. The remaining hypotheses are accepted and thus no significant relation can be postulated regarding household level of income, household life cycle stage and the number of automobiles owned by households and the part of the week household members shop in a central business district.

Tables F-11 through F-18 are contingency tables for each of the selected socio-economic variables tested and may be seen in Appendix F. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.5.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Week Shopping Occurs in a Central Business District.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Five A	4	4.31	>.05	Accept
Five B	2	14.43	<.005	Reject
Five C	3	2.96	>.05	Accept
Five D	1	4.93	<.05	Reject
Five E	1	0.55	> .05	Accept

Key:

A = Household income level
B = Occupation of head of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Hypothesis Six

There is no significant difference between the part of the day household members shop in a central business district and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.6 shows the statistical values derived from testing the aforementioned hypotheses as well as the outcome of each test. In each instance the hypothesis is accepted and hence no inferences can be drawn regarding any of the selected socio-economic variables and the part of the day household members shop in a central business district.

Tables F-12 through F-25 are contingency tables for each of the selected socio-economic variables tested and may be seen in Appendix F. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.6.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Day Shopping Occurs in a Central Business District.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Six A	4	4.49	>.05	Accept
Six B	4	8.06	>.05	Accept
Six C	6	3.41	>.05	Accept
Six D	2	0.34	>.05	Accept
Six E	2	1.19	>.05	Accept

Key:

A = Household income level
B = Occupation of heads of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Shopping Time, Part of Week and Part of Day in a Regional Shopping Center

Hypothesis Seven

There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a regional shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.7 is a summary table depicting the statistical values derived from the performance of Analysis of Variance on the aforementioned hypotheses. In each instance the hypothesis is accepted and hence no inferences can be drawn regarding any of the selected socio-economic variables and the average amount of time household members devote to in-store shopping on a single shopping trip to a regional shopping center.

Tables F-26 through F-30 show the tabulation of overall mean shopping time per trip to a regional shopping center for each of the selected socio-economic variables tested. The tables are located in Appendix F.

TABLE 4.7.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Average Amount of Time Devoted to Shopping Per Trip to a Regional Shopping Center.

Hypotheses	Degrees of Freedom Numerator	Degrees of Freedom Denominator	Computed F Ratio	P Equivalents	Outcome
Seven A	7	412	1.84	>.05	Accept
Seven B	2	412	0.69	>.05	Accept
Seven C	5	412	1.77	>.05	Accept
Seven D	1	412	0.18	>.05	Accept
Seven E	2	412	2.03	>.05	Accept

Key:

A = Household income level
B = Occupation of head of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Hypothesis Eight

There is no significant difference between the part of the week household members shop in a regional shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.8 is a summary table showing the statistical values derived from the performance of Chi-square analysis on the aforementioned hypotheses. The acceptance or rejection of each hypothesis also is stated in the table. In each instance the hypothesis is rejected and an inference may be drawn that significant differences exist between all of the selected socio-economic variables and the part of the week household members shop in a regional shopping center.

Tables F-31 through F-37 are contingency tables for each of the selected socio-economic variables tested and may be seen in Appendix F. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.8.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Week Shopping Occurs in a Regional Shopping Center.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Eight A	5	22.34	<.005	Reject
Eight B	2	15.12	<.005	Reject
Eight C	5	12.90	<.025	Reject
Eight D	1	16.83	<.005	Reject
Eight E	1	4.06	<.05	Reject

Key:

A = Household income level
B = Occupation of heads of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Hypotheses Nine

There is no significant difference between the part of the day household members shop in a regional shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.9 shows the statistical values derived from testing the aforementioned hypotheses as well as the outcome of each test. Hypothesis C is rejected and an inference may be drawn that a significant difference exists between household life cycle stage and the part of the day household members shop in a regional shopping center. However, the remaining hypotheses are accepted and thus no significant relation can be postulated regarding the other selected socio-economic variables and the part of the day shopping occurred in a regional shopping center.

Tables F-38 through F-44 are contingency tables for each of the selected socio-economic variables tested and may be seen in Appendix F. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.9.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Day Shopping Occurs in a Regional Shopping Center.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Nine A	10	8.52	>.05	Accept
Nine B	4	5.24	>.05	Accept
Nine C	10	20.50	<.025	Reject
Nine D	2	2.26	>.05	Accept
Nine E	2	0.48	>.05	Accept

Key:

A = Household income level
B = Occupation of head of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Shopping Time, Part of Week and Part of Day in a Community Shopping Center

Hypothesis Ten

There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a community shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.10 is a summary table depicting the statistical values derived from the performance of Analysis of Variance on the aforementioned hypotheses. Hypothesis C is rejected and an inference may be drawn that a significant difference does exist between household life cycle stage and the average amount of time sample household members devote to in-store shopping on a single shopping trip to a community shopping center. However, the remaining hypotheses are accepted and thus no significant relationships can be postulated regarding the other selected socio-economic variables.

Tables F-45 through F-49 show the tabulation of overall mean shopping time per trip to a community shopping center for each of the selected socio-economic variables tested.

TABLE 4.10.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Average Amount of Time Devoted to Shopping Per Trip to a Community Shopping Center.

Hypotheses	Degrees of Freedom Numerator	Degrees of Freedom Denominator	Computed F Ratio	P Equivalents	Outcome
Ten A	5	172	1.12	>.05	Accept
Ten B	2	172	0.71	>.05	Accept
Ten C	5	172	2.44	<.05	Reject
Ten D	1	172	1.63	>.05	Accept
Ten E	2	172	0.90	>.05	Accept

Key:

A = Household income level
B = Occupation of heads of household
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Hypothesis Eleven

There is no significant difference between the part of the week household members shop in a community shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.11 is a summary table showing the statistical values derived from the performance of Chi-square analysis on the aforementioned hypotheses. In each instance the hypothesis is accepted and hence no inferences can be drawn regarding the selected socio-economic variables and the part of the week sample household members shop in a community shopping center.

Tables F-50 through F-57 are contingency tables for each of the selected socio-economic variables tested and may be seen in Appendix F. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.11.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Week Shopping Occurs in a Community Shopping Center.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Eleven A	3	0.22	>.05	Accept
Eleven B	2	5.90	>.05	Accept
Eleven C	3	4.35	>.05	Accept
Eleven D	1	0.72	>.05	Accept
Eleven E	1	0.20	>.05	Accept

Key:

A = Household income level
B = Occupation of head of household
C = Household life cycle stage
D = Wife working outside of the home
E = Number of automobiles owned by households

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Hypothesis Twelve

There is no significant difference between the part of the day household members shop in a community shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households

Table 4.12 is a summary table showing the statistical values derived from the performance of Chi-square analysis on the aforementioned hypotheses. The acceptance or rejection of each hypothesis also is stated in the Table. Hypothesis A is rejected and an inference may be drawn that a significant difference exists between household level of income and the part of the day sample household members shop in a community shopping center. The remaining hypotheses are accepted and thus no significant relationship can be postulated regarding the other selected socio-economic variables.

Tables F-58 through F-65 are contingency tables for each of the selected socio-economic variables tested. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.12.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Day Shopping Occurs in a Community Shopping Center.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Twelve A	6	17.12	<.01	Reject
Twelve B	4	1.87	>.05	Accept
Twelve C	6	2.05	>.05	Accept
Twelve D	2	1.22	>.05	Accept
Twelve E	2	0.38	>.05	Accept

Key:

A = Household income level
B = Occupation of heads of households
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Shopping Time, Part of Week and Part of Day in a Neighborhood Shopping Center

Hypothesis Thirteen

There is no significant difference between the average amount of time household members devote to in-store shopping on a single shopping trip to a neighborhood shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.13 is a summary table depicting the statistical values derived from the performance of Analysis of Variance on the aforementioned hypotheses. Hypothesis A is rejected and an inference may be drawn that a significant difference does exist between level of household income and the average amount of time sample household members devote to in-store shopping on a single shopping trip to a neighborhood shopping center. However, the remaining hypotheses are accepted and thus no significant relationship can be postulated regarding time devoted to shopping by sample household members in a neighborhood shopping center and the other selected socio-economic variables.

Tables F-66 through F-70 in Appendix F show the tabulation of overall mean shopping time per trip to a neighborhood shopping center for each of the selected socio-economic variables tested.

TABLE 4.13.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Average Amount of Time Devoted to Shopping Per Trip to a Neighborhood Shopping Center.

Hypotheses	Degrees of Freedom Numerator	Degrees of Freedom Denominator	Computed F Ratio	P Equivalents	Outcome
Thirteen A	7	185	2.61	<.05	Reject
Thirteen B	2	185	0.48	>.05	Accept
Thirteen C	5	185	1.31	>.05	Accept
Thirteen D	1	185	1.83	>.05	Accept
Thirteen E	2	185	0.85	>.05	Accept

Key:

A = Household income level
B = Occupation of heads of households
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

Hypothesis Fourteen

There is no significant difference between the part of the week household members shop in a neighborhood shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.14 is a summary table showing the statistical values derived from the performance of Chi-square analysis on the aforementioned hypotheses. The acceptance or rejection of each hypothesis also is stated in the table. Hypothesis D is rejected and an inference may be drawn that a significant difference exists between households in which the wife works outside the home and the part of the week sample household members shop at a neighborhood shopping center. The remaining hypotheses are accepted and thus no significant relationships can be postulated regarding the other selected socio-economic variables and the part of the week shopping occurs.

Tables F-71 through F-78 in Appendix F are contingency tables for each of the selected socio-economic variables tested. Included are both tables showing the original frequency and percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.14.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Week Shopping Occurs in a Neighborhood Shopping Center.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Fourteen A	4	1.17	>.05	Accept
Fourteen B	2	0.28	>.05	Accept
Fourteen C	3	5.56	>.05	Accept
Fourteen D	1	4.83	<.05	Reject
Fourteen E	1	0.45	>.05	Accept

Key:

A = Household income level
B = Occupation of heads of households
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by household

Hypothesis Fifteen

There is no significant difference between the part of the day household members shop in a neighborhood shopping center and

A. household level of income
B. occupations of the heads of households
C. household life cycle stages
D. the wife working outside the home
E. the number of automobiles owned by households.

Table 4.15 is a summary table showing the statistical values derived from the performance of Chi-square analysis on the aforementioned hypothesis. Hypotheses A and E are rejected and an inference may be drawn that significant differences exist between the part of the day sample consumers shop in a neighborhood shopping center and both household level of income and the number of automobiles owned by households. The remaining hypotheses are accepted and thus no significant relationships can be postulated regarding the other selected socio-economic variables and part of the day shopping occurs.

Tables F-79 through F-85 in Appendix F are contingency tables for each of the selected socio-economic variables tested. Included are both tables showing the original frequency percentage distributions as tabulated from the original data and collapsed versions.

TABLE 4.15.--Summary of Statistical Values Derived from Testing Differences Within Selected Socio-Economic Variables and Part of the Day Shopping Occurs in a Neighborhood Shopping Center.

Hypotheses	Degrees of Freedom	Computed Chi-square	P Equivalents	Outcome
Fifteen A	6	15.94	<.025	Reject
Fifteen B	4	3.59	>.05	Accept
Fifteen C	6	0.99	>.05	Accept
Fifteen D	2	2.94	>.05	Accept
Fifteen E	2	6.46	<.05	Reject

Key:

A = Household income level
B = Occupation of heads of households
C = Household life cycle stage
D = Wife working outside the home
E = Number of automobiles owned by households

TABLE 4.16.--Summary of Rejected Null Hypotheses for Central Business District, Regional, Community and Neighborhood Shopping Centers.

	Time Per Trip				Part of Week				Part of Day			
Socio-Economic Classes	C.B.D.	R.	C.	N.	C.B.D.	R.	C.	N.	C.B.D.	R.	C.	N.
Income Level	*			*		*					*	*
Occupation class					*	*						
Life Cycle Stage			*			*				*		
Working Wife					*	*		*				
Automobile Owner						*						*

Key: C.B.D. = Central Business District
R. = Regional Shopping Center
C. = Community Shopping Center
N. = Neighborhood Shopping Center
* = Rejected Hypothesis

CHAPTER V

INTERPRETATIONS, SUMMARY AND CONCLUSIONS

The previous chapter was concerned with the testing of hypotheses and the presentation of results. This chapter is concerned with the interpretation of findings, summary, implications and conclusions reached.

Central Business District

Time Per Trip in General

In Table 4.1 is presented the average time devoted to shopping per trip between a central business district, regional, community and neighborhood shopping centers by consumers in the sample. The different times between shopping areas was found to be significant with the greatest average time, 76.72 minutes, devoted to in-store shopping in a central business district.

Frequency of Shopping Trips

Significant differences were found between both household level of income and occupational class of the head of the household with respect to the frequency of shopping trips made to a central business district by sample household members. However, no significant differences were found within

household life cycle stage, wife working outside the home and the number of automobiles owned by household categories and the frequency of shopping trips made to a central business district.

Income.--The data in Table F-1 suggests that 20 percent of all consumers sampled shopped in a central business district. When data on consumers are classified by annual household income, the data indicate that those earning less than $5,000 and those earning $10,000 and over are more likely to shop in a central business district than consumers of households earning between $5,000 and $10,000 per year.

Two inferences seem warranted. First, lower income groups are more likely to live nearer to a central business district than are other income groups and are likely to shop more frequently therein as a matter of convenience. Second, because what one buys is more socially significant as income increases, high income groups shop more frequently in a central business district because of the greater variety and superior quality of merchandise carried by the merchants in most central business districts.

Occupational Class.--The data in Table F-2 relating frequency of shopping trips made to various shopping areas by members of households whose heads were of different occupational categories were found to be significant. The data tend to indicate that consumers of professional and

managerial households as well as consumers of white collar households are more likely to shop in a central business district than are consumers from blue collar households.

Time Per Trip by Selected Socio-Economic Variables

A significant difference was found between household level of income and the average amount of time sample household members devote to in-store shopping on a single shopping trip to a central business district. No significant differences were found within the remaining socio-economic household classifications.

Income.--Table F-6 shows the average amount of time devoted to in-store shopping in a central business district by consumers of households of various income levels. Differences between households were found to be significant. The data tend to indicate that consumers from sample households earning less than $5,000 and households earning between $15,000 and $25,000 devote the greatest amount of time per shopping trip to a central business district. The least amount of time is devoted by consumers from households earning between $5,000 and $7,000 and $25,000 and over.

Part of the Week and Part of the Day

Significant differences were found between the occupation of the head of the household classes and the part of the week sample household members shop in a central business district. Similar findings were made with respect to the

occupational status of the wife. However, significant differences were not found within the remaining selected socio-economic variables of household level of income, household life cycle stage, the number of automobiles owned by household and the part of the week shopping occurred. No significant differences were found within any of the selected socio-economic variables and the part of the day shopping occurred in a central business district. The data in Tables F-12 and F-20 do indicate, however, that 82.7 percent of consumers sampled shop in the middle of the week while 58.6 percent shop in the afternoon, 23.6 percent shop in the morning and 17.8 percent shop in the evening in a central business district.

Occupational Class.--The data in Table F-13 shows the relationship between head of the household occupational categories and the part of the week household members shop in a central business district. The data in the table tend to indicate that consumers from professional and managerial and blue collar households are more likely to shop in a central business district in the middle of the week than are consumers from white collar households.

Employment Status of Wife.--Table F-16 shows the relationship between employment status of the wife and the part of the week sample household members shop in a central business district. The data in the table suggest that consumers from sample households in which the wife is employed

tend to shop more frequently in the end of the week in a central business district than do consumers from sample households in which the wife is not employed.

Regional Shopping Center

Time Per Trip in General

As was pointed out earlier, significant differences were found with respect to the average amount of time sample consumers devote to shopping on a single shopping trip within different size shopping areas. The data in Table 4.1 indicate that consumers on the average devoted 59.96 minutes to in-store shopping per trip to a regional shopping center compared to 76.72 minutes in a central business district.

Frequency of Shopping Trips

Significant differences were found to exist between both household level of income and occupational class of the head of the household with respect to the frequency of shopping trips made to a regional shopping center by sample household members. However, no significant differences were found within the remaining selected socio-economic variables of household life cycle stage, wife working outside the home and the number of automobiles owned by households.

Income.--The data in Table F-1 indicate that 42.6 percent of all consumers sampled shopped in a regional shopping

center compared to 20 percent who shopped in a central business district. When consumers are classified by annual household level of income, the results indicate that consumers from sample households earning less than $7,000 are more likely to shop in a regional shopping center than consumers from households earning $7,000 and over.

The data tend to show lower income groups, under $7,000, shopping frequently in both a central business district and regional shopping center. It is likely that consumers of such income groups shop for lower priced merchandise. Regional shopping centers would most likely have a wide selection of such merchandise and therefore, the high frequency of shopping in a regional shopping center by such groups.

Occupational Class.--The data in Table F-2 relate frequency of shopping trips made to a regional shopping center by members of sample households whose heads are of different occupational categories. The data suggest that professional and managerial and blue collar households are more likely to shop in a regional shopping center than are households whose head is a white collar worker.

Time Per Trip by Selected Socio-Economic Variables

Relationships were tested between the average amount of time consumers devote to shopping on a single shopping trip to a regional shopping center by household level of

income, occupational class of the head of the household, household life cycle stage, occupational status of the wife and the number of automobiles owned by households. No significant differences were demonstrated.

Part of the Week

Significant differences were found with respect to all of the selected socio-economic variables and the part of the week in which shopping occurred in a regional shopping center.

Income.--The data in Table F-32 indicate that differences exist between household level of income and the part of the week sample household members shop in a regional shopping center. The data suggest that consumers from sample households earning $3,000 to $5,000, $7,000 to $10,000 and $15,000 and over are more likely to shop in the weekend at a regional shopping center than consumers from households earning less than $3,000, $5,000 to $7,000 and $10,000 to $15,000 per year. Taking all sample income groups as a whole, 76.2 percent shop in the middle of the week in a regional shopping center compared to 82.7 percent in a central business district.

Occupational Class.--The data in Table F-33 indicate that differences tend to exist between occupational categories of heads of households and the part of the week household members shop in a regional shopping center. The data suggest that consumers from sample households whose

head is a white collar employee are more likely to shop on the weekend than are consumers from sample households whose heads are either professional and managerial or blue collar employees.

Life Cycle Stages.--The data in Table F-34 indicate that differences exist between consumers from households in various life cycle stages and the part of the week they shop in a regional shopping center. Consumers from households in which there is at least one preschool child and consumers from households in which there is at least one high school child or older are more likely to shop in the middle of the week than are consumers from households in other life cycle stages.

Employment Status of Wife.--The data in Table F-35 indicate that differences exist between members from sample households in which the wife does or does not work outside the home and the part of the week they shop in a regional shopping center. The data indicate that consumers from sample households in which the wife is employed tend to shop more frequently in the end of the week in a regional shopping center than do consumers from sample households in which the wife is not employed.

Number of Automobiles Owned.--Differences were found to exist between the number of automobiles households owned and the part of the week household members shop in a regional shopping center. The data in Table F-37 suggest that

consumers from households in which two or more automobiles are owned are more likely to shop in the middle of the week in a regional shopping center than are consumers from households owning one automobile or less.

Part of the Day

Of the selected socio-economic variables included in the investigation, only differences between household life cycle stages were found to be significant with respect to the part of the day members from sample households shopped in a regional shopping center. However, when taking consumers as a whole regardless of household life cycle stage, 52.1 percent shopped in the afternoon in a regional shopping center, 26.5 percent in the evening and 21.4 percent in the morning.

Life Cycle Stage.--The data in Table F-41 tend to indicate that consumers from single and retired households as well as consumers from households in which there are no children and at least one preschool child are more likely to shop in the afternoon at a regional shopping center than are households in which there exists at least one elementary school child or at least one high school child or older. Consumers from households in which there is at least one elementary school child or at least one high school child or older are more likely to shop in the evening than consumers from households of other life cycle stages. Consumers from households in which the head is retired as well

as consumers from households in which there is at least one elementary school child or at least one high school child or older are more likely to shop in the morning at a regional shopping center than are consumers from households in other life cycle stages.

Community Shopping Center

Time Per Trip in General

The data in Table 4.1 indicate that consumers on the average devoted 58.12 minutes to in-store shopping per trip to a community shopping center compared to 59.96 minutes to a regional center and 76.72 minutes to a central business district. Significant differences also were found with respect to the frequency of shopping trips made to a community shopping center by members from sample households having various socio-economic characteristics.

Frequency of Shopping Trips

Significant differences were found to exist between both household level of income and occupational class of the head of the household with respect to the frequency of shopping trips made to a community shopping center by sample household members. However, no significant differences were found within the remaining selected socio-economic variables utilized in the investigation.

Income.--The data in Table F-1 suggest that 18.1 percent of all consumers samples shopped in a community shopping

center compared to 42.6 percent who shopped in a regional shopping center and 20 percent who shopped in a central business district. When consumers are broken down by annual household level of income, the data indicate that consumers from sample households earning between $7,000 and $15,000 are more likely to shop in a community shopping center than consumers from households of other income levels. Consumers in the cited income levels probably live nearer to a community shopping center and just as a matter of convenience shop there more frequently when shopping for foods, drugs and other convenience types of merchandise.

Occupational Class.--Significant differences were found between occupational classes of the heads of households and the frequency of shopping trips made by members from sample households to a community shopping center. The data in Table F-2 suggest that consumers from blue collar households are more likely to shop in a community shopping center than consumers from professional and managerial and white collar households.

Time Per Trip by Selected Socio-Economic Variables

Significant differences were found between various household life cycle stages and the average amount of time members from sample households devote to shopping on a single shopping trip to a community shopping center. However, significant differences were not found within the other socio-economic variables utilized in the investigation.

Household Life Cycle Stage.--The data in Table F-47 suggest that households in which the head is retired and households in which there are no children or at least one preschool or elementary school child devote more time per shopping trip to a community shopping center than do households in which the head is single and households in which there is at least one high school child or older.

Part of the Week

Significant differences were not found to exist within any of the selected socio-economic variables utilized in the investigation and the part of the week members from sample households shop in a community shopping center. However, Table F-51 does indicate that when taking sample consumers as a whole, 70.5 percent shopped in the middle of the week at a community shopping center.

Part of Day

Household level of income is the only one of the selected socio-economic variables in which a significant difference exists with respect to the part of the day members from sample households shop in a community shopping center. However, when taking consumers as a whole, the data in Table F-59 indicate that 48.6 percent shopped in the afternoon compared to 30 percent in the evening and 21.4 percent in the morning.

Income.--The data in Table F-59 suggest that consumers from households earning between $7,000 and $10,000 are more likely to shop in the morning than are consumers from households of other income levels. Consumers from households earning less than $7,000 are more likely to shop in the afternoon while consumers from households earning $7,000 and over are more likely to shop in the evening at a community shopping center than are consumers from households of other income levels.

Neighborhood Shopping Center

Time Per Trip in General

The data in Table 4.1 indicate that consumers on the average devoted 33.92 minutes to in-store shopping per trip to a neighborhood shopping center compared to 58.12 minutes to a community shopping center, 59.96 minutes to a regional shopping center and 76.72 minutes to a central business district. Significant differences also were found with respect to the frequency of shopping trips made to a neighborhood shopping center by members from sample households of various income levels and occupational categories.

Frequency of Shopping Trips

Significant differences were not found between household life cycle stages, occupational status of the wife, the number of automobiles owned by the household and the frequency of shopping trips made by household members to a

neighborhood shopping center. However, when taking sample consumers as a whole 19.3 percent shopped in a neighborhood shopping center compared to 18.1 percent who shopped in a community shopping center, 42.6 percent who shopped in a regional shopping center and 20 percent who shopped in a central business district.

Income.--The data in Table F-1 suggest that consumers from sample households earning between $5,000 and $7,000 and $10,000 and over are more likely to shop in a neighborhood shopping center than consumers from households of other income levels. Nearness to a neighborhood shopping center is probably the primary reason for the above income groups to shop there more frequently when shopping for food, drugs and other convenience type merchandise.

Occupational Class.--The information in Table F-2 relates frequency of shopping trips made to a neighborhood shopping center by members from sample households whose heads are in different occupational categories. The data suggest that consumers from professional and managerial and white collar households are more likely to shop in a neighborhood shopping center than consumers from blue collar households.

Time Per Trip by Selected Socio-Economic Variables

Of the selected socio-economic variables utilized in the investigation only household level of income was found to be significant with respect to the average amount of time devoted to shopping per trip.

Income.--The data in Table F-66 show the relationship between household level of income and the average amount of time members from sample households devote to shopping on a single shopping trip to a neighborhood shopping center. The data tend to indicate an inverse relationship between level of income and time. As income increases, the amount of time devoted to in-store shopping decreases. Consumers from sample households earning between $3,000 and $5,000 devote the greatest amount of time per trip to a neighborhood shopping center. Yet according to the data in Table F-1, the $3,000 to $5,000 group make the least number of trips.

Part of Week

Occupational status of the wife is the only one of the selected socio-economic variables utilized in the investigation showing significant differences with respect to the part of the week household members shop in a neighborhood shopping center.

Employment Status of Wife.--The data in Table F-76 tend to indicate that consumers from households in which the wife is employed shop more on a weekend at a neighborhood shopping center than do consumers from households in which the wife is not employed. When taking consumers as a whole regardless of socio-economic category, 74.7 percent shopped in the middle of the week compared to 25.3 percent who shopped at the end of the week.

Part of the Day

Significant differences were found within household level of income and the number of automobiles owned by household socio-economic categories and the part of the day members from sample households shop in a neighborhood shopping center.

Income.--The data in Table F-80 indicate that consumers from households earning under $7,000 are more likely to shop in the morning than are consumers from households of other income levels. Consumers from households earning less than $5,000 and $10,000 and over are more likely to shop in the afternoon, while consumers from households earning between $7,000 and $10,000 are more likely to shop in the evening at a neighborhood shopping center than are consumers from households of other income levels. When taking sample consumers as a whole regardless of income level, 52.2 percent shopped in the afternoon at a neighborhood shopping center compared to 28.2 percent who shopped in the evening and 19.6 percent who shopped in the morning.

Number of Automobiles Owned.--The data in Table F-85 indicate that a significant difference exists between the number of automobiles owned by sample households and the part of the day household members shop. Consumers from households owning two or more automobiles are more likely to shop in the afternoon and evening in a neighborhood shopping center than consumers from households which own one or

less. Consumers from households owning one or less automobiles are more likely to shop in the morning than are consumers from households owning two or more.

Summary of Significant Findings

Time Per Trip in General

The sample data tend to indicate that as the size of the shopping area increases so does the average amount of time devoted to in-store shopping on a single shopping trip. The findings of other research indicated that the larger the shopping area the farther consumers will travel to shop in them. Since larger shopping areas have a greater variety of stores as well as a greater variety of merchandise, it seems logical that consumers would devote more time on a single shopping trip where the opportunity to choose from a greater variety of stores and merchandise exists.

Central Business District: frequency, time, part of week and day.

Twenty percent of all consumers sampled shopped in a central business district. Sample consumers most frequently shopping there came from households whose annual incomes are less than $5,000 and $10,000 and over and whose heads are professional, managerial and white collar employees. Not only did the lowest and highest income groups shop in a central business district most frequently, but they also devoted the greatest amount of time on a single shopping trip

with the exception of consumers from households earning $25,000 and over.

Over 80 percent of consumers sampled shopped in the middle of the week in a central business district. Although household income level, household life cycle stage and the number of automobiles owned by the household were not found to be related to the part of the week shopped in a central business district, the occupation of the head of the household and whether the wife is employed was found to be related. Consumers from professional, managerial and blue collar households are more likely to shop in the middle of the week than consumers from white collar households while consumers from households in which the wife is employed are more likely to shop on the weekend than are consumers from households in which the wife is not employed.

None of the selected socio-economic variables utilized in the investigation was found to be related to the part of the day consumers shop in a central business district. However, when taking all consumers sampled as a whole, 58.6 percent shopped in the afternoon, 23.6 percent shopped in the morning and 17.8 percent shopped in the evening.

Regional Shopping Center: frequency, time, part of week and day.

More than twice as many of the consumers sampled shopped in a regional shopping center than shopped in a central business district. Sample consumers who most frequently shopped

in a regional shopping center came from households whose annual incomes are under $7,000 and $15,000 and over and whose heads are professional, managerial and blue collar employees.

More than 76 percent of consumers sampled shopped in the middle of the week in a regional shopping center. When consumers are broken down by household socio-economic classifications, consumers from households having income levels of less than $3,000, $5,000 to $7,000 and $10,000 to $15,000 and whose heads are either professional, managerial or blue collar employees are most likely to shop in the middle of the week. In addition, consumers from households in which there is at least one preschool child or at least one high school child or older, the wife does not work and two or more automobiles are owned are also most likely to shop in the middle of the week at a regional shopping center.

The only socio-economic variable found to have a significant relationship with respect to the part of the day household members shop in a regional shopping center was the life cycle stage. Consumers from households in which there is at least one elementary school child are most likely to shop in the evening than at any other time. Consumers from households in all other life cycle stages are most likely to shop in the afternoon than at any other time. Taking all consumers as a whole regardless of the socio-economic classification of the household, 52.1 percent shopped in the

afternoon, 26.5 percent shopped in the evening and 21.4 percent shopped in the morning in a regional shopping center.

Community Shopping Center: frequency, time, part of week and day.

More than 18 percent of all consumers sampled shopped in a community shopping center. Sample consumers who most frequently shopped there came from households whose annual incomes are between $7,000 and $15,000 and whose heads are blue collar employees.

The only socio-economic classification utilized in the investigation which resulted in a significant difference with respect to the time devoted to in-store shopping on a single shopping trip to a community shopping center is the household life cycle stage classification. Households in which the head is retired and households in which there are no children or at least one preschool or elementary school child devote more time per shopping trip to a community shopping center than do households in which the head is single and households in which there is at least one high school child or older.

None of the socio-economic classifications utilized in the investigation showed significant differences with respect to the part of the week shopping occurs in a community shopping center. However, when taking all consumers sampled who shopped in a community shopping center, 70.5 percent shopped in the middle of the week.

Household level of income is the only socio-economic classification which resulted in significant differences with respect to the part of the day shopping occurs in a community shopping center. Consumers from households earning between $7,000 and $10,000 are more likely to shop in the morning than are consumers from households of other income levels. Consumers from households earning less than $7,000 are more likely to shop in the afternoon while consumers from households earning $7,000 and over are more likely to shop in the evening at a community shopping center than are consumers from households of other income levels. When all consumers are taken as a whole, 48.6 percent shopped in the afternoon at a community shopping center as compared to 30 percent in the evening and 21.4 percent in the morning.

Neighborhood Shopping Center: frequency, time, part of week and day.

More than 19 percent of all consumers sampled shopped in a neighborhood shopping center. Sample consumers who most frequently shopped there came from households whose annual incomes are between $5,000 and $7,000 and $10,000 and over and whose heads are professional, managerial and white collar employees.

Although consumers from the aforementioned income groups shopped most frequently at a neighborhood shopping center, they did not devote the greatest amount of time on a single shopping trip. The sample data demonstrate

an inverse relationship between household level of income and the average amount of time household members devote to shopping on a single shopping trip. Consumers from households earning between $3,000 and $5,000 per year devoted more than 63 minutes on the average for a single shopping trip which was 27 minutes longer than any other group. The least amount of time devoted to shopping on a single shopping trip at a neighborhood shopping center were by consumers from households earning $15,000 and over.

Consumers from households in which the wife does not work are more likely to shop in the middle of the week at a neighborhood shopping center than consumers from households in which the wife does work. No other socio-economic classification utilized in the investigation resulted in a significant relationship with respect to the part of the week shopping occurs. When taking all consumers sampled as a whole who shopped in a neighborhood shopping center, 74.7 percent shopped in the middle of the week as compared to 25.3 percent who shopped at the end of the week.

Household level of income and the number of automobiles owned were found to be significant with respect to the part of the day shopping occurs in a neighborhood shopping center. Consumers from households earning less than $5,000 and $10,000 and over and who own two or more automobiles are most likely to shop in the evening. Consumers from households earning under $7,000 and who own one or less automobiles

are most likely to shop in the morning. When taking sample consumers as a whole who shopped in a neighborhood shopping center, 52.2 percent shopped in the afternoon, 28.2 percent shopped in the evening and 19.6 percent shopped in the morning.

Implications and Conclusions

The average amount of time consumers in general devote to shopping on a single shopping trip in a particular shopping area is a function of its size. As the size of the shopping area increases, so does the average amount of time devoted to shopping there. Previous research indicate that as the size of the shopping area increases, the further consumers are willing to travel to get there. Since consumers travel further and shop longer as size of shopping area increases, one may also conclude that the rate of multi-purpose shopping trips is also related to shopping area size. The larger the shopping area, the greater is the variety of goods and services available and therefore, the greater is the opportunity for fulfilling shopping objectives on a single shopping trip.

The frequency of shopping trips made to different size shopping areas as well as the different average times spent there may also be indicative of the product search requirements of individual consumers. The research findings indicate that level of income is related to both frequency of shopping trips made to shopping areas as well as the time consumers devote to shopping there. For example, the frequency

of shopping trips made to a central business district is higher for income groups earning less than $5,000 and $10,000 and over. The time devoted to shopping on a single shopping trip is also higher for the same groups. Consumers from lower income groups shop frequently in a central business district because of their closer proximity to the area and therefore, shop there as a matter of convenience. However, higher income groups shop there for other reasons. As income increases, so does the social significance of certain types of merchandise. It becomes necessary to shop for unique and the best quality goods one can afford. The best quality and selection of socially significant merchandise is found in a central business district where a number of stores are located carrying similar categories of goods. Thus, higher income groups have the opportunity to perform more intensive searching in a central business district for the merchandise they require, and therefore, shop there more frequently than other income groups.

Less time is devoted on a single shopping trip as size of center diminishes because the opportunity for product searching diminishes. Regional shopping centers have relatively few competing stores while community and neighborhood shopping centers often times have none. Therefore, as the degree of necessary product search diminishes so does the time devoted to shopping on a single shopping trip. Thus, the time devoted to shopping on a single shopping trip in

different size shopping areas is related to the extent consumers can achieve multi-purpose shopping objectives and the degree of product searching consumers feel necessary to perform.

It is quite evident from the data that regional shopping centers do take a significant amount of business away from the central business district. If the central business district is to compete more favorably with a regional shopping center, more medium priced merchandise must be sold to appeal to middle income groups. In addition, the parking and traffic congestion problems must be reduced if attempts are to be successful.

Community and neighborhood shopping centers serve as convenient locations for the purchase of inexpensive items such as foods, drugs, hardware and alike. Shopping in them appears to be a matter of locational convenience rather than any other factor.

Although shopping over the week as a whole is fairly evenly distributed in all shopping areas, the greatest concentration of shopping occurs in the middle of the week. However, the end of the week became more popular as the size of shopping area decreased.

The most popular part of the day for shopping in all shopping areas is the afternoon. However, a direct relationship exists between size of shopping area and the popularity of the afternoon for shopping.

Inconsistencies have occurred in the results with respect to levels of household income and occupational category of the head of the household and the frequency of shopping by household members in a central business district and regional shopping center. For example, members from households whose total household income is less than $5,000 and $10,000 and over are most likely to shop in a central business district. However, members from households whose head fell into professional, managerial and white collar categories were found to be the most frequent shoppers in a central business district. Members from households whose total household income is under $7,000 but whose head was either a professional, managerial or blue collar employee were found to most frequently shop in a regional shopping center. The general connotation of occupational hierarchies with respect to income is blue collar-low income, white collar-middle income and professional and managerial-high income. It would appear that there should be a direct relationship between the level of income and the occupational category. However, the findings did not demonstrate the relationship. Therefore, the investigator must conclude that the occupational categories utilized in the investigation do not reflect differences in the frequency of shopping and time devoted to shopping on a single shopping trip by members of households whose heads are of different occupational categories.

Suggestions for Future Research

Research is needed with respect to which categories of consumers would be amenable to changes in weekly time schedules of retail stores. Furthermore, the research performed in the investigation serves only as a bench mark to measure future research along the same lines to determine changes that might take place with respect to the temporal aspects of consumer behavior.

Because of the occupational inconsistencies with level of income which were encountered in the investigation, a more detailed occupational categorization will have to be formulated. The occupational categories need to be more consistent with annual incomes.

Distance traveled and time devoted to shopping on a single shopping trip are related to size of center. However, research needs to be performed to determine the relationship of size of shopping area to per trip expenditures.

Further research needs to be performed with respect to consumer product search activity. For what types of products and to what extent does product searching occur? Are there any particular demographic characteristics that are related to the searching activity? Such research would be important in terms of channel selection as well as possible new retailing techniques.

Further research should be performed on the multi-purpose shopping activities of consumers. What types of goods are more often shopped for compared to other goods? Research in the area would be important for purposes of determining the most efficient arrangement of stores for purposes of making shopping trips most convenient for consumers.

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APPENDICES

APPENDIX A

DEFINITIONS

DEFINITIONS

1. Time devoted to shopping is defined as that time devoted to in-store shopping.

2. Single trip is defined as any shopping trip that begins at any destination (including the home) and ends at a shopping destination.

3. Travel time is defined as the time involved in traveling from an origin to a single shopping destination. If a non-shopping destination immediately follows a shopping destination, the time devoted to travel to the non-shopping destination will be considered as part of the travel time.

4. Central Business District is defined as an area of very high land valuation, an area characterized by a high concentration of retail businesses, offices, theaters, hotels and service businesses and an area of high traffic flow.

5. Regional shopping center is defined as a planned shopping development under common ownership with off-street parking provided on the property and consisting of 50 stores or more.

6. Community shopping center is defined as a planned shopping development under common ownership with off-street parking provided on the property and consisting of at least 15 stores but less than 50.

7. A neighborhood shopping center is defined as a planned shopping development under common ownership with off-street parking provided on the property and consisting of less than 15 stores.

8. Planned shopping center is defined as a shopping center initiated by a private or collective organization and is so planned that its development may be registered in terms of adequate parking facilities, balanced shopping facilities, controlled competition and attractive appearance.

9. Household is defined as a person or group of persons living together with a common budget.

10. Level of income is defined as before tax annual family income derived from all sources and is to be classified as follows: Under $3,000, $3,000 to $4,999, $5,000 to $6,999, $7,000 to $9,999, $10,000 to $14,999, $15,000 to $24,999 and $25,000 and over.

11. Occupation is defined as blue collar, white collar and managerial and professional workers. Blue collar workers include craftsmen, foremen and kindred workers, operatives and kindred workers, private household workers and other service workers. White collar workers include clerical and kindred workers and sales workers. Professional and managerial workers include professional, technical and kindred workers, farmers and farm managers, and managers, officials and proprietors.

12. Single household is defined as a household in which the head is not married, widowed or divorced and in which no children reside.

13. Married - no children is defined as a household in which the head is under age sixty-two.

14. Preschool children household is defined as a household in which any member is under the age of six.

15. Elementary school children household is defined as a household in which the youngest member is between the ages of six but less than twelve.

16. High school children or older household is defined as a household in which the youngest member is twelve or older.

17. Retired is defined as a household in which the head is unemployed and sixty-two years of age or older.

18. Part of day is divided into morning, afternoon and evening. Morning is defined as the hours between 8 a.m. to 12 noon. Afternoon is defined as the hours between 12 noon and 6 p.m. Evening is defined as the hours after 6 p.m.

19. Part of week is divided into middle of the week and week-end. Middle of the week is defined as Monday through Friday. Week-end is defined as Saturday and Sunday.

APPENDIX B

SAMPLE SELECTION PROCEDURES

SAMPLE SELECTION PROCEDURES

Sample Size

Five percent of the Region's approximately 90,000 households were selected as the sample. The percentage yielded approximately 4,500 household interviews. The basis for the percentage was that, according to our transportation consultant, Alan M. Voorhees and Associates, it would yield sufficient data to facilitate the necessary statistical expansions and analyses for the Region as a whole and its 64 analysis areas.

Sampling Methods

When selecting a sample to represent the total population, the method with the highest probability is a completely random one. That is, people selected in a random sample would be more likely to give answers which represent the travel habits and attitudes of the remainder of the Region's inhabitants than other sampling methods. This method consists of (1) selecting the first sample n from an unordered population N, (2) intermixing the population N, and (3) selecting sample n+1. This procedure is repeated until the desired number of samples are obtained.

Unfortunately, the size of the population is quite large and intermixing the population prior to each sample selection would prove cumbersome. This, plus the fact that the population is heterogeneous, led to selecting the systematic sampling technique. While the probability of this method is lower than the random sampling technique, it still yields highly satisfactory results.

In the selection of a systematic sample, a sampling rate must be determined based on the estimated total population and the total number of samples desired. As previously mentioned, a five percent household sampling rate was selected. In order to obtain the percentage of completed interviews, and it was necessary to oversample to allow for such circumstances as vacant houses, refusals, and unusable interviews. Therefore, a household sampling rate of one in every thirteen was used, yielding 6,933 samples.

Sources of Information

The population is only as complete as the sources used to obtain it. In determining the household population the following sources were considered:

1. Field selecting the sample by driving the entire Region, following a prescribed pattern, was considered. However, due to the sparsely settled character of much of the Region and the vase area encompassed (1700 square miles), the field as an information source was rejected.

2. Using 1962 land use maps, prepared by the Tri-County Regional Planning Commission, and Sanborn Atlas Maps to select the sample was considered.

These information sources were rejected as the land use maps were not up-to-date and the Sanborn Atlas Maps did not cover the entire Region.

3. Power company electrical records were explored as a possible source. It was found that the residents of the Region are served by four power companies, with two areas in the Region being served indirectly by these power companies. These two areas are the City of Eaton Rapids and Michigan State University, both of which received their power from Consumers Power Company but do their own billing. As all the households in the entire Region at the present time are represented in these power company records, this information source was selected.

Therefore, the information sources from which the sample was selected consisted of the following:

1. Consumers Power Company (excepting Eaton Rapids City and Michigan State University)
2. Detroit Edison Company
3. Tri-County Electrical Cooperative
4. Lansing Board of Water and Light
5. City of Eaton Rapids
6. Michigan State University

The areas for which each of these sources have information are indicated on Figure B-1.

Refinement of Information

When the meter address cards were received from the various power companies, they represented many land uses. Since only households were to be interviewed, the residential meter address cards were the only ones of significance. Due to the fact that Consumers Power Company provided the information for their service area on keypunched cards, a sorter

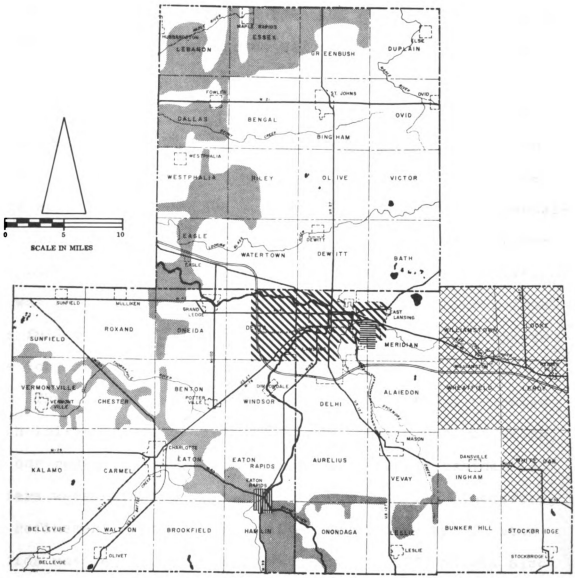


Figure B.1--Electric service areas.

was used to remove the non-residential meter address cards from their records.

Most of the non-residential cards had been removed from the Detroit Edison Company keypunched card records by their staff. Non-residential cards discovered in a Tri-County staff field check were removed manually.

Since Lansing Board of Water and Light and the Tri-County Electrical Cooperative data were not on keypunched cards, manual sorting of these cards was required. There were approximately 49,500 address cards to be sorted manually. Of these, 47,900 were from the Lansing Board of Water and Light and 1,600 from Tri-County Electric Cooperative. It was not economically feasible to allocate manpower from the full-time staff of the Planning Commission to complete the job, so part-time help was employed.

The City of Eaton Rapids, using their staff, selected each thirteenth household from their billing records which, at our request, included inactive meters. Non-residential meters were excluded when selecting the sample. Therefore, no refinement of the data obtained from the City of Eaton Rapids was required by the Commission's staff, as was also the case with the data obtained from Michigan State University and all group quarters information sources.

Sample Selection

Prior to selecting the sample, the population was ordered. An attempt was made to pick the first sample from

the northeast corner of the Region and then sample the Region following a serpentine pattern. (See Appendix C.) Each information source was completely sampled before sampling the second source, as the state of the data varied substantially among the different information sources. In order to maintain, as closely as possible, the serpentine pattern of sample selection, the six household information sources were sequenced as follows:

1. Tri-County Electrical Cooperative
2. Lansing Board of Water and Light
3. Michigan State University
4. Consumers Power Company combined with the City of Eaton Rapids sample
5. Detroit Edison Company

After the population was placed in this order, the number of the first sample was determined. A random number was chosen from a table of random numbers. The number chosen was three. Therefore, the third card in the Tri-County Electrical Cooperative deck was the first sample selected, the second sample was the sixteenth card, and the third the twenty-ninth card. When the last sample had been obtained from the Tri-County Electrical Cooperative deck, there remained a number of cards (necessarily less than 13). This remainder constituted the first part of the count in sampling the second information source, the Lansing Board of Water and Light. For example, if five cards remained in the Tri-County deck after the last sample, then the first card in

the Board of Water and Light deck would be number six and the first sample would actually be the eighth card in the Board of Water and Light deck. The cards within the deck of each information source were ordered when possible in the township sequence portrayed in Appendix C. For instance, meter addresses in Greenbush Township on Tri-County Electrical Cooperative 3 x 5 cards would come first, followed by Essex, Lebanon, Dallas and Bengal Townships in that order.

The actual selection of the sample was accomplished manually, even though a number of meter addresses were on punched cards. The reasons for the manual selection were as follows: (1) a number of the punched cards were bent too badly to be machine processed, and (2) this provided an additional edit as the individual selecting the sample verified that only residential cards were in the decks.

Below is an outline of the general procedures followed in selecting the household sample:

1. The sampling began with Box No. 1, which contained Tri-County Electrical Cooperative records, and continued through all sources of information in sequential order until the last sample card was obtained.

2. A stack of cards was removed from the front of the first box.

3. The stack removed did not exceed three inches in height.

4. Each stack was placed face up on the table in the position designated. "All-Residential Deck."

5. The designated positions for the cards were as follows:

Non-Sample Cards		Sample Deck
	All-Residential Deck	

6. Twelve (12) cards were taken from the top of the stack, one at a time, and placed face down in position indicated as "Non-Sample Cards."

7. The 13th card was placed face down in the position indicated as "Sample Deck."

8. The next 12 cards were then removed from the top of the stack and placed face down on top of the 12 removed previously.

9. The 13th card was again placed face down on top of the 13th card removed previously.

10. This procedures was continued until the stack contained 12 or less cards.

11. The stack of "Non-Sample Cards" (face down on the table) were replaced in the box in the same sequential order as removed.

12. The next stack of cards were removed from directly behind the stack replaced in step No. 11.

13. The (less than 12 cards) stack was removed from the "All-Residential" position, and the new stack was placed face up in this same location.

14. The (less than 12 cards) stack was placed face up on top of the new stack.

15. The procedure outlined in steps 5-10 was then repeated.

16. The procedure for handling the less-than-12-card portion of each stack (steps 11-14) was followed also when changing from one box to the next.

17. The sample deck cards were kept in groups of 25 (for coding purposes) and placed in boxes in the same order in which they were selected.

Use of Computers

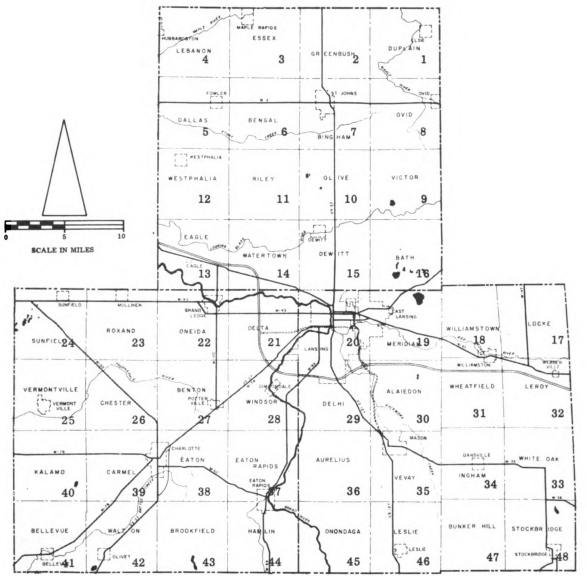
By using a computer, many man hours were saved during the pre-interview phase of the Home Interview Survey. A 1401 computer was used to extract the name, postal address, and sample number from the punched cards. The computer then reproduced this data on two sets of perforated 3 x 5 cards and one set of gum labels. The two sets of 3 x 5 cards were given to National Analysts, Inc., the firm contracted with to conduct the Home Interview Survey. One set of cards was retained by them as a written record of each sample. The additional set was given to the individual interviewers to take into the field. The gum labels were used to mail pre-interview materials to each household and group quarters resident selected to be interviewed. The sample number was recorded on each 3 x 5 card and gum label to assist in keeping record of interview assignments and processing undelivered pre-interview letters.

APPENDIX C

ARRANGEMENT OF HOUSEHOLD UNIVERSE INFORMATION

APPENDIX - C

ARRANGEMENT OF HOUSEHOLD UNIVERSE INFORMATION



Note:
The housing units in Duplain Township and Elsie Village were sampled first and those in Stockbridge Township and Stockbridge Village last.

APPENDIX D

ACCURACY CHECKS AND PUBLIC RELATIONS PROCEDURES

ACCURACY CHECKS AND PUBLIC RELATIONS PROCEDURES

During the course of the Home Interview Survey certain checks were made to assure reliable and adequate survey results. These checks were made not only during the sample selection, coding and processing phases, but also during and following the actual interviewing period as well. These checks are discussed in the accuracy checks section of this chapter. Due to the fact that some of these checks have a secondary function of cementing good public relations, the discussion of public relations procedures has been included in this appendix.

Accuracy Checks

The checks made by the Tri-County staff on all questionnaires during the various phases of the Home Interview Survey include the following:

1. All steps followed in the refinement of information, selection of sample and coding of sample phases were checked by a person different from the one who did the original work.

2. All completed questionnaires were submitted by National Analysts, Inc., the firm doing the interviewing, to the Commission staff for review. Each interview was checked for accuracy and completeness. All deficiencies were noted on a separate correction sheet. No marks were made on the questionnaires by any Commission

staff member without permission from National Analysts, Inc. Inadequate questionnaires were returned to the field supervisor for National Analysts, Inc., for correction and resubmittal to the Commission.

3. Each completed questionnaire, after receiving final Commission approval, was plotted on overlays for one of two maps . . . the 1"= 1,000' Lansing Area map or the 1"=1 mile Tri-County Region map. As the traffic zones had also been drawn on overlays at the same scale as these maps, the volume and distribution of completed approved questionnaires within each zone were compared to the 1960 census population and 1962 land use maps. Deficiencies were noted and discussed with the home interview survey field supervisor. In two areas, the village of Ovid and southeast Lansing, additional interviewing was necessary as these two areas had been inadvertently omitted when obtaining the household universe.

4. As each completed questionnaire received approval, the household sample number and other information were recorded and tabulated. Total trips per household, auto driver trips per household and other statistics were compared with the results obtained in studies conducted elsewhere in the Nation. Low trip reporting was one of the items revealed by this check. The field supervisor was informed and corrective measures were taken.

5. The number of housing units in certain designated small areas were enumberated and compared using the following sources and techniques: (a) the number of samples for each census tract and minor civil division in the Region was multiplied by thirteen (the sampling rate used to obtain the 6,947 samples) to obtain the number of housing units in Spring, 1965; (b) the number of housing units in each census tract and minor civil division in the Region in April, 1960 was obtained from the 1960 census of population and housing; (c) the number of housing units in each census tract in the Lansing area, includes East Lansing, for the Spring of 1965 was obtained using residential building permits to update the 1960 census; (d) the number of housing units in each census tract in the cities of East Lansing and Lansing in Fall 1964 were obtained using 1964

R. L. Polk Company canvas results; and (e) the number of housing units in 1962 in each census tract and minor civil division in the Region was obtained using 1962 land use survey results. Many discrepancies were noted among the different housing unit totals obtained in (a) through (e). Field checks were made to determine which figures represent the true picture.

In addition, approximately ten percent of the household questionnaires were verified by telephone. The following procedures were followed in making this telephone verification.

a. No question is to be asked which is likely to antagonize the respondent.

b. Do not call a respondent before 10:00 a.m.

c. Call one of every five respondents.

d. Calls should be brief (about one minute in length).

e. Have the questions you are checking in front of you before you call the respondent.

f. It is permissible to ask other questions if they will serve to clarify answers.

g. Give your closing comments a personal touch; do not give the respondent a stereotyped, memorized statement.

One question asked of most respondents pertained to how the interview was conducted. The response was favorable in most instances. Other questions were structured to investigate low trip reporting, incomplete information and apparent inconsistencies.

Finally, once the interviewing was completed and the keypunched card formats determined, the Commission staff

prepared edit specifications to assure that coding of the Survey results was complete and accurate.

Public Relations Procedures

Good public relations were considered to be a vital ingredient in the Home Interview Survey program as such relations affect the success realized in each interview, the image of the Tri-County Planning Commission in particular, and the planning effort in general. The attempt was made to inform the general public before the Home Interview Survey began and to keep them informed as the Survey progressed.

Approximately a week before the first interview were taken, a press conference was held to inform the various news media in the Region including eight radio stations, three television stations and nineteen newspapers of the purpose and significance of the Survey. The Chairman of the Planning Commission, the Executive Director and Assistant Director of the Planning Commission staff and the Vice-President and Director of the Social Science Department of the National Analysts, Inc., were present to provide information on the details of the Survey.

An information packet was distributed to each of these 30 news agencies. These packets contained (1) a letter from Governor Romney expressing the need for and his support of the Home Interview Survey, (2) a brochure entitled "Home Interview Survey" explaining the purpose, financing and

other aspects of the Survey, and (3) three information reports entitled "Regional Planning Program: an Overview," "Background and General Information on the Tri-County Regional Planning Commission," and "Background and General Information on the Regional Planning Program."

In addition, two radio appearances were made explaining the Survey. Prior to the beginning of the Survey, the Assistant Director of the Commission staff and the Vice-President and Director of National Analysts, Inc., answered questions from the listening audience regarding the Survey on an hour long local radio show. During the course of the Survey, a Senior Planner on the Commission staff, in a fifteen minute radio interview, described the Home Interview Survey, how the Survey was progressing and some preliminary findings. Also, the progress of the Survey was followed closely by the local newspapers, who were aided by news releases distributed by the Commission staff.

Besides informing the general public, each household to be interviewed was mailed the Governor Romney letter and "Home Interview Survey" brochure about one week prior to the day of the interview. The gum labels obtained from the computer program mentioned in Appendix B was used to address the envelopes. After the Survey was well underway a slip was added to the letter contents emphasizing that, in the event of questions, the Tri-County Regional Planning Commission should be contacted by telephone or letter.

APPENDIX E

QUESTIONNAIRE

National Analysts, Inc.
Philadelphia, Penna.

Study #1-543
Spring, 1965

TRANSPORTATION AND ACTIVITIES STUDY

EATON, INGHAM AND CLINTON COUNTIES, MICHIGAN

Time interview began:_____A.M._____P.M.

Time interview ended:_____A.M._____P.M.

Household #_____

Name_____

Address_____

_____

INTRODUCTION: I am_____ from National Analysts, Inc. a research organization, conducting a study among people in Eaton, Ingham and Clinton Counties. I presume you received a letter a few days ago from Governor Romney informing you of this study and telling you that an interviewer would come by to talk to you about trips and activities of members of this household.

Interviewer:_____ Date:_____

I. HOUSEHOLD LISTING

Respondent's Name: _____

1. Would you tell me who lives in this household, including any out of town guest who was staying in the household over the past 24 hours. Start with the head of the house, and give me the age, relationship to head of household, and sex of each person. (COL. 1)
2. (IF NOT OBVIOUS, ASK:) Is the head of the house married, widowed, divorced, separated or never married? (COL. 2)
3. Would you tell me which of these people ever drive a car or truck. (COL.3)

(FOR EACH PERSON 18 OR OVER, ASK:)

4. Is _____ now employed full-time, part-time, not employed, or a student? (COL. 4)
5. What kind of work does _____ do? (DUTIES & INDUSTRY IN COL. 5)
6. What is the address of his place of employment? (COL. 5)
7. What was the highest grade of school _____ completed? (COL. 6)
8. How many cars are available for this family's use? _____
9. (FOR EVERYONE 5 YEARS AND OLDER, ASK:) From 4 A.M. yesterday to 4 A.M. today, did _____ go any place other than by walking, e.g., by car, bus, or taxi? (COL. 7)

Q. 1 Column 1							Q. 2 Column 2						Q.3 Col.3		Q. 4 Column 4				Q's. 5,6 Column 5			Q. 7 Column 6			Q. 9 Column 7		
Person #	Age	Relationship	Sex M	Sex F	Sex W	Sex O	Marital Status M	Marital Status W	Marital Status D	Marital Status S	Marital Status NM	Driver Yes	Driver No	Employed Full	Employed Part	Employed No	Student	Duties	Industry	Address	Elementary	H.S.	College	Yes	No	D.K.
1		Head	1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
2			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
3			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
4			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
5			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
6			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
7			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
8			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			
9			1	2	1	2	1	2	3	4	5	1	2	1	2	3	4				1 2 3 4	1 2	1 2 3	1	2	V
																					5 6 7 8	3 4	4 5			

Total in HH [ ]

Total Working [ ]

II. INTERNAL TRIP REPORT

Let's start with the first trip _____ made yesterday.

10. Where did he start from, and where did he go? (COL. 1)
(PROBE - "Did he go directly there, or did he stop enroute?")

11. What time did he start, and what time did he arrive? (COL. 2)
(REPEAT FOR ALL TRIPS THE PERSON TOOK YESTERDAY.)

(REPEAT Q'S. 10 & 11 FOR ALL PERSONS WHO TOOK TRIP YESTERDAY.)

Now let's go back to the first trip _____ took yesterday, at _____ o'clock.

12. What kind of place did he leave from (what is it used for) and to what kind of place did he go? (COL. 3)

13. What was the purpose of the trip? (CODE # IN COL. 4)

14a. How did _____ get there? (CODE # IN COL. 5)
(IF "BY CAR")
14b. Was _____ the driver or a passenger in the car? (COL. 5)
(IF "BY CAR" SKIP TO Q. 16)

15. If _____ wanted to go by car, did he have a car available then? (COL. 6) (NOW CONTINUE WITH NEXT TRIP)

16. Including _____, how many people were in the car? (COL. 7)

(ASK Q. 17 ONLY IF _____ WAS THE DRIVER)
17. What kind of parking facility did he use? (CODE # IN COL. 8)

QUESTION 13 - PURPOSE OF TRIP

1	To work	6	Change travel mode
2	Personal business	7	Shopping
3	Medical-Dental	8	Recreation and ride
4	School	9	Home
5	Social-eat meal	0	Business
		V	Serve passenger

QUESTION 14a-14b - MODE OF TRAVEL

1	Auto driver	5	Taxi passenger
2	Auto passenger	6	Truck passenger
3	Bus	7	Walk to work
4	School bus		

QUESTION 17 - PARKING

1	Street free	6	Garage paid
2	Street meter	7	Service or repairs
3	Lot free	8	Residential property
4	Lot paid	9	Cruised
5	Garaged free	0	Not parked

Column 1				Column 2		Column 3		Col.4		5	Col. 6		Col.7	Col.8
Person No.	Trip No.	Where did he start from? (origin)	Where did he go? (destination)	Time of Trip Start	Time of Trip Arrive	What kind of place did he leave from?	What kind of place did he go to?	Purpose of Trip From	Purpose of Trip To	Mode of Travel	Car Available Yes	Car Available No	Number of Passengers	Type of Parking
				A.M. / P.M.	A.M. / P.M.						1	2		
				A.M. / P.M.	A.M. / P.M.						1	2		
				A.M. / P.M.	A.M. / P.M.						1	2		
				A.M. / P.M.	A.M. / P.M.						1	2		
				A.M. / P.M.	A.M. / P.M.						1	2		
				A.M.	A.M.									

				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		
				A.M. P.M.	A.M. P.M.					1 2		

III. RESIDENTIAL MOBILITY

We have just a few questions about the places of residence of the head of the household.

18. When did the head of the HH first move into the present house/apartment? (COL. 1) (IF 1950 OR EARLIER, SKIP TO Q. 22)

19. Where did he/you live just before that, and when did he/you move there? (COL. 1) -- REPEAT Q.19 FOR 3 ADDRESSES, BUT DO NOT GO BEYOND 1950. IF 1950 OR EARLIER, SKIP TO Q. 22.

20. When did you first get your own home or apartment? YEAR:________

(IF SINGLE, 2-FAMILY, OR TRAILER, ASK Q.26, OTHERWISE SKIP TO Q. 29)

26. Do you own, or do you rent this home?

	Own	1
(SKIP TO Q.29)	Rent	2
	Other	3

27. On today's market, how much do you think your present home is worth? $: ______

(INSERT DATE OF Q.20 INTO Q.21 - IF DATE IN Q.20 WAS 1950 OR EARLIER, INSERT 1950 INTO Q.21.)

21. Between the time he/you moved into the last address you gave me, and the year (Q.20 OR 1950), how many other places did he/you live?

OF PLACES:_____

22. (START WITH LAST ADDRESS GIVEN) Speaking about the last address you gave me, what was your/his main reason for moving to that particular home? (CODE # IN COL. 2)

23. When you moved in, were you/was he married, widowed, divorced, separated, or never married? (COL. 3)

24. How many people were living with you/him when you moved in? (COL. 4)

(REPEAT Q'S. 22 THROUGH 24 FOR ALL 4 ADDRESSES)

25. (ASK ABOUT PRESENT ADDRESS) What kind of a building is this? (CODE # IN COL. 5)

28. About how old is this house?

(NOW, SKIP TO Q. 30)

YEARS:_____

29. How much is your monthly rent?

$:_____

30. Not counting the bathrooms, how many rooms do you have here?

OF ROOMS:_____

31. How many cars does this family own?

OF CARS:_____

32. (IF 1 HOUR INTERVIEW SKIP TO Q. 32) (SHOW R. INCOME CARD) In order to classify the different families in this study we need to know the annual family income. Would you look at this card and tell me which letter comes closest to your family income?

LETTER:_____

QUESTION 22 - REASONS CODE

01	Just to have our own home/apartment	08	Present house/apartment no longer available
02	To be rid of a house, and have an apartment instead	10	Company moved to new area
03	Need a larger house/apartment	11	Changed job
04	Need a smaller house/apartment	12	To live in better neighborhood
05	Want better house/apartment	13	Convenience (closer to school, shopping, job, friends, church, etc.)
06	Can't afford the present house/apartment	00	Other
07	To be near transportation		

QUESTION 25 - KIND OF BUILDING CODE

1	Single family	5	Hotel/motel
2	Two family	6	Institution
3	3+family apartment	7	Trailer
4	Rooming house	8	Row home
		0	Other

Q's. 18 & 19 - Column 1		Q.22 - Column 2	Q. 23 - Col. 3					Q.24 - Col.4	Q. 25 - Col. 5
			Marital Status					# of People	
Date Moved	Home Address	Reasons	M	W	D	S	NM	Living There	Kind of Building
	Present Address: [redacted]		1	2	3	4	5		
			1	2	3	4	5		
			1	2	3	4	5		
			1	2	3	4	5		

APPENDIX F

DERIVED STATISTICS AND SUPPORTIVE DATA

TABLE F-1.--Frequency of Shopping Trips Made to Different Shopping Areas by Various Income Groups.

Shopping Area	Income Group: Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000- & Over	Total
Central Business District	13 18.0	23 22.5	30 15.0	50 20.0	54 22.7	21 22.6	191 20.0
Regional Shopping Center	36 50.0	47 46.1	97 48.5	100 40.0	87 36.6	40 43.0	407 42.6
Community Shopping Center	12 16.7	17 16.7	30 15.0	59 23.6	47 19.7	8 8.6	173 18.1
Neighborhood Shopping Center	11 15.3	15 14.7	43 21.5	41 16.4	50 21.0	24 25.8	184 19.3
Total	72 100	102 100	200 100	250 100	238 100	93 100	955 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-2.--Frequency of Shopping Trips Made to Different Shopping Areas by Various Occupational Groups.

Shopping Area	Occupational Group: Professional & Managerial	White Collar	Blue Collar	Total
Central Business District	83 21.8	39 22.7	75 18.0	197 20.3
Regional Shopping Center	167 43.8	70 40.7	176 42.3	413 42.6
Community Shopping Center	46 12.1	26 15.1	101 24.3	173 17.9
Neighborhood Shopping Center	85 22.3	37 21.5	64 15.4	186 19.2
Total	381 100	172 100	416 100	969 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-3.--Frequency of Shopping Trips Made to Different Shopping Areas by Various Household Life Cycle Groups.

	Household Life Cycle						
Shopping Area	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
Central Business District	16 28.1	61 18.7	47 21.5	34 18.8	23 18.3	16 27.1	197 20.3
Regional Shopping Center	25 43.9	141 43.1	87 39.7	84 46.4	53 42.1	23 39.0	413 42.6
Community Shopping Center	8 14.0	64 19.6	41 18.7	28 15.5	23 18.3	9 15.3	173 17.9
Neighborhood Shopping Center	8 14.0	61 18,7	44 20.1	35 19.3	27 21.4	11 18.6	186 19.2
Total	57 100	327 100	219 100	181 100	126 100	59 100	969 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-4.--Frequency of Shopping Trips Made to Different Shopping Areas by Occupational Status of Wife.

	Wife Employed or Not		
Shopping Area	Not Employed	Employed	Total
Central Business District	162 20.9	35 18.0	197 20.3
Regional Shopping Center	323 41.7	90 46.4	413 42.6
Community Shopping Center	136 17.5	37 19.1	173 17.9
Neighborhood Shopping Center	154 19.9	32 16.5	186 19.2
Total	775 100	194 100	969 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-5.--Frequency of Shopping Trips Made to Different Shopping Areas by Various Automobile Ownership Groups.

Shopping Area	Automobile Ownership Groups			
	None Owned	One Owned	Two or More Owned	Total
Central Business District	6 28.6	109 20.9	82 19.2	197 20.3
Regional Shopping Center	8 38.1	221 42.4	184 43.1	413 42.6
Community Shopping Center	3 14.3	84 16.1	86 20.1	173 17.9
Neighborhood Shopping Center	4 19.0	107 20.5	75 17.6	186 19.2
Total	21 100	521 100	427 100	969 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-6.--Average Time Devoted to In-Store Shopping Per Shopping Trip in a Central Business District by Various Income Groups.

Income Group	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given
Average Time In Minutes	113.91	97.99	55.00	72.24	74.05	122.80	20.39	61.83

TABLE F-7.--Average Time Devoted to In-Store Shopping Per Shopping Trip to a Central Business District by Members of Households Whose Head Falls in Various Occupational Categories.

Occupational Group	Professional & Managerial	White-Collar	Blue-Collar
Average Time in Minutes	81.59	86.02	63.64

TABLE F-8.--Average Time Devoted to In-Store Shopping Per Shopping Trip to a Central Business District by Various Life Cycle Stages.

Life Cycle Stage	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High-School Children Or Older	Retired
Average Time In Minutes	66.51	68.49	84.88	88.18	67.57	102.31

TABLE F-9.--Average Time Devoted to In-Store Shopping Per Shopping Trip to a Central Business District by Members of Households in Which the Wife Does or Does Not Work.

Employment Status of Wife	Not Employed	Employed
Average Time In Minutes	80.08	60.01

TABLE F-10.--Average Time Devoted to In-Store Shopping Per Shopping Trip to a Central Business District by Various Automobile Ownership Groups.

Automobile Ownership Group	None Owned	One Owned	More Than One Owned
Average Time In Minutes	115.01	79.53	73.92

TABLE F-11.--Response of Consumers in Various Income Groups to the Part of the Week Shopped in the Central Business District.

Part of Week	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000- & Over	Not Given	Total
End of Week	0	1	4	5	10	6	6	1	3	36
	0	9.1	17.4	16.7	20.0	11.9	35.3	25.0	50.0	18.3
Middle of Week	2	10	19	25	40	48	11	3	3	161
	100	90.9	82.6	83.3	80.0	88.9	64.7	75.0	50.0	81.7
Total	2	11	23	30	50	54	17	4	6	197
	100	100	100	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-12[a].--Response of Consumers in Various Income Groups to the Part of the Week Shopped in the Central Business District.

Part of Week	Income Group: Under $5,000	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000 & Over	Total
End of Week	5	5	10	6	7	33
	13.9	16.7	20.0	11.1	33.3	17.3
Middle of Week	31	25	40	48	14	158
	86.1	83.3	80.0	88.9	66.7	82.7
Total	36	30	50	54	21	191
	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-12 is a collapsed version of Table F-11.

TABLE F-13.--Response of Consumers in Households Whose Head Falls in Various Occupational Categories to the Part of the Week Shopped in a Central Business District.

	Occupational Group			
Part of Week	Professional & Managerial	White Collar	Blue Collar	Total
End of Week	9	15	12	36
	10.8	38.5	16.0	18.3
Middle of Week	74	24	63	161
	89.2	61.5	84.0	81.7
Total	83	39	75	197
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right corner of each cell.

TABLE F-14.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Central Business District.

	Life Cycle Group						
Part of Week	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
End of Week	2	10	10	9	4	1	36
	12.5	16.4	21.3	26.5	17.4	6.2	18.3
Middle of Week	14	51	37	25	19	15	161
	87.5	83.6	78.7	73.5	82.6	93.8	81.7
Total	16	61	47	34	23	16	197
	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-15[a].--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Central Business District.

Part of Week	Life Cycle Group: Single and Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Retired and Married/ High School Children or Older	Total
End of Week	12	10	9	5	36
	15.6	21.3	26.5	12.8	18.3
Middle of Week	65	37	25	34	161
	84.4	78.7	73.5	87.2	81.7
Total	77	47	34	39	197
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-15 is a collapsed version of Table F-14.

TABLE F-16.--Response of Consumers in Households of Working and Non-Working Wives to the Part of the Week Shopped in a Central Business District.

	Wife Employed or Not		
Part of Week	Not Employed	Employed	Total
End of Week	25 15.4	11 31.4	36 18.3
Middle of Week	137 84.6	24 68.6	161 81.7
Total	162 100	35 100	197 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-17.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Central Business District.

	Automobile Ownership Group			
Part of Week	None Owned	One Owned	Two or More Owned	Total
End of Week	2 33.3	21 19.3	13 15.9	36 18.3
Middle of Week	4 66.7	88 80.7	69 84.1	161 81.7
Total	6 100	109 100	82 100	197 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-18[a]--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Central Business District.

Part of Week	Automobile Ownership Group: One or less owned	Automobile Ownership Group: Two or more owned	Total
End of Week	23 20.0	13 15.9	36 18.3
Middle of Week	92 80.0	69 84.1	161 81.7
Total	115 100	82 100	197 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-18 is a collapsed version of Table F-17.

TABLE F-19.--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Central Business District.

Part of Day	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
Midnight to 8 a.m.	0	0	0	0	0	0	0	1	0	1
	0	0	0	0	0	0	0	25.0	0	0.5
8 a.m. to Noon	0	1	7	9	14	10	3	0	0	44
	0	9.1	.4	30.0	28.0	18.5	17.6	0	0	22.3
Noon to 6 p.m.	2	10	14	14	24	33	12	3	6	118
	100	90.9	60.9	46.7	48.0	61.1	70.6	75.0	100	59.9
6 p.m. to Midnight	0	0	2	7	12	11	2	0	0	34
	0	0	8.7	23.3	24.0	20.4	11.8	0	0	17.3
Total	2	11	23	30	50	54	17	4	6	197
	100	100	100	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-20[a]--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Central Business District.

Part of Day	Income Group: Under $7,000	$7,000-$9,999	$10,000 and over	Total
Midnight to Noon	17	14	14	45
	25.8	28.0	18.7	23.6
Noon to 6 p.m.	40	24	48	112
	60.6	48.0	64.0	58.6
6 p.m. to Midnight	9	12	13	34
	13.6	24.0	17.3	17.8
Total	66	50	75	191
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-20 is a collapsed version of Table F-19.

TABLE F-21.--Response of Consumers in Households Whose Head Falls in Various Occupational Categories to the Part of the Day Shopped in a Central Business District.

	Occupational Group			
Part of Day	Professional & Managerial	White Collar	Blue Collar	Total
Midnight to Noon	13	13	19	45
	15.7	33.3	25.3	22.8
Noon to 6 p.m.	59	18	41	118
	71.1	46.2	54.7	59.9
6 p.m. to Midnight	11	8	15	34
	13.2	20.5	20.0	17.3
Total	83	39	75	197
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-22.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Central Business District.

Part of Day	Life Cycle Group						
	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
Midnight to Noon	2 12.5	13 21.3	13 27.6	10 29.4	2 8.7	5 31.2	45 22.8
Noon to 6 p.m.	10 62.5	36 59.0	27 57.4	19 55.9	16 69.6	10 62.5	118 59.9
6 p.m. to Midnight	4 25.0	12 19.7	7 15.0	5 14.7	5 21.7	1 6.3	34 17.3
Total	16 100	61 100	47 100	34 100	23 100	16 100	197 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-23[a]--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Central Business District.

Part of Day	Life Cycle Group: Single and Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Retired and Married/ High School Children or Older	Total
Midnight to Noon	15	13	10	7	45
	19.5	27.6	29.4	17.9	22.8
Noon to 6 p.m.	46	27	19	26	118
	60.0	57.4	55.9	66.7	59.9
6 p.m. to Midnight	16	7	5	6	34
	20.5	15.0	14.7	15.4	17.3
Total	77	47	34	39	197
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-23 is a collapsed version of Table F-22.

TABLE F-24.--Response of Consumers in Households of Working and Non-Working Wives to the Part of the Day Shopped in a Central Business District.

Part of Day	Wife Employed Or Not		Total
	Not Employed	Employed	
Midnight to Noon	38	7	45
	23.5	20.0	22.8
Noon to 6 p.m.	97	21	118
	59.9	60.0	59.9
6 p.m. to Midnight	27	7	34
	16.7	20.0	17.3
Total	162	35	197
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-25.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in a Central Business District.

Part of Day	Automobile Ownership Group			
	None Owned	One Owned	Two or more owned	Total
Midnight to 8 a.m.	0 0	0 0	1 1.2	1 0.5
8 a.m. to Noon	1 16.7	26 23.9	17 20.7	44 22.3
Noon to 6 p.m.	5 83.3	66 60.6	47 57.3	118 59.9
6 p.m. to Midnight	0 0	17 15.6	17 20.7	34 17.3
Total	6 100	109 100	82 100	197 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-25[a].--Responses of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in a Central Business District.

Part of Day	Automobile Ownership Group: One or less owned	Automobile Ownership Group: Two or more owned	Total
Midnight to Noon	27 23.5	18 22.0	45 22.8
Noon to 6 p.m.	71 61.7	47 57.3	118 59.9
6 p.m. to Midnight	17 14.8	17 20.7	34 17.3
Total	115 100	82 100	197 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-25 is a collapsed version of Table F-24.

TABLE F-26.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Regional Shopping Center by Various Income Groups.

Income Group	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 and Over	Not Given
Average Time in Minutes	45.53	43.43	71.04	53.95	63.10	53.59	78.05	184.01

TABLE F-27.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Regional Shopping Center by Various Occupational Groups.

Occupational Group	Professional and Managerial	White Collar	Blue Collar
Average Time in Minutes	50.48	58.58	65.39

TABLE F-28.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Regional Shopping Center by Various Life Cycle Stages.

Life Cycle Stage	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children Or Older	Retired
Average Time in Minutes	41.06	57.50	51.53	67.40	56.93	112.93

TABLE F-29.--Average Time Devoted to In-Store Shopping Per Shopping Trip to a Regional Shopping Center by Members of Households in Which the Wife Does or Does not Work.

Employment Status of Wife	Not Employed	Employed
Average Time in Minutes	59.19	64.17

TABLE F-30.--Average Time Devoted to In-Store Shopping Per Shopping Trip to a Regional Shopping Center by Various Automobile Ownership Groups.

Automobile Ownership Group	None Owned	One Owned	More than one owned
Average Time in Minutes	45.95	69.32	50.03

TABLE F-31.--Response of Consumers in Various Income Groups to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
End of Week	0	7	22	19	28	12	9	1	1	98
	0	25.9	46.8	18.4	28.0	13.8	33.3	7.7	16.7	23.7
Middle of Week	9	20	25	74	72	75	18	12	5	315
	100	74.1	53.2	81.4	72.0	86.2	66.7	92.3	83.3	76.3
Total	9	27	47	97	100	87	27	13	6	413
	100	100	100	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE 32[a]--Response of Consumers in Various Income Groups to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Income Group						
	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000- & Over	Total
End of Week	7	22	18	28	12	10	97
	19.4	46.8	18.6	28.0	13.8	25.0	23.8
Middle of Week	29	25	79	72	75	30	310
	80.6	53.2	81.4	72.0	86.2	75.0	76.2
Total	36	47	97	100	87	40	407
	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-32 is a collapsed version of Table F-31.

TABLE F-33.--Response of Consumers in Various Occupational Groups to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Occupational Group: Professional & Managerial	White Collar	Blue Collar	Total
End of Week	33	29	35	97
	19.8	41.4	19.9	23.5
Middle of Week	134	41	141	316
	80.2	58.6	79.1	76.5
Total	167	70	176	413
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-34.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Life Cycle Group						
	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
End of Week	10 40.0	38 27.0	14 16.1	24 28.6	6 11.3	6 26.1	98 23.7
Middle of Week	15 60.0	103 73.0	73 83.9	60 71.4	47 88.7	17 73.9	315 76.3
Total	25 100	141 100	87 100	84 100	53 100	23 100	413 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-35.--Response of Working and Non-Working Wives to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Wife Employed or Not		Total
	Not Employed	Employed	
End of Week	62	36	98
	19.2	40.0	23.7
Middle of Week	261	54	315
	80.8	60.0	76.3
Total	323	90	413
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-36.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Automobile Ownership Group			Total
	None Owned	One Owned	Two or More Owned	
End of Week	2	61	35	98
	25.0	27.6	19.0	23.7
Middle of Week	6	160	149	315
	75.0	72.4	81.0	76.3
Total	8	221	184	413
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-37[a]--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Regional Shopping Center.

Part of Week	Automobile Ownership Group: One or Less Owned	Automobile Ownership Group: Two or More Owned	Total
End of Week	63 27.5	35 19.0	98 23.7
Middle of Week	166 72.5	149 81.0	315 76.3
Total	229 100	184 100	413 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-37 is a collapsed version of Table F-36.

TABLE F-38.--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Regional Shopping Center.

Part of Day	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
Midnight to 8 a.m.	0 0	0 0	0 0	2 2.1	0 0	0 0	0 0	0 0	0 0	2 0.5
8 a.m. to Noon	0 0	7 25.9	13 27.7	17 17.5	16 16.0	20 23.0	6 22.2	6 46.2	2 33.3	87 21.1
Noon to 6 p.m.	6 66.7	17 63.0	24 51.1	51 52.6	51 51.0	46 52.9	10 37.0	7 53.8	4 66.7	216 52.3
6 p.m. to Midnight	3 33.3	3 11.1	10 21.3	27 27.8	33 33.0	21 24.1	11 40.7	0 0	0 0	108 26.1
Total	9 100	27 100	47 100	97 100	100 100	87 100	27 100	13 100	6 100	413 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-39[a]--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Regional Shopping Center.

Part of Day	Income Group: Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000- & Over	Total
Midnight to Noon	7	13	19	16	20	12	87
	19.4	27.7	19.6	16.0	23.0	30.0	21.4
Noon to 6 p.m.	23	24	51	51	46	17	212
	63.9	51.1	52.6	51.0	52.9	42.5	52.1
6 p.m. to Midnight	6	10	27	33	21	11	108
	16.7	21.3	27.8	33.0	24.1	27.5	26.5
Total	36	47	97	100	87	40	407
	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-39 is a collapsed version of Table F-38.

TABLE F-40.--Response of Consumers in Various Occupational Groups to the Part of the Day Shopped in a Regional Shopping Center.

Part of Day	Occupational Group: Professional & Managerial	White Collar	Blue Collar	Total
Midnight to Noon	39	20	30	89
	23.3	28.6	17.0	21.5
Noon to 6 p.m.	87	35	94	216
	52.1	50.0	53.4	52.3
6 p.m. to Midnight	41	15	52	108
	24.6	21.4	29.6	26.2
Total	167	70	176	413
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-41.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Regional Shopping Center.

	Life Cycle Group						
Part of Day	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
Midnight to Noon	5 20.0	29 20.6	12 13.8	21 25.0	13 24.5	9 39.1	89 21.5
Noon to 6 p.m.	15 60.0	78 55.3	58 66.7	29 34.5	23 43.4	13 56.5	216 52.3
6 p.m. to Midnight	5 20.0	34 24.1	17 19.5	34 40.5	17 32.1	1 4.3	108 26.2
Total	25 100	141 100	87 100	84 100	53 100	23 100	413 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages shown in lower right hand corner of each cell.

TABLE F-42.--Response of Working and Non-Working Wives to the Part of the Day Shopped in a Regional Shopping Center.

Part of Day	Wife Employed or Not		Total
	Not Employed	Employed	
Midnight to Noon	72	17	89
	22.3	18.9	21.5
Noon to 6 p.m.	172	44	216
	53.3	48.9	52.3
6 p.m. to Midnight	79	29	108
	24.5	32.2	26.2
Total	323	90	413
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-43.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in a Regional Shopping Center.

Part of Day	Automobile Ownership Group			
	None Owned	One Owned	Two or More Owned	Total
Midnight to 8 a.m.	0 0	2 0.9	0 0	2 0.5
8 a.m. to Noon	3 37.5	42 19.0	42 22.8	87 21.1
Noon to 6 p.m.	3 37.5	120 54.3	93 50.5	216 52.3
6 p.m. to Midnight	2 25.0	57 25.8	49 26.6	108 26.1
Total	8 100	221 100	184 100	413 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-44[a]--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in a Regional Shopping Center.

Part of Day	Automobile Ownership Group: One or Less Owned	Automobile Ownership Group: Two or More Owned	Total
Midnight to Noon	47 20.5	42 22.8	89 21.5
Noon to 6 p.m.	123 53.7	93 50.5	216 52.3
6 p.m. to Midnight	59 25.8	49 26.6	108 26.2
Total	229 100	184 100	413 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-44 is a collapsed version of Table F-43.

TABLE F-45.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Community Shopping Center by Various Income Groups.

Income Group	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given
Average Time In Minutes	59.20	35.42	86.37	51.16	67.90	41.00	---	---

TABLE F-46.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Community Shopping Center by Various Occupational Groups.

Occupational Group	Professional and Managerial	White Collar	Blue Collar
Average Time in Minutes	62.64	56.78	50.15

TABLE F-47.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Community Shopping Center by Various Life Cycle Stages.

Life Cycle Stage	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired
Average Time in Minutes	23.94	52.77	61.01	69.52	31.58	129.23

TABLE F-48.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Community Shopping Center by Members of Households in which the Wife Does or Does Not Work.

Employment Status of Wife	Not Employed	Employed
Average Time in Minutes	53.19	72.49

TABLE F-49.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Community Shopping Center by Various Automobile Ownership Groups.

Automobile Ownership Group	None Owned	One Owned	More than one Owned
Average Time in Minutes	14.03	64.05	52.13

TABLE F-50.--Response of Consumers in Various Income Groups to the Part of the Week Shopped in a Community Shopping Center.

	Income Group									
Part of Week	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
End of Week	0	3	6	8	17	15	2	0	0	51
	0	27.3	35.3	26.7	28.8	31.9	25.0	0	0	29.5
Middle of Week	1	8	11	22	42	32	6	0	0	122
	100	72.7	64.7	73.3	71.2	68.1	75.0	0	0	70.5
Total	1	11	17	30	59	47	8	0	0	173
	100	100	100	100	100	100	100	0	0	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-51[a]--Response of Consumers in Various Income Groups to the Part of the Week Shopped in a Community Shopping Center.

Part of Week	Income Group: Under $5,000	$5,000-$6,999	$7,000-$9,999	$10,000 & Over	Total
End of Week	9	8	17	17	51
	31.0	26.7	28.8	30.9	29.5
Middle of Week	20	22	42	38	122
	69.0	73.3	71.2	69.1	70.5
Total	29	30	59	55	173
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-51 is a collapsed version of Table F-50.

TABLE F-52.--Response of Consumers in Various Occupational Groups to the Part of the Week Shopped in a Community Shopping Center.

	Occupational Group			
Part of Week	Professional & Managerial	White Collar	Blue Collar	Total
End of Week	17 37.0	19 38.5	21 20.8	48 27.7
Middle of Week	29 63.0	16 61.5	80 79.2	125 72.3
Total	46 100	26 100	101 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-53.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Community Shopping Center.

Part of Week	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
End of Week	3	20	8	7	8	5	51
	37.5	31.3	19.5	25.0	34.8	55.6	29.5
Middle of Week	5	44	33	21	15	4	122
	62.5	68.8	80.5	75.0	65.2	44.4	70.5
Total	8	64	41	28	23	9	173
	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-54[a]--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Community Shopping Center.

Part of Week	Life Cycle Group: Single and Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Retired and Married/ High School Children or Older	Total
End of Week	23	8	7	13	51
	31.9	19.5	25.0	40.6	29.5
Middle of Week	49	33	21	19	122
	68.1	80.5	75.0	59.4	70.5
Total	72	41	28	32	173
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-54 is a collapsed version of Table F-53.

TABLE F-55.--Response of Working and Non-Working Wives to the Part of the Week Shopped in a Community Shopping Center.

Part of Week	Wife Employed or Not		
	Not Employed	Employed	Total
End of Week	38	13	51
	27.9	35.1	29.5
Middle of Week	98	24	122
	72.1	64.9	70.5
Total	136	37	173
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-56.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Community Shopping Center.

Part of Week	Automobile Ownership Group			
	None Owned	One Owned	Two More Owned	Total
End of Week	0	27	24	51
	0	32.1	27.9	29.5
Middle of Week	3	57	62	122
	100	67.9	72.1	70.5
Total	3	84	86	173
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-57[a].--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Community Shopping Center.

Part of Week	Automobile Ownership Group		
	One or Less Owned	Two or More Owned	Total
End of Week	27 31.0	24 27.9	51 29.5
Middle of Week	60 69.0	62 72.1	122 70.5
Total	87 100	86 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-57 is a collapsed version of Table F-56.

TABLE F-58.--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Community Shopping Center.

Part of Day	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
Midnight to 8 a.m.	0	0	0	1	0	0	0	0	0	1
	0	0	0	3.3	0	0	0	0	0	0.6
8 a.m. to Noon	0	1	3	4	20	7	1	0	0	36
	0	9.1	17.6	13.3	33.9	14.9	12.5	0	0	20.8
Noon to 6 p.m.	1	7	12	18	23	20	3	0	0	84
	100	63.6	70.6	60.0	39.0	42.6	37.5	0	0	48.6
6 p.m. to Midnight	0	3	2	7	16	20	4	0	0	52
	0	27.3	11.8	23.3	27.1	42.6	50.0	0	0	30.0
Total	1	11	17	30	59	47	8	0	0	173
	100	100	100	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-59[a].--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Community Shopping Center.

Part of Day	Income Group: Under $5,000	$5,000-$6,999	$7,000-$9,999	$10,000 & Over	Total
Midnight to Noon	4	5	20	8	37
	13.8	16.7	33.9	14.5	21.4
Noon to 6 p.m.	20	18	23	23	84
	69.0	60.0	39.0	41.8	48.6
6 p.m. to Midnight	5	7	16	24	52
	17.2	23.3	27.1	43.6	30.0
Total	29	30	59	55	173
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-59 is a collapsed version of Table F-58.

TABLE F-60.--Response of Consumers in Various Occupational Groups to the Part of the Day Shopped in a Community Shopping Center.

	Occupational Groups			
Part of Day	Professional & Managerial	White Collar	Blue Collar	Total
Midnight to Noon	10 21.7	7 26.9	20 19.8	37 21.4
Noon to 6 p.m.	20 43.5	11 42.3	53 52.5	84 48.6
6 p.m. to Midnight	16 34.8	8 30.8	28 27.7	52 30.0
Total	46 100	26 100	101 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-61.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Community Shopping Center.

	Life Cycle Group						
Part of Day	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
Midnight to Noon	1 12.5	14 21.9	9 22.0	6 21.4	4 17.4	3 33.3	36 20.8
Noon To 6 p.m.	4 50.0	28 43.8	20 48.8	16 57.1	10 43.5	6 66.7	84 48.6
6 p.m. to Midnight	3 37.5	22 34.4	12 29.3	6 21.4	9 39.1	0 0	52 30.6
Total	8 100	64 100	41 100	28 100	23 100	9 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-62[a]--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Community Shopping Center.

Part of Day	Life Cycle Group: Single & Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Retired and Married/ High School Children or Older	Total
Midnight to Noon	15	9	6	7	36
	20.1	22.0	21.4	21.9	20.8
Noon to 6 p.m.	32	20	16	16	84
	44.4	48.8	57.1	50.0	48.6
6 p.m. to Midnight	25	12	6	9	52
	35.5	29.3	21.4	28.1	30.6
Total	72	41	28	32	173
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-62 is a collapsed version of Table F-61.

TABLE F-63.--Response of Working and Non-Working Wives to the Part of the Day Shopped in a Community Shopping Center.

Part of Day	Wife Employed or Not		Total
	Not Employed	Employed	
Midnight to Noon	28 20.6	9 24.3	37 21.4
Noon to 6 p.m.	69 50.7	15 40.5	84 48.6
6 p.m. to Midnight	39 28.7	13 35.1	52 30.0
Total	136 100	37 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-64.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in a Community Shopping Center.

Part of Day	Automobile Ownership Group: None Owned	One Owned	Two or More Owned	Total
Midnight to 8 a.m.	0 0	1 1.2	0 0	1 0.6
8 a.m. to Noon	0 0	17 20.2	19 22.1	36 20.8
Noon to 6 p.m.	2 66.7	39 46.4	43 50.0	84 48.6
6 p.m. to Midnight	1 33.3	27 32.1	24 27.9	52 30.0
Total	3 100	84 100	86 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-65[a].--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in a Community Shopping Center.

Part of Day	Automobile Ownership Group: One Less Owned	Automobile Ownership Group: Two or More Owned	Total
Midnight to Noon	18 20.7	19 22.1	37 21.4
Noon to 6 p.m.	41 47.1	43 50.0	84 48.6
6 p.m. to Midnight	28 32.2	24 27.9	52 30.0
Total	87 100	86 100	173 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-65 is a collapsed version of Table F-64.

TABLE F-66.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Neighborhood Shopping Center by Various Income Groups.

Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given
Average Time In Minutes	31.37	63.15	36.62	34.73	23.45	20.54	20.73	35.35

TABLE F-67.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Neighborhood Shopping Center by Various Occupational Groups.

Occupational Group	Professional & Managerial	White Collar	Blue Collar
Average Time in Minutes	27.29	29.54	33.59

TABLE F-68.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Neighborhood Shopping Center by Various Life Cycle Stages.

Life Cycle Stage	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired
Average Time In Minutes	56.21	17.39	47.90	38.44	21.94	42.49

TABLE F-69.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Neighborhood Shopping Center by Members of Households in Which the Wife Does or Does Not Work.

Employment Status of Wife	Not Employed	Employed
Average Time in Minutes	29.09	38.25

TABLE F-70.--Average Time Devoted to In-Store Shopping per Shopping Trip to a Neighborhood Shopping Center by Various Automobile Ownership Groups.

Automobile Ownership Group	None Owned	One Owned	More Than One Owned
Average Time In Minutes	16.47	38.21	24.92

TABLE F-71.--Response of Consumers in Various Income Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

Part of Week	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
End of Week	0	3	5	10	12	12	5	0	0	47
	0	30.0	33.3	23.3	29.3	24.0	27.8	0	0	25.3
Middle of Week	1	7	10	33	29	38	13	6	2	139
	100	70.0	66.7	76.7	70.7	76.0	72.2	100	100	74.7
Total	1	10	15	43	41	50	18	6	2	186
	100	100	100	100	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-72[a].--Response of Consumers in Various Income Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

Part of Week	Income Group					
	Under $5,000	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000- & Over	Total
End of Week	8	10	12	12	5	47
	30.8	23.3	29.3	24.0	20.8	25.3
Middle of Week	18	33	29	38	19	137
	69.2	76.7	70.7	76.0	79.2	74.7
Total	26	43	41	50	24	184
	100	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-72 is a collapsed version of Table F-71.

TABLE F-73.--Response of Consumers in Various Occupational Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

	Occupational Group			
Part of Week	Professional & Managerial	White Collar	Blue Collar	Total
End of Week	21 24.7	11 29.7	15 23.4	47 25.3
Middle of Week	64 75.3	26 70.3	49 76.6	139 74.7
Total	85 100	37 100	64 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-74.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

	Life Cycle Group						
Part of Week	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
End of Week	3 37.5	20 32.8	7 15.9	10 28.6	6 22.2	1 9.1	47 25.3
Middle of Week	5 62.5	41 67.2	37 84.1	25 71.4	21 77.8	10 90.9	139 74.7
Total	8 100	61 100	44 100	35 100	27 100	11 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-75[a]--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

	Life Cycle Group				
Part of Week	Single and Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Retired and Married/ High School Children or Older	Total
End of Week	23	7	10	7	47
	33.3	15.9	28.6	18.4	25.3
Middle of Week	46	37	25	31	139
	66.7	84.1	71.4	81.6	74.7
Total	69	44	35	38	186
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-75 is a collapsed version of Table F-74.

TABLE F-76.--Response of Working and Non-Working Wives to the Part of the Week Shopped in a Neighborhood Shopping Center.

Part of Week	Wife Employed or Not		Total
	Not Employed	Employed	
End of Week	34	13	47
	22.1	40.6	25.3
Middle of Week	120	19	139
	77.9	59.4	74.7
Total	154	32	186
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-77.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

Part of Week	Automobile Ownership Group			
	None Owned	One Owned	Two or More Owned	Total
End of Week	1	29	17	47
	25.0	27.1	22.7	25.3
Middle of Week	3	78	58	139
	75.0	72.9	77.3	74.7
Total	4	107	75	186
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-78[a]--Response of Consumers in Various Automobile Ownership Groups to the Part of the Week Shopped in a Neighborhood Shopping Center.

Part of Week	Automobile Ownership Group		Total
	One or Less Owned	Two or More Owned	
End of Week	30	17	47
	27.0	22.7	25.3
Middle of Week	81	58	139
	73.0	77.3	74.7
Total	111	75	186
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-78 is a collapsed version of Table F-77.

TABLE F-79.--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Neighborhood Shopping Center.

Part of Day	Income Group									
	No Income	Under $3,000	$3,000-$4,999	$5,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000-$24,999	$25,000 & Over	Not Given	Total
Midnight to 8 a.m.	0 0	0 0	0 0	1 2.3	0 0	0 0	0 0	0 0	0 0	1 0.5
8 a.m. to Noon	0 0	2 20.0	6 40.0	10 23.3	8 19.5	5 10.0	4 22.2	0 0	0 0	35 18.8
Noon to 6 p.m.	0 0	8 80.0	7 46.7	20 46.5	14 34.1	32 64.0	11 61.1	4 66.7	2 100	98 52.7
6 p.m. to Midnight	1 100	0 0	2 13.3	12 27.9	19 46.3	13 26.0	3 16.7	2 33.3	0 0	52 28.0
Total	1 100	10 100	15 100	43 100	41 100	50 100	18 100	6 100	2 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-80[a]--Response of Consumers in Various Income Groups to the Part of the Day Shopped in a Neighborhood Shopping Center.

Part of Day	Income Group: Under $5,000	$5,000-$6,999	$7,000-$9,999	$10,000 & Over	Total
Midnight to Noon	8	11	8	9	36
	30.8	25.6	19.5	12.2	19.6
Noon to 6 p.m.	15	20	14	47	96
	72.8	46.5	34.1	63.5	52.2
6 p.m. to Midnight	3	12	19	18	52
	11.5	27.9	46.3	24.3	28.2
Total	26	43	41	74	184
	100	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-80 is a collapsed version of Table F-79.

TABLE F-81.--Response of Consumers in Various Occupational Groups to the Part of the Day Shopped in Neighborhood Shopping Centers.

	Occupational Group			
Part of Day	Professional & Managerial	White Collar	Blue Collar	Total
Midnight to Noon	12	3	13	28
	14.1	8.1	20.3	15.0
Noon to 6 p.m.	44	23	33	100
	51.8	62.2	51.6	53.8
6 p.m. to Midnight	29	11	18	58
	34.1	29.7	28.1	31.2
Total	85	37	64	186
	100	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-82.--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Neighborhood Shopping Center.

	Life Cycle Group						
Part of Day	Single	Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Married/ High School Children or Older	Retired	Total
Midnight to Noon	2 25.0	12 19.7	8 18.2	6 17.1	3 11.1	5 45.5	36 19.3
Noon to 6 p.m.	5 62.5	30 49.2	23 52.3	19 54.3	15 55.6	6 54.5	98 52.7
6 p.m. to Midnight	1 12.5	19 31.1	13 29.5	10 28.6	9 33.3	0 0	52 28.0
Total	8 100	61 100	44 100	35 100	27 100	11 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-83[a].--Response of Consumers in Various Life Cycle Stage Groups to the Part of the Day Shopped in a Neighborhood Shopping Center.

	Life Cycle Group				
Part of Day	Single and Married/ No Children	Married/ Preschool Children	Married/ Elementary School Children	Retired and Married/ High School Children or Older	Total
Midnight to Noon	14 20.3	8 18.2	6 17.1	8 21.1	36 19.3
Noon to 6 p.m.	35 50.7	23 52.3	19 54.3	21 55.3	98 52.7
6 p.m. to Midnight	20 29.0	13 29.5	10 28.6	9 23.6	52 28.0
Total	69 100	44 100	35 100	38 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-83 is a collapsed version of Table F-82.

TABLE F-84.--Response of Working and Non-Working Wives to the Part of the Day Shopped in Neighborhood Shopping Centers.

Part of Day	Wife Employed or Not: Not Employed	Employed	Total
Midnight to Noon	29	7	36
	18.8	21.9	19.4
Noon to 6 p.m.	78	20	98
	50.6	62.5	52.7
6 p.m. to Midnight	47	5	52
	30.5	15.6	27.9
Total	154	32	186
	100	100	100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-85.--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in Neighborhood Shopping Centers.

Part of Day	Automobile Ownership Group			
	None Owned	One Owned	Two or More Owned	Total
Midnight to 8 a.m.	0 0	1 0.9	0 0	1 0.5
8 a.m. to Noon	0 0	27 25.2	8 10.7	35 18.8
Noon to 6 p.m.	1 25.0	55 51.4	42 56.0	98 52.7
6 p.m. to Midnight	3 75.0	24 22.4	25 33.3	52 28.0
Total	4 100	107 100	75 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

TABLE F-86.[a]--Response of Consumers in Various Automobile Ownership Groups to the Part of the Day Shopped in Neighborhood Shopping Centers.

Part of Day	Automobile Ownership Group		Total
	One or Less Owned	Two or More Owned	
Midnight to Noon	28 25.2	8 10.7	36 19.4
Noon to 6 p.m.	56 50.5	42 56.0	98 52.7
6 p.m. to Midnight	27 24.3	25 33.3	52 27.9
Total	111 100	75 100	186 100

Note: Frequency count is given in upper left hand corner of each cell. Column percentages are shown in lower right hand corner of each cell.

[a]Table F-86 is a collapsed version of Table F-85.

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