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Factors Influencing Retired Active Adult Consumers' Decision to Purchase a Manufactured Home versus a Conventional Home: An Economic and Demographic Analysis.

(Under the Direction of ANNE SWEANEY)

Data from the 1997 American Housing Survey were used to determine the factors influencing retired active adult consumers' decision to purchase a manufactured versus a conventional home. Three logistic regressions and descriptive analyses were used to analyze the data. Active adult consumers' (55-64) were compared to those younger (45-54) and older (65-74) and differences between age groups were found. Among the youngest two age groups, educational level, household income, living in the Midwest were negatively related to the choice of manufactured housing. Among those 45-54, living in a metropolitan area was also negatively related to the choice of manufactured housing. Among those aged 65-74, no factors were found to have a statistically significant influence on housing choice.

INDEX WORDS: Housing, Manufactured Housing, Active Adults, Retired, Logistic Regression, Elderly, American Housing Survey, Homeownership

FACTORS INFLUENCING RETIRED ACTIVE ADULT CONSUMERS' DECISION
TO PURCHASE A MANUFACTURED HOME VERSUS A CONVENTIONAL
HOME: AN ECONOMIC AND DEMOGRAPHIC ANALYSIS

by

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CHAPTER 1

INTRODUCTION

According to Frey (1999), baby boomers will be a primary force altering the demographic landscape in the 21st century. Housing preferences, housing demand, and consumer behavior of baby boomers will alter regions, cities, and even neighborhoods (Frey, 1999). In the first decade of the new century, the early baby boomers (born between 1946 and 1955) will age into the 55-64 year-old age range (Frey, 1999). This will produce the largest change in the number of households of any age group between 25 and 75 and older (Frey, 1999). There will be an estimated 6.5 million more households headed by individuals between 55-64 by the end of the decade than at the beginning (Frey, 1999). This age group will be modifying their household composition, phasing into retirement, and will be likely to move (Frey, 1999). In fact, modifications in family composition or change in housing needs cause 47% of owners to change housing (U.S. Bureau of the Census, 1991).

The term 'active adult consumers' originated to differentiate continuing care retirement communities serving mainly very elderly residents needing nursing services and new communities targeting younger, healthier retirees (M. Axelrod, personal communication, August 31, 2000). These new communities have been named active adult communities and they target those aged 55-70. (M. Axelrod, personal communication, August 31, 2000). The communities offer the ability to purchase a single-family detached home rich with non-nursing care amenities such as golf courses,

health clubs, activity centers, and landscaping services (M. Axelrod, personal communication, August 31, 2000). For the purpose of this study, active adult consumer will be considered those aged 55-64 years old. Active adult consumers have different needs, preferences, and lifestyles than those younger or older. According to the 1997 American Housing Survey data, most active adult consumers do not have children in the household and generally have less education than those under 55 but more education than those over 64 (Emrath, 1999). The proportion of household heads educated past the bachelor's level, however, is highest among active adult consumers (Emrath, 1999). Almost half of these individuals have been in their homes for over ten years (Emrath, 1999).

According to Brandt (1989), the number of years individuals live in a community has been linked to their reluctance to move upon retirement. American Housing Survey data from 1997 indicate, on average, active adult consumers are satisfied with their current housing, but are less satisfied than older typical adult consumers (Emrath, 1999). Age is highly associated with mobility. According to Patrick (1980), there is a curvilinear effect of age on mobility; mobility tends to decrease until middle age and then increase until the 70's then decrease again. Goss and Paul (1986) found a negative linear relationship between age and mobility. Thus, as people became older, moving became less likely. Active adult consumers seemed to accumulate wealth over their lifetimes and on average have high annual incomes (Emrath, 1999). It is risky, however, to think of active adults as a homogenous group based on these data (Emrath, 1999). Some have substantial wealth available for new housing choices, while a considerable proportion have annual incomes of less than \$20,000 (Emrath, 1999).

Affordable housing is a necessity for active adult consumers living on fixed incomes. While cash flow changes in retirement, studies have shown that retirees' preferences do not change. According to Johnson-Carroll, Brandt, and McFadden (1995), if a pre-retiree owns a single family detached home, the structure/tenure preference will be the same in retirement. In fact, single-family detached dwellings are preferred by most individuals approaching retirement (Brandt, 1989). For many, this may mean conventional "stick-built" houses. Manufactured housing provides an affordable alternative to conventional housing and allows retirees to own single-family detached housing.

Manufactured housing has changed dramatically through the years with today's models barely resembling the first manufactured homes. In the 1930's, "house trailers", generally very small and poorly constructed dwellings, were primarily utilized by seasonal and migrant workers (Santiago, 1998). During World War II, house trailers were used by temporary factory employees (Santiago, 1998). In the 1960's, the industry split and house trailers evolved into two different types--recreational vehicles and the mobile and modular manufactured homes of today (Santiago, 1998). Today, most manufactured homes are not mobile but rather delivered and affixed to permanent foundations (Wendy, Jovan, and Joseph, 1997). Although no reliable data exists to verify the number of manufactured homes that are not moved after original placement, the Manufactured Housing Institute believes 95% of manufactured homes remain on the original site (F. Walter, personal communication, September 7, 2000). The cost of newly designed manufactured homes is alluring to homebuyers, especially for first time homebuyers, single parents, empty nesters and retirees (Wendy et al., 1997). In 1995, the

average cost of conventional housing was \$56.28 per square foot versus \$28.96 for a multi-section and \$23.95 for a single-section manufactured home. (Toops, 1997; Wendy et al.,1997). The prices of manufactured homes are lower for several reasons. Factory-controlled construction minimizes construction waste and eliminates problems of scheduling conflicts among subcontractors, weather delays, and stolen materials (Wendy et al., 1997). According to O'Reilly (1996), manufacturers' ability to buy in quantity significantly reduces the cost of building materials compared to the cost of building materials in a typical stick built house. Additionally, when buying manufactured housing, consumers have the assurance of a factory guaranteed price and do not incur cost increases due to unexpected and hidden costs (Wendy et al., 1997).

Mortgage lenders and zoning officials have begun to alter their policies concerning manufactured housing. Until recently, most manufactured housing mortgages were financed as personal property loans ("Hardly a trailer", 1993). Most mortgage lenders now allow conventional mortgages for manufactured housing if the house is sited on a permanent foundation and the homeowners own the land ("Hardly a trailer",1993). Most modular manufactured homes conform to one or more of a variety of local industrial codes rather than the HUD national building code ("And now for the homeburger", 1996) and, because these homes resemble conventional homes, local zoning officials are revising ordinances to allow this type of housing in more locations (Wendy et al., 1997).

Manufactured housing has changed dramatically, thus attracting non-traditional buyers to manufactured housing. Thereby, in the aggregate, the demographic profiles of manufactured home owners are changing. The median household income of owners of

manufactured housing has risen slightly since 1993 to \$24,500 (Foremost, 1996). According to a 1996 Foremost Insurance Group survey, 83% of manufactured homeowners completed high school and 46% attended college. Regionally, the South is the largest and strongest market for manufactured housing due to demographics, rising labor and material costs, a favorable economy, and revised zoning laws (Wendy et al., 1997). The market is also strong in the West, as exhibited by the largest manufactured housing sales growth in Oregon, Washington and California in 1996 (Toops, 1997). Research indicates more manufactured homes are purchased in nonmetropolitan than in metropolitan areas. Most manufactured housing factories are located in rural areas ("Hardly a trailer", 1993), which allows nonmetropolitan homebuyers to minimize delivery and transportation costs. In nonmetropolitan areas, land is less expensive than in metropolitan areas, which translates into lower housing costs.

According to a 1996 Foremost Insurance Group survey, average household size among residents of manufactured housing is decreasing; the average household size has fallen from 2.4 in 1990 to 2.3 in 1996 with further declines expected by 1999. Female-headed households are increasing among manufactured home owners (Foremost, 1996). In 1990, 17% of manufactured homeowners were female compared with 20% in 1996 (Foremost, 1996). From 1990 to 1996, the average age of household heads of manufactured housing owners has increased from 50.8 years to 52.8 years, and 72% of owners were over 40 in 1996 (Foremost, 1996; Toops, 1997). Increasingly, the fastest growing group of homebuyers purchasing manufactured housing are individuals aged 50-59 (Wendy et al., 1997).

Factors that affect the purchase of manufactured homes have not been adequately examined. Most research on manufactured housing focuses on the quality of the homes or the effect of manufactured homes on nearby property values. The consumer decision aspect of purchasing a manufactured has remained largely unexamined. The ever-increasing active adult population appears to have lifestyles compatible with the benefits of manufactured housing. Still, very little empirical evidence is available to substantiate this claim. By understanding this niche market, manufactured home marketers can customize marketing strategies, thereby alleviating problems of housing affordability and increasing market penetration.

Purpose, Objectives and Hypothesis of the Study

This study's purpose is to investigate factors influencing active adult consumers' choice of the purchase of a manufactured home compared to a conventional, site-built single-family detached home in 1996 and 1997. Factors identified to influence purchase among active adult consumers (aged 55-64) will be contrasted with factors influencing younger consumers (aged 45-54) and older consumers aged (65-74). Modigliani's life-cycle theory explains how housing choice can be affected by lifestages and will provide the theoretical framework for this study.

This study's objectives are:

1. To assess economic factors, such as price and income, and demographic factors, such as education, race, geographical location, place of residence, household size and gender, as they influence active adult consumers' decision to purchase a manufactured rather than a conventional home in 1996 and 1997.

2. To compare active adult consumers' housing type choice to the choice of housing type among those younger (aged 45-54) and older (aged 65-75) who either purchased a manufactured or a conventional home in 1996 and 1997.

Nine hypotheses are posited regarding active adult consumers' choice of housing type. Hypothesis one examines the effect of age, which is the overarching hypothesis of interest. The remaining eight hypotheses are examined within and across the three age groups. Hypotheses 1a through 1c compare the demographic characteristics among purchasers of manufactured versus conventional housing. Hypotheses 1d and 1e assess geographical location as it relates to choice of housing type. Hypotheses 1f and 1g investigate household composition as it relates to choice of housing type. Hypothesis 1h compares the effect of purchase prices (on average) of manufactured versus conventional housing on choice of housing type. All hypotheses with the exception of hypothesis 1h are analyzed under *ceteris paribus* conditions.

H₁: Active adult consumers differ from 44-54 year olds and 65-74 year olds on several factors influencing the type of housing purchased.

- a) Homebuyers with higher incomes are less likely to purchase a manufactured home than homebuyers with lower incomes.
- b) Homebuyers with more education are less likely to purchase manufactured homes when compared to homebuyers with less education.
- c) Homebuyers who are Caucasian will be more likely to purchase a manufactured home when compared to minority homebuyers.

- d) Homebuyers in the South and West are more likely than homebuyers in Northeast and Midwest to purchase manufactured homes.
- e) Homebuyers in nonmetropolitan areas are more likely to purchase manufactured homes than homebuyers in metropolitan areas.
- f) Smaller-sized households are more likely to purchase manufactured homes than larger are households.
- g) Female-headed households are more likely to purchase manufactured homes than are dual-headed households.
- h) Individuals who purchased manufactured homes paid less at time of purchase than individuals who purchased comparable site-built single-family detached homes.

This study focused on the choice of housing types and the characteristics of their purchasers is useful for many groups. Active adult consumers are members of a rapidly growing population that will need housing alternatives for retirement. Consumers can use this research to make better-informed housing decisions. An understanding of the demographic characteristics of these consumers will improve the housing industry's ability to provide adequate options and more effectively meet consumers' needs. This may refute the stereotypical image of manufactured homeowners and could provide empirical evidence to support the changing image of manufactured housing. Research finding that active adults are heterogeneous in nature will provide data useful for the creation of market niches on many points along the spectrum. A profile of active adult consumers will allow marketers and sellers of these homes to better understand their

customers. Housing educators can use this information to accurately confront stereotypes concerning manufactured housing and households who choose to live in them.

Limitations

American Housing Survey

The sample of housing units used in the 1997 American Housing Survey was taken using 1980 United States Census data and has been augmented since that time (U.S. Department of Housing and Urban Development [HUD], 1998a). Several purposive samples have been taken to augment the old sampling frame. These samples did not employ random methods, and therefore, negatively effect the external validity of the data set (HUD, 1998a). These purposive samples also result in poorly covered units. There is no coverage of new housing built with building permits issued fewer than six months before interviewing (HUD, 1998a). No new mobile home parks have been covered since April 1980 (HUD,1998). The respondents' in this sample were selected in a nonrandom fashion. The first adult to respond to the interviewer either by phone or in person was interviewed.

Current Study

The selection threat to internal validity in the current study is heightened due to several factors. Specifically, no new mobile home parks have been sampled since 1980 therefore, new manufactured homes are sampled in areas where data are already being collected (HUD,1998). People who own manufactured homes in this study live in the same areas as those who owned manufactured homes in 1980. Thus, manufactured home buyers who could afford manufactured housing comparable to conventional housing and/or who purchase and/or relocated manufactured homes in locations newly developed

since 1980 are probably not included in a proportion similar to their existence in the population.

Variables examined in the study also limit external validity. Only households who purchased a house in 1996 and/or 1997 are included in the study. It cannot be assumed that homebuyers in those two years are a random sample of homebuyers over a longer period of time. Researchers can assume housing units in the American Housing Survey accurately represent the units in the United States. In the current study, however, residents of housing units are interviewed (HUD, 1998a). Residents of housing units were not selected randomly, therefore, housing purchasers in 1996 and 1997 cannot be assumed to be randomly selected either. The results from the current study cannot be generalized to all residents in the United States, but rather to homebuyers aged 45 to 75 who purchased a manufactured or conventional home in 1996 and 1997.

Summary

The demographic landscape in the 21st century will change dramatically because baby boomers will be aging into retirement and as a consequence housing preferences and demand will change markedly. Affordable housing will continue to be a problem as the needs of the baby boomers change, but income remains fixed. Manufactured housing offers a solution to the housing affordability crisis. Manufactured housing has changed throughout the years and is now more comparable to conventional housing. This study investigates the factors influencing active adult consumers' choice of housing type. Active adult consumers are compared with younger consumers (45-54) and older consumers (65-74). This study explores the differences, both economic and demographic between these two groups.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

This chapter focuses on major contributions gathered from the literature related to this study. It begins with a discussion of the life-cycle income hypothesis as an influential theory affecting housing choice, followed closely by a discussion of the changing demographics in the United States. Factors related to housing today's seniors will be examined along with the expected trends for baby boomers' retirement. This discussion leads to an assessment of two different housing types: conventional homes and manufactured homes. Within the context of housing choice, housing affordability as well as barriers to affordable housing are discussed. This section concludes with a discussion of the research concerning independent variables included in the study.

Theoretical Framework

Modigliani & Ando's (1963) life-cycle hypothesis of saving will serve as the theoretical basis for this study. Modigliani & Ando's theory (1963) states that a household will try to smooth consumption over time by a making series of saving and dissaving decisions. It focuses on the division of income between consumption and savings as driven by preferences between present and future consumption. The income profile over the life span typically begins with low income during the early working years, peaks at middle age, and then decreases again at retirement. Modigliani & Ando's (1963) theory postulates that people will try to save during their working years in order to

fund their retirement. This study does not examine the savings and dissaving behavior of households, but rather changes in housing consumption. The data set does not include information on these behaviors; therefore, consumption and savings behavior of households will not be analyzed.

As applied here, this theory partially explains a household's motivation to move before or when they reach retirement. Therefore, differences in housing consumption among the three age groups will be analyzed. According to Clark, Deurloo, and Dieleman (2000), changes occurring as households progress through the life-cycle cause households to need different amounts of housing space at different times in their lives. Thus, as families adjust their incomes to smooth consumption over time, they too adjust housing to meet their consumption needs. As family size grows, from marriage or the addition of children, people tend to buy more housing to meet the demands of a growing family (Clark et al., 2000; Bady, 1999). Thus, as family size shrinks some families will adjust their housing consumption to better accommodate their needs. It is important to note that all families will not adjust their consumption in a manner consistent with this economic theory. Some families choose to build larger, more expensive homes after their children have left, but the majority of families are likely to behave as postulated by this theory.

Demographic Transitions

In the 21st century, demographic changes will alter the composition of the United States dramatically. According to Frey (1999), the two most important forces changing the demographic landscape are the baby boomers and the new immigrant minorities. The baby boomers have been the center of demographic and political change from birth and

will continue to be a driving force of demographic change. According to Coates (1999), "a 65-year old today is worth two 25-year-olds in the voting booth". Aging citizens are more likely to vote and baby boomers will join these voters with their own agenda as they age (Coates, 1999). New immigrant minorities will become a changing force as they immigrate and have families. In the next 25 years, approximately 50 million people will be added to the United States population, new immigrants and their children will comprise well over half of this increase (Frey, 1999).

The early baby boomers, the late baby boomers, and the young elderly will represent the top three biggest age related gains in the nation's households in the first decade of the new century. Households headed by the early baby boomers aged 55 to 64 years old will increase by 6.5 million by 2010 (Frey, 1999). As this group transitions from empty nesters to preretirees, a significant proportion will retire from their regular jobs, but will not retire completely (Del Webb Corporation, 1999). Trends indicate that this group will remain active and some are likely to make moves (Wellner, 1998; Del Webb Corporation, 1999; Frey, 1999). The second-largest growing group, the late baby boomers born between 1956 and 1965, will be 45 to 54 years old and settling into their prime years for careers and earnings (Frey, 1999). Many will be empty nesters due to decreased family size and will have the freedom to move and the resources available to change housing (Usdansky, 1992). The young elderly born between 1936 and 1945 will be growing larger while turning 65 to 74 in the next ten years (Frey, 1999). Good pensions and benefits as well as many children, at least theoretically, available for support will help this group through their elderly years.

New immigrants have been migrating to the United States at a rate of about one million a year since the 1980's . These immigrants, mainly from Latin America and Asia, represent about 10% of the population and are unevenly distributed across broad regions of the country (Frey, 1999). This 'chain migration' of immigrants to certain cities where family and friends provide support will dramatically change the socioeconomic characteristics of these areas while low-immigration areas will remain the same (Frey, 1999). A "racial generation gap" where minority residents will outnumber Caucasian residents will emerge in high-immigration areas while low-immigration areas will remain unchanged. This concentrated immigration is already causing out-migration of the yuppie elderly, celebrities, and 'would be suburbanites' who are choosing to live in smaller metropolitan areas due to the increased congestion and lack of affordable housing in metropolitan areas (Frey, 1999). This out-migration will continue to escalate as the "racial generation gap" grows. Homeownership rates are troubling among Blacks and Latinos as they are significantly lower for these groups. The aggregate homeownership rates have increased in past decades, but the gap in homeownership rates have widened between minority and white households (Painter, Gabriel, and Myers, 2000).

Housing Today's Senior Citizens

Demographics

In 1998, persons aged 65 or older numbered 34.4 million, thus representing 12.7% of the United States population or about one in eight Americans (U.S. Bureau of the Census, 1998a). In 1998, there were 20.2 million older women and 14.2 million older men making the sex ratio of older women to men 143 to100 (Dunker and Greenberg, 1999). Throughout the aging process, the sex ratio increases; for example, among the 65-

69 year old group the ratio was 118 to 100, but for those 85 and older the ratio was 241 to 100 (Dunker and Greenberg, 1999). People aged 65 in 1997 could expect to live an additional 17.6 years (Dunker and Greenberg, 1999). In 1998, 75% of men 65 and older were married compared to 43% of women and there were four times as many widows as widowers (U.S. Bureau of the Census, 1998b). Median income for males 65 and older in 1998 was \$30,259 compared to \$21,858 for females (U.S. Bureau of the Census, 1999a). In the labor force, older Americans represented 12% or about 3.7 million people (Dunker and Greenberg, 1999). About 15% of those 65 and older had a bachelor's degree in 1998 (U.S. Bureau of the Census, 1999b). Among those 65 and older, minorities represented 15.7% in 1998 (Dunker and Greenberg, 1999). In 1998, a little over half (52%) of elderly 65 and older resided in nine states: California, Florida, New York, Texas, Pennsylvania, Ohio, Illinois, Michigan, and New Jersey (U.S. Bureau of the Census, 1998a). Elderly are less likely to move than younger people; in 1997, only 5% of those 65 and older had moved since 1996 compared to the 18% of those under 65 who moved since 1996. The majority of elderly lived with their families (67%) in 1998, however, this percentage decreases with age as institutionalized settings become a necessity (Dunker and Greenberg, 1999).

Housing Options

There are several types of housing options available to today's elderly and those with disabilities. Conventional housing is the most popular, as nine out of ten seniors prefer to remain in their homes and 75% of seniors actually do remain in their homes (Schafer, 2000). Seniors living in conventional housing are more likely to be younger, married with spouse present, or have children living in the home or nearby (Schafer, 2000).

When compared with younger adults, moves by elderly are more likely to be precipitated by the desire for more amenities, a more suitable environment (i.e. smaller or larger housing units), or to receive assistance from others (Meyer & Speare, 1985; Wiseman, 1980). According to Schafer (2000), elders who experience loss of a spouse, have fewer children living nearby or who have difficulty with activities of daily living are more likely to move out of conventional housing. In the last few years, assisted living facilities have grown 15-20% annually making it the most rapidly growing type of senior housing (American Health Care Association [AHCA], 1999). Because definitions of assisted living differ between states, it is a difficult type of housing to define. According to Schafer (2000), assisted living communities include members 60 or older and provide some service or assistance to residents. Assisted communities, however, can range from congregate care, which provide only meals, to continuing care that offer many services and unit types to seniors. Assisted living communities generally provide or coordinate personal care services, scheduled and unscheduled assistance, social activities, health-related services in a residential setting with 24-hour supervision (Citro and Hermanson, 1999).

Assisted living communities are more likely chosen by people who are older (over age 85) and/or have children residing farther away (Schafer, 2000). The average annual income of assisted living residents was around \$31,000 in 1997 and the vast majority (86%) did not receive any financial assistance to defray the cost of living expenses (Assisted Living Federation of America [ALFA], 1998). Over half (53%) of residents move into assisted living from private residences and remain for an average for 26 months (ALFA, 1998). Households who do not have a driver or those who have difficulty

climbing stairs are more likely to choose assisted living communities compared to those who only have difficulties in activities of daily living (Schafer, 2000). The most common reason for discharge from an assisted living is the need for nursing home care (44%), followed by death at (26%) (ALFA, 1998). Communities that are designed for healthy seniors, are age-restricted, and provide no assistance to seniors are called unassisted communities (Schafer, 2000). This includes private active adult communities as well as federally subsidized housing built for seniors (Schafer, 2000). The term 'active adult communities' was created to distinguish this type of housing which is usually owner-occupied, amenity rich, no maintenance housing for people aged 55-75 from continued care retirement centers that provide full nursing and meal service to retirees in their late 80's (M. Axelrod, personal communication, August 31, 2000). Unassisted communities, generally favored by non-Hispanic, White, healthy households are about one-third owner occupied and two-thirds rental (Schafer, 2000)

Shared housing categorizes a housing situation where a non-elderly person has moved in with an elderly person or vice versa in order to receive assistance (Schafer, 2000). Shared housing can also be an arrangement in which two or more unrelated people share a house or an apartment (Administration on Aging [AOA], 2000, Redeker, 1987). Shared housing originated in the early 19th century when older couples or widows would take in boarders or lodgers to augment their income (Hareven, 1974). Elderly experiencing problems with activities of daily living as well as those who have adult children willing to share housing are likely to choose this option (Schafer, 2000). Those who are single are more likely to share housing when compared to married couples (Schafer, 2000). According to Redeker (1987), shared housing has benefits for the

community as well as for the participants. Benefits include a decreased reliance on community services, fewer expenditures on support services for the elderly as well as social contact benefits for the elderly (Redeker, 1987).

Elderly who struggle with activities of daily living but retain good cognitive ability are likely to choose supported housing. Supported housing is an arrangement when seniors receive assistance from outside of the home from an agency or a family member. (Schafer, 2000). Single households as well as those without a driver favor this type of arrangement. Schafer's (2000) report is produced by the Joint Center for Housing Studies at Harvard University. The report uses a compendium of resources including: the 1997 American Housing Survey, 1995 Survey of Consumer Affairs, American Association of Retired Persons studies, U.S. Bureau of the Census, and Current Population Surveys.

One in every eight Americans is a senior citizen, thus, demographically senior citizens represent a significant proportion of the population. This population is currently being served by several types of retirement housing ranging from communities that offer no assistance to communities that offer 24-hour nursing care. These housing options are likely to expand and change as the industry prepares for the next wave of retirees--the baby boomers.

Housing Tomorrow's Seniors: Trends for Baby Boomers' Retirement

The baby boomers have been a driving force altering public policy at every life stage. In the 1950's and 1960's the need for schools drove policies, in the mid 1960's the flooding of the labor market and higher education systems forced change, and from the 1970's to today family and work issues have been in the forefront (DeFrancesco, 1999).

In ten to fifteen years, demographers predict the same increase in demand for retirement housing (Axelrod, 1999). As usual, many expect baby boomers will be lobbying for public policy changes while serving as catalysts for new innovations.

Demographics

Baby boomers are currently between 36 and 55 years old and head 40% of United States households (Bady, 1999). On average, baby boomers are more educated than their parents are ("Baby boomers' aging won't curtail demand", 1997). Baby boomers tend to have more income and wealth than younger generations (Carliner, 1996; Emrath, 1999) because they are in their prime earning years. In addition, studies comparing baby boomers and their parents have shown that baby boomers have more wealth and real income than their parents did at the same age (Easterlin, Schaeffer, and Macunovich, 1993). According to the American Association of Retired Persons (1994), this trend is predicted to continue throughout retirement. In 2030, baby boomers are predicted to have 70% higher real incomes than their 1990 counterparts.

Baby Boomers' Demand

Baby boomers were raised in a drastically different era than their parents. Their parents, those born in the 1920's or earlier, weathered the Great Depression and were born when 50% of the United States population was rural. Many were immigrants or children of immigrants. Elderly, therefore, do not rely on credit, and value security, frugality, and family (Masnick & Bane, 1980). Baby boomers, born into the booming era after World War II, were catalysts for a great deal of change in the nation were brought up in an era of permissiveness, excess, and immediate gratification (Masnick & Bane, 1980). Therefore, baby boomers' values tend to differ; careers, education and

independence are higher priorities (Masnick & Bane, 1980). According to Myril Axelrod, baby boomers “are coddled consumers, who are used to being the center of attention” (Lurz, 2000a). These differing values, in combination with other factors, can be used to predict differences in retirement housing demand between baby boomers and today's elderly. In the absence of statistics unavailable until after the 2010 United States Census, many studies have been conducted to predict this demand. Income, education, the demands of growing kids and aging parents, a longer expected life span, and the time to research a dream home are predicted to be influential factors in baby boomers' decisions about retirement housing.

Baby boomers', who have higher levels of education and subsequently higher incomes, therefore, will demand different housing than the prior generation. According to a 1997 USA Today article, educated people demand more in housing; they are likely to want new houses or condominiums in urban areas, more bedrooms and bathrooms, and central air conditioning (Usdansky, 1992). Demand will also differ because of life choices. Baby boomers delayed childbirth for their careers; thus they are sandwiched between aging parents and growing children, and will need a house that can accommodate both ("Golfers find their paradise", 1999).

Baby boomers are likely to be more active than the prior generations, in work and at play. In 1999, a Del Webb Corporation national survey of 800 people aged 48 to 52, and over 65, found that over 61% of boomers plan to continue working part-time during retirement compared with only 19% of those over 65. In order to caterer to baby boomers, home offices are being added to the floor plans of retirement communities (Lurz, 2000a). These boomers will remain physically active; 80% feel that they will be

healthier during retirement than their parents are/were (Del Webb Corporation, 1999). Exercising to prevent chronic illness as recommended by doctors will likely cause the baby boomers to stay active throughout retirement (Wellner, 1998). Higher activity levels are likely to elongate both middle age and total life span. This increase in activity will also create demand for different types of amenities rather than the standard golf course (Evans, 1999) In the move-up market, the pressure of family growth serves as a catalyst to change housing, but in the retirement sector buyers act differently. Baby boomers will have time to research their housing choice for retirement (Bady, 1999). Many people are not retiring for five or six more years, but have already begun researching new communities ("Golfers find their paradise", 1999). This extended time frame allows baby boomers to clarify their housing needs and expectations. According to a Professional Builder survey of 752 people aged 43 to 53, baby boomers want mainfloor master bedrooms, flexible spaces, low-maintenance homes and communities, universal design features and single-story floor plans (Bady, 1999).

Baby boomers have always demanded different products than their parents thus, preferences for retirement housing is likely to follow the same pattern. Baby boomers have higher incomes, more education, and a longer expected life span and have to meet the demands of growing kids and aging parents. These factors are likely to influence the baby boomers to choose different types and different amenities when selecting retirement housing.

Conventional Housing in the United States

In 1997, 1,116,000 "stick-built" houses were constructed (U.S. Bureau of the Census, 1998c). The term "stick-built" or "site-built" is used to differentiate homes

constructed on site and modular or manufactured homes constructed primarily in a factory. In 1997, the average “stick-built” house was 2,150 square feet (U. S. Bureau of the Census, 1998c). Central air was included in 82 % of the houses and gas was the primary heating fuel, heating 69% of all new houses. Houses built on a slab foundation comprised 45% of the production, while full or partial basements comprised 37% (U. S. Bureau of the Census, 1998c). Most of the houses had three bedrooms (56%) and 2.5 bathrooms (50%). Fireplaces were included in 61% of the houses, while garages were built with 86% of the homes.

The economic boom of the late 1990’s has created some obstacles for conventional builders. Builders are facing a labor shortage, changes in building codes, shortage of raw materials, and setbacks due to bad weather. These factors add to the rise in the cost of housing in the United States and escalate the housing affordability crisis.

Low unemployment rates, competition from high tech fields and changing demographics of the United States are working together to cause a labor shortage in the homebuilding industry (Ruma, 1999; Harte, 2000; Rozelle, 2000). Nearly full unemployment challenges the housing industry to find and train employees. In fact, in a recent NAHB survey, 90% of builders reported shortages of carpenters and framers (Ruma, 1999). Shortages cause rising wages, resulting in significantly higher construction costs (Ruma, 1999).

In order to compete with high tech jobs, the industry is attempting to train and recruit workers earlier. In addition to Job Corps, which provides training for a building trade for troubled and inner city youth, two additional programs aimed at recruiting and training skilled labor were introduced this year (Lurz, 2000b). As a result of industry-

backing, SkillsUSA-VICA, an organization for high school and college students who are training for technical, skilled, and service operations, added a Team Build competition to the SkillsUSA National Championships (Lurz, 2000b). In competition, teams plan and complete all the steps necessary to build a component of a house (Lurz, 2000b). Another program, the Philip Polivchak Transition Fund, will provide funding for start up costs such as tools, clothing, and transportation for JobCorps graduates (Lurz, 2000b). The United States Department of Housing and Urban Development has established a Youthbuild program which provides high school dropouts on-the-job training through building and renovating affordable housing (U.S. Department of Housing and Urban Development [HUD], 1998b). This program helps families in need while simultaneously helping to alleviate the construction labor shortage in the industry by training workers (HUD, 1998b). The industry hopes that these programs will alleviate the labor shortage and training difficulties while giving youth needed skills to be successful in the workforce.

Due to the labor shortage, sometimes less supervision is given to poorly trained, underage, immigrant labor (Power, 1999) and is resulting in problems for the builder. Recently, a builder paid fines of \$28,750 for violating child labor laws and \$9,000 for violating safety regulations for an incident involving the injury of a 13 year old boy (Power, 1999). Occupational Safety and Health Administration (OSHA) fined an Arizona builder \$355,250 after a Mexican national worker died while digging a 20-foot sewer trench. A contractor in Arizona is facing jail time in addition to fines related to the death of a teenage boy on the worksite (Power, 1999). The shortage of trained, qualified

workers is causing longer production schedules, increased costs, and is making quality control procedures difficult (Seiders, 1999).

Changes in building codes, land costs, and impact fees can substantially increase the cost of housing. Conventional housing, unlike manufactured housing, which conforms to a federal housing code, must conform to state and local building codes. These codes are subject to change according to policymakers' decisions and usually unexpectedly increase costs for the builder. Builders constantly battle changes to the building codes in order to keep their homes affordable for first-time buyers. In Charlotte, North Carolina, builders recently fought a code change that would on average increase the cost of a home by \$1,500 ("Cutting the impact of sidewalk regs", 1998). Impact fees are a way some cities are financing the infrastructure needed to serve new housing. Impact fees can add \$4,000 to \$5,000 onto the cost of the house (Fessenden, 1999). Government regulations in certain areas are driving up land costs by 20 to 30% pricing some home buyers out of the market ("Cutting the impact of sidewalk regs", 1998).

Materials increasing in cost as well as the shortage of materials are also causing problems for conventional homebuilders (Harte, 2000; Rozelle, 2000). Sharp increases in the price of materials in 1999 caused an increase in housing price (Delano, 1999). Some builders are working to alleviate labor, materials, and affordability difficulties by including pre-manufactured parts like manufactured floors, roof trusses and wall panels (Harte, 2000). Bad weather contributes to construction delays and can raise costs for builders. In 1995, housing starts fell dramatically due to widespread landslides and flooding in the West ("Housing starts continue to decline", 1995). Weather affects the

price of conventional housing due to lost days in production, and rescheduling of contractors.

Conventional housing still remains the most popular housing option in the United States, but is increasingly becoming unaffordable for homebuyers. The housing industry is facing a labor shortage, changes in building codes, shortage of raw materials, and setbacks due to bad weather and has to work at solving these problems before conventional housing will become more affordable. Training programs have been instituted to alleviate the labor shortage and in combination with the use of pre-fabricated materials affordability is likely to either improve or remain the same. There is another solution to conventional housing affordability--manufactured housing.

Manufactured Housing in the United States

Twenty-two percent of new single-family housing starts in the United States are manufactured homes ("Manufactured home industry", 1999). The average cost of new manufactured home in 1998 was \$43,800 compared with \$136,425 for a new site-built home, eliminating the price of land for both. Thus, manufactured homes are affordable for the majority of American households (U.S. Department of Commerce, 1997; Manufactured Housing Institute [MHI], 1996-97).

In past years, the factory-built housing industry has been heavily criticized citing poor installation, lack of wind resistance and poor construction as potential problems. The industry has been working diligently to correct and eliminate these problems. A bill known as the Manufactured Housing Improvement Act (U.S. Senate, 1999) has been drafted to address these problems. This bill passed the United States Senate unanimously in May, 2000 (Watson, 2000) and the House in October, 2000. While the President must

sign it into law, both congressional representatives and manufactured housing professionals are applauding the changes and the improvements that will result from this new act.

Proper unit installation continues to be an issue in the industry (Suchman, 1995; Vermeer and Louie, 1997). According to AARP's (1999) National Survey of Mobile Home Owners, 15% of homeowners experienced problems with installation and one-fifth of subsequent problems with the home resulted from improper installation. The Manufactured Housing Improvement Act seeks to address this problem. Under this bill, within five years, states will be required to establish an installation program mandating minimum installation standards, installers licensing and training, and installation inspections. (U.S. Senate, 1999). This bill also mandates that states institute a dispute resolution process that will facilitate consumer complaints concerning installation (U.S. Senate, 1999).

In the wake of Hurricane Andrew in 1992, with the recommendations of the manufactured housing industry, the U.S. Department of Housing and Urban Development revised the wind safety provisions of HUD Code (MHI, 2000). Thus, in areas prone to hurricane-force winds the HUD code is now equivalent to regional and national site-built building codes. In order to improve the safety of manufactured homes when natural disasters occur, the industry is also working with the National Weather Service, the National Oceanic and Atmospheric Administration, and the Federal Emergency Management Administration ("Manufactured Home Industry", 1999). The proposed Manufactured Housing Improvement Act creates a consensus committee of 25 professionals to suggest periodic revisions to the housing construction and safety

standards as well as the procedural and enforcement regulations (U.S. Senate, 1999). This 25-member committee will consist of five manufacturers of manufactured housing, five business people in finance, retailing, and installation of manufactured housing, five consumers or consumer organization representatives, five public officials, and five general interest members (U.S. Senate, 1999).

The construction of factory-homes is closely monitored and heavily inspected. The HUD enforcement system implemented in the factories assures uniformity and consistency of production. In addition to the manufacturer's inspection and quality assurance procedures, HUD inspectors examine the homes in the factory increasing efficiency and reducing travel (MHI, 2000). These inspectors can be more consistent than site-built inspectors because in the factory setting fewer people inspect more homes. Consumers can also look for the HUD certification label that is only affixed to homes that meet HUD code. In addition, wall, floor and ceiling insulation standards have increased in order to offset problems with high-energy consumption (Turner and Vaughn, 1998). Several companies have replaced less durable wall material with materials primarily used in site-built housing (Turner and Vaughn, 1998).

Factory-built housing can be subdivided into several categories. Manufactured homes, either single or multi-section, are entirely factory-built according to Federal Manufactured Home Construction and Safety Standards (HUD Code) effective June 15, 1976 and are installed after transport to the site (MHI, 2000; Georgia Manufactured Housing Association [GMHA], 2000; Carlson, 1991). Modular homes, factory-built according to local, state, and regional building codes where the home will be located, are transported and installed on site (MHI, 2000; GMHA, 2000, Carlson, 1991).

Manufactured and modular homes are easily confused because both are built off site, transported via highway, and sometimes offer very similar floor plans (Hood, 1998). Panelized homes are homes built on site using factory-built panels; these homes must meet state and local building codes for their location (MHI, 2000; GMHA, 2000). Pre-cut homes include kit, log, and dome houses for which building materials are pre-cut and delivered to the site where they must meet state and local building codes (MHI, 2000). Mobile homes describe homes built prior to HUD Code (July 15, 1976) and were built according to established voluntary industry standards (MHI, 2000; GMHA, 2000;)

Manufacturers are diversifying product offerings by producing both manufactured and modular homes that are indistinguishable from site-built homes after they are affixed to a permanent foundation. The industry is addressing installation by supporting a bill that would legislate installation as well as leading training efforts. Wind resistance has improved due to the change in HUD code in the wake of Hurricane Andrew. Quality construction is emphasized with frequent inspections, compliance to HUD code, and substitution of materials. There are several product offerings for homebuyers considering manufactured housing, but there are also many barriers to purchasing manufactured housing such as financing, zoning, and regulations.

Barriers to Homeownership

Owning a home has long been a critical element to achieving the American Dream. No other consumer decision affects quality of life more than housing choice. Housing is often viewed as the most significant investment consumers make for retirement or their heirs (Hood, 1998). Despite favorable policies and initiatives, in the last 100 years homeownership has only increased from 48% in 1890 to 65% in 1998

(Hood, 1998) to 67% in 1999 (Anton, 1999). Although this represents an increase from about half of the population owning a home to about two-thirds owning a home, the magnitude of change is small when compared to consumer gains in transportation, food, and clothing (Hood, 1998). Almost all of the gain occurred between World War II and 1965 resulting, in part, from increased access to credit due to government programs (Hood, 1998). Barriers to affordable housing include the high price of homeownership, federal, state and local regulations regarding growth controls, permitting, zoning, and building codes and lending barriers.

The high price of homeownership differentiates housing from other goods. Housing is often the most expensive purchase consumers make in their lives and consumers are increasingly unable to afford homeownership. Between 1960 and 1974, the real median income of households rose 29%, however, between 1975 and 1985, the real median income declined by 6.2%, resulting in a decrease of \$3,000 (Gyourko and Tracy, 1999). Real median income was unchanged between 1985 and 1995 (Gyourko and Tracy, 1999). Though as real median income remains unchanged, house prices are continuing to increase. Since 1976, the median price of a new home has increased at an average rate of 5.8% annually, meaning that a new home has more than tripled in price to \$136,245, not including land (MHI, 2000). While some households, in this period of economic expansion, have been able to afford to purchase homes, the gap between the rich and the poor has continued to increase since the 1970's (Twohey, 2000).

Transportation, food, and clothing production industries have reduced their per-unit pricing due to the transformation of craft production into mass production (Hood, 1998). The housing industry has resisted these modern advances in technology, mass

production, and firm organization; thus, craftsmen, on site, still primarily construct houses over extended time periods (Hood, 1998). This type of construction increases the price of housing due to the inability to benefit from the economies of scale and factory-controls offered by factory-built housing.

Regulations and Zoning

Although regulations are changing, many state and local regulations prevent manufactured housing in certain areas (Tremblay, Beamish, and Sweaney, 1987; O'Hare and O'Hare, 1993). In order to keep manufactured housing out of middle class neighborhoods, zoning laws often discriminate against manufactured housing (O'Hare & O'Hare, 1993). Ordinances created to ban single-wide trailers inadvertently discriminate against all types of manufactured housing, including those types of manufactured housing that are indistinguishable from "site-built" homes (O'Hare & O'Hare, 1993). Some zoning laws require a conditional use permit, which are difficult to obtain, because they require a ruling that allows building not consistent with the zoned use to be built. These conditional permits must be obtained before manufactured housing can be placed in some residential zones (Suchman, 1995). Permits and zoning for land-lease communities are often in mixed-use or commercial locations that are less desirable for residential use (Suchman, 1995). Special interest groups and homeowners' associations can cause problems for builders interested in using manufactured housing on their site due to their influence with local lawmakers (Lurz, 1999b). According to recent qualitative research sponsored by Manufactured Housing Institute, zoning, planning, and political officials indicated an unwillingness to move towards less restrictive zoning for manufactured housing without general public approval of manufactured housing ("What are they really

thinking?", 2000). They held this belief despite first-hand contact with and familiarity with the changes made in manufactured housing in the last decade ("What are they really thinking?", 2000). These regulations and zoning issues increase the cost of providing housing, so less restrictive regulations can help keep manufactured housing affordable (Meeks, 1988).

Exclusionary zoning and regulations against manufactured housing continues partly because of the belief that proximity to manufactured housing negatively effects the appreciation of nearby site-built housing (Suchman, 1995; Shen and Stephenson, 1998; "What are they really thinking?", 2000). Several studies indicate that manufactured housing has no effect on nearby residential properties (Gruber, Shelton, and Hiatt, 1988; Hicks, 1982; Nutt-Powell, Hoagin, and Layzer, 1986; George, 1989; Warner and Scheuer, 1993). Conversely, Munneke and Slawson's 1998 study using the hedonic price index and based on a sample of 3,025 single-family dwellings in Louisiana, found single-family dwellings are less valuable if located near mobile home communities. Limited geographical areas and data collection methods make this body of research informative, but inconclusive.

A recent study by Shen and Stephenson (1997), utilizing geographical information systems (GIS) to collect large samples from every part of four counties in North Carolina is a vital addition to this body of research. In this study, the impact of manufactured housing with different characteristics (single or multiple sections, foundation type, year, make) on the value of site built housing was compared and contrasted (Shen and Stephenson, 1997). This addition accounts for the changing characteristics of manufactured housing that prior studies did not analyze. Verifying for

both manufactured home communities and scattered sites, Shen and Stephenson (1997) found no correlation between presence of manufactured housing and the site-built housing appreciation rate. Findings also indicated that manufactured affixed to a permanent foundations or counted as real property appreciated at comparable rates to site-built housing (Shen and Stephenson, 1997). Multiple section homes appreciated at higher rates than single section homes, and the newer the home, the higher the appreciation rate (Shen and Stephenson, 1997). More research along with the widespread dissemination of research is needed to change public opinion and impact the decisions of zoning, political and planning officials.

Financing

Financing can also be a problem affecting the ability to purchase a manufactured home. In the past, buyers financed homes as a personal property loan resulting in different taxation as well as interest rates two to three points higher than residential real estate mortgages (Suchman, 1995). Times are changing, but limited mortgage funds are limiting access to credit for manufactured home buyers. In order to sell manufactured housing mortgages to the Federal National Mortgage Association (Fannie Mae), the land leases must be long-term (Suchman, 1995). Land leases are typically for 40 years, transferable with increases tied to the Consumer Price Index or another third-party index (Suchman, 1995). The Manufactured Housing Improvement Act currently being debated in Congress would mandate and encourage "government sponsored housing entities to actively develop and implement secondary market securitization programs for FHA manufactured home loans and those of other loan programs" (U.S. Senate, 1999). Rural Housing Service must consider manufactured home loans when administering the

guaranteed loan program retirees (A. Sweaney, personal communication, November 9, 2000). This would profoundly improve the likelihood that manufactured homebuyers could procure traditional mortgages.

Consumer Acceptance

Consumer acceptance also hinders the widespread acceptance of manufactured housing as a viable affordable housing option. A disparity exists between the satisfaction of manufactured or mobile home owners and the perception of people who are not manufactured homeowners (Shelton, Gruber and Godwin, 1983; Owens-Corning, 1988). According to Shelton et. al (1983), there is no significant difference between housing satisfaction of manufactured homeowners when compared to conventional homeowners. An earlier body of research supports this finding which generally report few differences between housing satisfaction of manufactured versus conventional homeowners (Gray, Shelton, and Gruber, 1980; Lindamood, 1976; Moore and Crocker, 1979; Pike and Stubbs, 1978). According to Owens-Corning (1988), manufactured homeowners were very satisfied with their purchase and 76% of those surveyed would purchase a manufactured home again. Three preferred benefits of manufactured homeowners included good price, good value, and ease of maintenance (Owens-Corning, 1988).

Despite this body of research, non-owners of manufactured homes perceive a difference in housing satisfaction. Non-owners of manufactured homes believe that manufactured homes have the worst image, limited locations available, and are the least energy-efficient when comparing manufactured homes to single-family detached homes and apartments (Owens-Corning, 1988) Conversely, this same group believed that

single-family detached homes had the best image, was the best value, and had the most locations available (Owens-Corning, 1988).

In a qualitative assessment of Georgia markets, Bockel Clark and Gill (1994) discovered that participants perceived manufactured homes lacked quality and safety and based their impressions on personal experience, popular media, and manufactured home parks. Tremblay's and Sweaney's (1984) survey of 1,804 households in seven southern states focusing on what people think about manufactured housing yielded similar results. Respondents cited safety (38.7%), compactness (22.1%), and quality of construction (14.8%) as the top reasons they disliked manufactured housing (Tremblay and Sweaney, 1984). Goss, Parrott, and Engelen-Eigles's study (as cited in Atilas, 1995) found in a study of residents of Appalachia a prejudice towards manufactured homes mostly due to a dislike of all affordable housing, lack of aesthetic appeal of mobile homes and parks that were poorly maintained and crowded. As indicated by Sanders's study (as cited in Atilas, 1995) of manufactured housing regulations and attitudes of 1,030 communities in the United States, acceptance of manufactured housing increased from 1970 to 1985. Negative stereotypes, outdated image perceptions, and misconceptions stand in the way of widespread acceptance of manufactured housing as an affordable housing alternative.

The NIMBY syndrome also contributes to this lack of acceptance and tolerance for manufactured homes. According to HUD (1991), NIMBY is an acronym for "Not in My Back Yard" which can be used to partially explain current zoning and regulatory procedures that local lawmakers have concerning manufactured housing. Permits for manufactured housing in residential areas are often rejected by local lawmakers, zoning officials, and some community members due to this syndrome (HUD, 1991). Fear of

decreased property values, more congestion, and a need for new infrastructure is often used to explain this attitude that intensifies as affordable housing is placed in close proximity (HUD, 1991). These concerns are argued to mask other concerns such as prejudice against manufactured home dwellers based on race or ethnicity (Fletcher, 1990). This type of discrimination is most prevalent in suburban areas intent on preserving economic and aesthetic homogeneity (HUD, 1991).

Factory-built housing serves as a viable, affordable option for many, however, there are still several barriers to this type of homeownership. Regulations and zoning restrict builders', developers' and consumers' options for placement in the community. Financing, although changing, continues to be a problem because the interest rates for financing manufactured homes (including personal and real property) continue to be higher than interest rates on mortgages for conventional homes. Consumer acceptance and perceptions also need to be challenged; owners are generally happy with manufactured housing because they have had a chance to experience this housing alternative. Non-owners, however, carry negative stereotypes and outdated images that prevent widespread acceptance.

Factors Influencing Choice of Housing Type

Several economic and demographic variables are hypothesized to effect choice of housing type. In this section, these factors will be presented and discussed. Prior research examining the effect of these variables on the choice of housing type will be enumerated. This research will support the expected result when the variables are included in the model.

Age

Homebuyers seem to differ on several characteristics related to age, and therefore can not be effectively consolidated into one group. Prior research indicates that there are identifiable differences in expenditures, incomes and characteristics between different segments of the aging population (Harrison, 1986; Gilderbloom & Mullins, 1995).

Active adult consumers differ on several characteristics related to housing choice.

According to the 1997 American Housing Survey (the database used in the present study), over 50% of active adults are married without children, compared with the 45-54 age range where children are more common, and with the 64 and older age group dominated by female-headed households (Emrath, 1999). Younger households (under 54) are more likely to be more educated when compared to active adults, while households over 64 on average have less education (Emrath, 1999). Incomes tend to be about the same when compared to younger households, although there is a larger disparity between income levels within the active adult age group (Emrath, 1999).

Income

Housing demand is determined by many factors, most importantly, income and house price (Sweaney and Meeks, 1992). Average real earnings between 1979 and 1995 remained stagnant or fell and low-wage earners experienced the greatest losses. (Twohey, 2000). Since 1996, however, full-time workers have experienced a gain in median weekly earnings of 5.3%. Despite this gain in income, for two-thirds of the states, the gap in income between the top 20% of families and the bottom 20% of families grew larger in the last decade (Twohey, 2000). Simultaneously, the number of affordable

rental units has substantially dropped and the demand of these units consistently outweighs the supply.

The median family income in the United States in 1996 was \$35,492 (U.S. Bureau of the Census, 1998d). The average price of new manufactured home in 1998 was \$30,300 for a single section and \$52,300 for a multi-section. The average price of a new conventional home was \$136,150 (U.S. Department of Commerce, 1997). In Gray, Shelton and Gruber's (1980) study of the relevance of manufactured housing to low income families, the average income of conventional homeowners was higher when compared to manufactured homeowners. A comparison of median incomes between the groups indicated that both groups of homeowners had about the same median incomes. According to Shelton, Gruber and Godwin's (1983) study, conventional homeowners reported substantially more income when compared to manufactured homeowners and apartment dwellers. The researchers attributed this difference to a difference in occupational status between occupants of each housing type with conventional homeowners have the largest proportion of white-collar workers. According to Vickery (1995), 53.8% of owners of new manufactured homes had annual household incomes below \$20,000. Of those whose household income was below \$15,000, more people (28.2%) purchased manufactured homes than conventional homes (14.5%) (Vickery, 1995). This study also found a statistically significant difference when comparing conventional and manufactured homeowners; new conventional homeowners had higher incomes than new manufactured homeowners.

Education

A household head's education and household income have been linked in several studies. Due to the price of a conventional home, lower income households are more likely to choose a more affordable housing option like manufactured housing. According to Morris, Crull, & Winter (1976), the amount of home a family can afford directly relates to income; thus, in general, higher income households tend to purchase bigger homes. Recent studies assessing education are: Foremost Insurance Group (1996), Usdansky (1992), Vickery (1995), O'Hare and O'Hare (1993), and Gray et. al. (1980). According to the Foremost insurance group, seven percent of manufactured homeowners held a bachelor's degree, while four percent held a post-baccalaureate degree. According to Usdansky (1992), 23.4% of all homeowners had completed at least four years of college compared with only 6.2% of manufactured homeowners. Vickery's (1995) study found 43.6% of owners of new manufactured homes completed high school compared to 34.8% of conventional homeowners, however, more conventional homeowners completed college (40.6%) when compared to manufactured home owners. O'Hare & O'Hare (1993) concluded that manufactured housing residents are less educated than people living in other dwellings are; two in five residents in other types of dwellings have a college education, while one in five residents of manufactured housing have earned a college degree. Findings in Grey et. al (1980) contradict these results. In their sample, manufactured homeowners reported more years of education when compared to conventional homeowners. The sample included 14 counties representing seven Agricultural Extension Service Districts in North Carolina. The sample of conventional homeowners was selected from six of the counties, while the sample of manufactured

homeowners was selected from all 14 counties. This study is older than the others and it is quite possible that the niche market has changed over an approximately fifteen-year time difference.

Race

The effect of race on the purchase of a manufactured home was determined to be significant in several studies and insignificant in one study. Manufactured housing does not appear to be serving a particular ethnic market. According to Vermeer and Louie (1997), Caucasians are more likely to own manufactured housing than African-Americans. Overall, Caucasian households increased 4% from 1985 to 1993, while Caucasian manufactured homeowners increased by 13%. African-American households grew by 11% from 1985 to 1993, but manufactured homeownership only increased by 5.5% during the same time period. O'Hare and O'Hare (1993) attribute this differential ownership to the rural location of manufactured homes; citing that minorities most often reside in cities while manufactured homes are most common in rural areas. The Urban Land Institute (1995) cites that only 4% of manufactured homes are located in the cities. Boehm (1994) also attributes low minority manufactured homeownership to the location of manufactured housing. Using 1985-1989 data files from the American Housing Survey in his research, findings indicated that 23% of lower income minority renters value being near family, friends, and other activities when selecting a neighborhood (Boehm, 1994). Additionally, 82.2% minority renters chose to remain in the central city when they moved (Boehm, 1994). Thus, manufactured housing was not a viable housing option as most units are located in rural areas. Thus, minorities comprise only 10% of manufactured home households compared with 20% of other households (O'Hare and

O'Hare, 1993; Suchman, 1995). In Turner and Vaughn's (1998) study of satisfaction with manufactured housing, 90% of the survey respondents were Caucasian. The sample for this study was selected from six rural counties, representing three regions in North Carolina (Turner and Vaughn, 1998). Regionally, the two counties representing the highest and lowest proportion of manufactured housing to total housing units were selected for the sample (Turner and Vaughn, 1998).

Therefore, according to these studies, one would expect that Caucasian households are more likely to purchase a manufactured home when compared with minority households.

Census Region

Studies examining the geographical location of manufactured housing conclude manufactured housing is primarily located in the South and the West. According to 1995 American Housing Survey data, 49% of the total occupied manufactured housing stock was located in the South (Vermeer and Louie, 1997). The Sunbelt states of Florida, California, Texas, North Carolina, and Georgia are the top five states with the largest number of manufactured homes (O'Hare and O'Hare, 1993). As a percentage of all housing units, South Carolina (16.9%) tops the charts followed by Wyoming (16.5%), New Mexico (16.3%), North Carolina (15.3%) and finally West Virginia (15.2%) (O'Hare and O'Hare, 1993). Experts conclude that the South is the largest and strongest market for manufactured housing due to demographics, rising labor and materials costs, a favorable economy, and revised zoning laws (Wendy et al., 1997). Vickery (1995), using the American Housing Survey Data, the South held a higher proportion of manufactured homes than the West, North and East. The market is also strong in the West, as exhibited by the largest manufactured housing sales growth in Oregon,

Washington and California in 1996 (Toops, 1997). According to this data, one would expect that homebuyers in the South and West are more likely to purchase a manufactured home than homebuyers in the Northeast and the Midwest.

Geographical Location

Most manufactured housing is located in nonmetropolitan areas (Meeks, 1988; "Hardly a trailer", 1993; O'Hare and O'Hare, 1993; Vermeer and Louie, 1997). Over time, the stock of manufactured housing located in nonmetropolitan areas has increased. In 1985, metropolitan areas had 39% of the manufactured housing stock leaving the other 61% to nonmetropolitan areas (Vermeer and Louie, 1997). In 1993, metropolitan areas contained 30% of the manufactured housing stock, while 70% was located in nonmetropolitan areas. Vickery (1995), using the American Housing Survey, found that 87.2% of manufactured homes included in the study were located in nonmetropolitan areas. Many manufactured home factories are located in nonmetropolitan areas which allows nonmetropolitan homebuyers to minimize delivery and transportation costs ("Hardly a trailer", 1993). In nonmetropolitan areas, land is less expensive and more plentiful than in metropolitan areas, which translates into lower housing costs. The barriers of zoning restrictions are also less common. Therefore, one would expect homebuyers in nonmetropolitan areas to be more likely to purchase manufactured when compared to homebuyers in metropolitan areas.

Household Size

According to the Foremost Insurance Group (1996), household size of manufactured home owners remained constant; two person households represented 38% of the survey. Contrary to the belief that manufactured housing puts an unnecessary

strain on school systems due to household size, the average size of manufactured home households is 2.51 persons compared with 2.63 average size of all households (Foremost Insurance Company, 1996). Surprisingly, 64% of manufactured homeowners have no children under the age of 20 (Foremost Insurance Company, 1996). Gray et. al (1980) found an average of 3.0 persons for conventional homeowners compared to an average household size of 2.8 persons for manufactured home dwellers. The researchers attributed the difference in household size to the difference in age between these two groups; older conventional homeowners were likely to have more children when compared with younger and older manufactured homeowners. Vickery (1995) found no statistically significant relationship between family size and type of home owned. The figures showing more people in conventional households are most likely related to the square footage of the house. In 1998, new manufactured homes averaged 1,450 square feet while new single-family site-built structures averaged 2,190. Clearly, on average, site-built homes can house more people. Thus, smaller sized households are expected to be more likely to purchase manufactured homes when compared to larger households.

Marital Status

In the United States, females make about 75 cents on a man's dollar for the same job. Female-headed households with no husband present are almost six times as likely to be living in poverty than married couple families (Smith and Tauber, 1994). In 1989, the poverty rate of families maintained by women was 31.1% and this group accounted for almost half of all poverty-stricken families (Smith and Tauber, 1994). Family incomes provide insight into this phenomenon. In 1989, married couples median family income was \$39,584 compared to \$17,414 for families headed solely by a female (Smith and

Tauber, 1994). In 1983, Shelton et. al found that conventional homeowners were more likely to be married when compared to manufactured homeowners. In their study, 80% of conventional homeowners were married compared to 69% of manufactured homeowners. Women are also increasingly becoming homeowners. In 1970, there were 6.5 million single-women homeowners (Spaid, 1995). In 1993, this number doubled to 13.8 million. Single homebuyers represent 26% of all homebuyers; single-women buyers out-number single-men buyers 3 to 2 (Spaid, 1995). Women's work force participation, increased divorce rates, postponement of marriage and lower mortgage rates and loan programs help explain the increase in homeownership among women (Spaid, 1995). Increasingly, it appears women want to be homeowners, but have lower incomes when compared to couple-headed households. The affordability of manufactured housing might offer single-women an opportunity to own their own home.

Cost

The average price of new manufactured homes in 1998 was \$30,300 for a single section and \$52,300 for a multi-section. The average price of a new conventional home was \$136,150 (U.S. Department of Commerce, 1997). The data set used in Rutherford and Thompson's (1999) study analyzed data compiled from residential transactions occurring in Tarrant County, Texas between July 1992 and December 1997. The sample included 65,854 sales of which 65,474 were conventional homes and 380 were mobile homes (Rutherford and Thompson, 1999). According to this study, the average new manufactured home price was about 22% of the price of an average new house. Rutherford and Thomson (1999) also found mobile homes are smaller than conventional homes, less likely to have a fireplace, and have one-half bedroom less. Results also

indicated that, on average, mobile homes have one covered parking space, compared to 1.5 in conventional homes, and are far less likely to have garages.

Summary

The literature review provides a theoretical as well as empirical foundation for this study. Modigliani's life-cycle theory explains how housing choice can be affected by lifestages. Demographically, this country will be seeing great changes in the next 30 years and this will result in a change in the demand for housing. Seniors and baby boomers' housing demands are likely to differ as much as their values differ. Housing affordability will continue to be in the forefront of our nations' problems. The extent to which policies will remove barriers to homeownership will determine the degree of market penetration of manufactured homeownership as well as single-family detached conventional homeownership. The statistical significance of demographic and economic factors as related to manufactured housing seem to differ from study to study.

CHAPTER 3

METHODS

Introduction

The purpose of this study is to assess economic and demographic factors influencing housing purchase while comparing active adult consumers with consumers of other ages. Modigliani & Ando's (1963) life cycle hypothesis of saving serves as the theoretical framework for this study. An analysis of demographic and economic factors affecting choice of housing type provides means for comparison. The research design to meet these objectives is described in this chapter. The hypotheses are stated, and data, sample selection, and data analysis procedures are discussed.

The following hypotheses are tested in this study:

- H₁: Active adult consumers differ from 44-54 year olds and 65-74 year olds on several factors influencing the type of housing purchased.
- a) Homebuyers with higher incomes are less likely to purchase a manufactured home than homebuyers with lower incomes.
 - b) Homebuyers with more education are less likely to purchase manufactured homes when compared to homebuyers with less education.
 - c) Homebuyers who are Caucasian will be more likely to purchase a manufactured home when compared to minority homebuyers.
 - d) Homebuyers in the South and West are more likely than homebuyers in Northeast and Midwest to purchase manufactured homes.

- e) Homebuyers in nonmetropolitan areas are more likely to purchase manufactured homes than homebuyers in metropolitan areas.
- f) Smaller-sized households are more likely to purchase manufactured homes than are larger households
- g) Female-headed households are more likely to purchase manufactured homes than are dual-headed households .
- h) Individuals who purchased manufactured homes paid less at time of purchase than individuals who purchased conventional homes.

Data

The data used in this study were derived from the 1997 American Housing Survey. The survey is administered every odd-numbered year by the U.S. Department of Commerce, Bureau of the Census for the U.S. Department of Housing and Urban Development. In 1997, approximately 53,500 sample housing units were selected with a stratified random sample for interview (HUD, 1998a). The American Housing Survey implements as an *ex post facto* research design. It has some of the characteristics of a panel design, such as the fact that the same sample of housing units are revisited every two years. Although housing units remain constant, residents move in and out of the same housing units, which is characteristic of a rotating panel. Another aspect of this design that makes it seem like a rotating panel is that each year some houses are removed from the sampling frame and new houses are added. These houses are added and subtracted using specific definitions and methods. The survey contains data gathered via interviews of residents living in sample housing units between August and November 1997.

This study uses an *ex post facto* multivariate cross-sectional design to analyze the type of housing purchased by active adult consumers between 1996-1997. Independent variables are expected to affect active adult consumers' choice of housing type purchased in 1996 or 1997—manufactured versus conventional homes. Age is the overarching variable of interest. Factors influencing active adult consumers' choice of housing type are compared to factors influencing choices of consumers younger (45-54) and older (65-74). Other independent variables expected to influence choice of housing type include: household income, education, race, census region, geographical location (metropolitan versus nonmetropolitan), household size, and household type. Each of these variables were measured once in 1997. Hypotheses with the exception of 1h are tested under *ceteris paribus* conditions; thus, independent variables also serve as control variables.

Sampling

For the 1997 American Housing Survey, approximately 53,500 housing units were sampled for requests to interview with their occupants (HUD, 1998a). Since 1985, the current sample of residents of housing units have been interviewed. In order to sample these units in 1985, the United States was divided up into groups of counties, and independent cities and were named primary sampling units or PSU's (HUD, 1998a). The sample was stratified using the criteria of being a self-representing PSU or a non-self representing PSU. If 100,000 housing units were contained within a PSU, the PSU was automatically included in the sample as a self-representing PSU. In the sample, there are 170 self-representing PSU's (HUD, 1998a). The remaining PSU's, the nonself-representing PSU's, were grouped. One PSU per group was selected, proportional to the number of housing units contained within the PSU, thus, representing all the PSU's in the

group. This sample of nonself-representing PSU's was a subsample of the Current Population Survey's sample areas based on the 1980 census (HUD, 1998a). The sample for the American Housing Survey consists of 394 PSU's, covering 878 counties and independent cities and ensuring coverage in all 50 states and the District of Columbia (HUD, 1998a).

The selection of sample housing units within the 394 PSU were based on four criteria: housing units selected from the 1980 census, housing units missed in the 1980 census, new construction in areas requiring building permits, and other housing units added since the 1980 census (HUD, 1998a). Housing units selected from the 1980 census were selected via a systematic sample so every unit had a 1 in 2,148 chance of being included in the American Housing Survey sample (HUD, 1998a). The Census Bureau identified units at addresses missed or inadequately defined in the 1980 Census. A sample of these units were included in the American Housing Survey sample. A sample of permits for new construction in areas requiring building permits was selected but did not include mobile homes or conversion of older buildings to residential use. Housing units added since the 1980 census were selected in two ways. If housing units were added to mobile home parks or existing buildings, a sample of these units were taken. To determine when whole buildings were added or converted to residential use, a list of residential buildings was compiled, additional buildings were found, and a sample of these additional buildings was selected.

Sample attrition of housing units in the American Housing Survey is attributed to two factors. First, some units were determined ineligible because they did not meet the definition of a housing unit or did not exist. The exact attrition rate has yet to be

determined, but historically represents between five and ten percent of the sample, or approximately 2,675 to 5,350 housing units (HUD, 1998a). Secondly, eligible units were eliminated either because no one was home after repeated visits, the resident refused an interview, or the interviewer was unable to find the units. Although the American Housing Survey includes all these sources of elimination for eligible units together, they can be separated using the variable NOINT2 and NOINTA (HUD, 1998a). Potentially, both sources of attrition could result in the exclusion of ten to twenty percent, or approximately 5,350 to 10,700 housing units from the sample.

The sample used in the current study is derived from the 1997 American Housing Survey. The subsample includes those with household heads aged 44 to 75, who are owners of a manufactured or conventional home, which was purchased by them in 1996 or 1997. The variables used to select the subsample narrow the sample from approximately 53,500 households to 794 households. One variable used in this process, PREOCC, measures whether the house was obtained via a gift or an inheritance or if it was purchased. This ensures that owners having no choice in the decision are excluded. The measurement of owner or renter status is measured using three categories of measurement and is coded TENURE. The current study is only concerned with owners of single-family detached houses and manufactured homes; thus categories two and three are omitted. Category two measured one-unit building, attached to one or more buildings and category three measures a building with two or more apartments. The purchase of a home in 1996 and 1997 narrows the sample due to the time frame in which the home was purchased. Age of the respondent, which is the overarching independent variable of interest in this study, limits the sample size. The combination of the two variables

narrows the sample, as the purchase of a home becomes less frequent with age.

Respondents aged 45-54 numbered 454. There were 222 respondents aged 55-64.

Respondents aged 65-74 numbered 118.

Data Analysis Procedures

First, a descriptive analysis of the data provides information about the three age groups that will increase understanding of the groups. Means, medians, and frequencies are presented for interval level data thus allowing comparisons across the three age groups. This allows differences as well as similarities between the groups to become apparent. The descriptive analysis is also used to determine the validity of the hypothesis concerning price. A price comparison will be made between the purchase price of manufactured homes and the purchase price of conventional homes among each age group.

Logistic regression is the statistical technique used to test the hypotheses in the research models. There are three primary assumptions underlying this statistical technique. First, the dependent variable must be dichotomous. The dependent variable, the choice to purchase a single-family detached house versus manufactured home, meets this criterion. Secondly, the sample size rule-of-thumb is a minimum of five to ten subjects per independent variable. The sample size of this study allowed for more than ten subjects per independent variable.

Thirdly, independent variables are assumed to have a lack of multicollinearity. Correlation coefficients were used to determine if multicollinearity was a problem. It should be noted that the correlation coefficient matrix was not used for the purpose of hypotheses testing, therefore, the statistical significance is not reported. A correlation

coefficient of .70 or greater indicates a multicollinearity problem. The correlation coefficients (Appendix A) indicated that the independent variables were not correlated enough to invalidate this third assumption. Although the correlation coefficient matrix did not indicate a multicollinearity problem, a problem was discovered during data analysis. Initially, three logistic regressions were planned using eight independent variables, including price. It was discovered that the purchase price of the house had 163 missing values, so the plan was altered to include two sets of logistic regressions, one including purchase price of the house and one without. This was to explore the relationship between price and income. In a mean substitution procedure, the average price of each of the housing types by age group were substituted to replace the missing values. After analyzing the output, problems were discovered with the results of both regressions for the oldest age group and all the regressions including price. The regressions including price as a variable were eliminated due to an interaction effect between purchase price of the house and education and household income. The combination of these three variables caused a multicollinearity problem that was not detected by the correlation coefficient matrix. In the oldest age group (65-74), race was eliminated from the model and household type was recoded to compare all single-headed households to all dual-headed households.

The model includes eight independent variables: household income, purchase price of house, household size, metropolitan area, respondents' race, geographical region, household type, and educational level. Age is the overarching independent variable of interest; thus, three logistic regressions are used to analyze the effect of the independent

variables on the choice of type of housing. Three different logistic regressions are performed, one for 45-54 year olds, one for 55-64 year olds, and one for 65-74 year olds.

The alpha level was set at .05. The test-statistic, chi-square, tests that the overall null hypothesis that the pseudo R^2 is equal to zero. In other words, that the research model does not improve the predictive efficacy over the null model. Mathematically, the null hypothesis for the model is $H_0: \text{psuedo-}R^2 = 0$. Wald chi-square (z-statistic) tests the individual null hypotheses that each individual independent variable has no statistically significant effect on the choice of housing type. For each of the null hypotheses, the mathematical version of the null is $H_0: b = 0$. There are several measures of association that were used to interpret the strength and the direction of the relationship between variables. The unstandardized logistic regression coefficient is used to report the direction of the relationships that were statistically significant. The odds ratio, a very interpretable measure of association, is primarily used to determine the strength and the direction of the relationship. A coefficient of 1.00 is interpreted as having no effect, a coefficient of greater than 1.00 indicates a positive relationship between the two variables, while a coefficient of less than 1.00 indicates a negative relationship between the two variables. The further away a coefficient is from 1.00, the stronger the relationship. Standardized estimates, analogous to Beta estimates in multiple regression, are used to compare the relative strength of the variables' effects on the dependent variable. Psuedo- R^2 is used to measure the improvement in predictive efficacy of the research model in comparison with the null model (Hosmer & Lemeshow, 1989). Predicted probabilities are also used to forecast the probability of choice of housing type of sample members or members of the target population.

Study variable names, definitions and coding

The dependent variable of interest in the current study is structure type coded by the American Housing Survey as NUNIT2 (Table 1). Options two (one-unit building, attached to one or more buildings) and three (building with two or more apartments) are omitted. After examining the frequencies in groups four and five, options four and five were combined, thereby creating a natural dummy variable situation.

The overarching variable of interest in the current study is age. Logistic regression was used to analyze the data of three different age groups. The first group includes those aged 45 to 54, the second group includes those aged 55-64, and the third group includes those aged 65-74. All of the other independent variables are examined with respect to age.

The measurement of the educational level of a person is coded by the American Housing Survey as GRAD (Table 1). This variable was recoded to represent the number of years of education a respondent had completed. The number of years of education ranged from zero to 21. When a category included more than one particular year of education, the midpoint of the category was determined to be the number of years of education. For example, category 32 includes 1st, 2nd, 3rd, or 4th grade, this is recoded to 2.5 years of education.

The American Housing Survey measures income using several different methods. The income measure chosen for the current study is coded as ZINC (Table 1) and measures total annual household income. An assessment of all the income measures including a measurement of missing values and frequencies among each group was conducted. This variable measured income the most accurately.

Table 1

Measurement of VariablesAmerican Housing Survey Variable Names, Definitions, and Coding

| Variable | Description |
|----------|---------------------------------------------------------------------------------|
| NUNIT2 | Structure type |
| | 1 One-unit building, detached from any other building |
| | 2 One-unit building, attached to one or more buildings |
| | 3 Building with two or more apartments |
| | 4 One-unit mobile home |
| | 5 Two or more unit mobile home |
| AGE | Age of person in years. (The range is 0 years to 120 years old). |
| GRAD | Educational level of person |
| | 31 Less than 1st grade |
| | 32 1st, 2nd, 3rd, or 4th grade |
| | 33 5th or 6th grade |
| | 34 7th or 8th grade |
| | 35 9th grade |
| | 36 10th grade |
| | 37 11th grade |
| | 38 12th grade, no diploma |
| | 39 High school graduate (diploma or equivalent) |
| | 40 Some college but no degree |
| | 41 Diploma or certificate from vocational, technical, trade, or business school |
| | 42 Associate degree in college-Occupational/vocational program |
| | 43 Associate degree in college-Academic program |
| | 44 Bachelors degree |
| | 45 Master's degree |
| | 46 Professional school degree |
| | 47 Doctorate degree |
| ZINC | All household income (in dollars) |
| LPRICEQ | Purchase Price of house |

| Variable | Description |
|----------|-------------------------------------|
| MAR | Marital status of person |
| | 1 Married, SPOUSE PRESENT |
| | 2 Married, SPOUSE ABSENT |
| | 3 Widowed |
| | 4 Divorced |
| | 5 Separated |
| | 6 Never Married |
| METRO 3 | Central City/Suburban Status |
| | 1 Central City of SMSA |
| | 2 Urbanized Suburb |
| | 3 Other Urban Suburb |
| | 4 Rural Suburbs |
| | 5 Suburb |
| | 6 Urbanized Area, non-metro |
| PER | Number of persons in household |
| RACE | Race of person |
| | 1 White |
| | 2 Black |
| | 3 American Indian, Aleut, or Eskimo |
| | 4 Asian or Pacific Islander |
| | 5 Other Race |
| REGION | Census Region |
| | 1 Northeast |
| | 2 Midwest (North Central) |
| | 3 South |
| | 4 West |
| SEX | Sex of person |
| | 1 Male |
| | 2 Female |

The American Housing Survey codes the purchase price of the house as LPRICEQ (Table 1). The purchase price is measured as a continuous interval level variable where values range from \$1 to \$999,997. Purchase prices \$999,998 or more are measured in one category. In actuality, the values are topcoded at \$350,000. The purchase price of the house is measured as a continuous interval level variable with values ranging from \$1 to \$350,000. This study intended to control for price in the model, but its' high correlation with other independent variables prevented its' inclusion. Therefore, price was not included in the logistic regression, but instead the hypothesis is tested using descriptive analysis.

Six nominal level options are used to measure marital status of a person and are coded by the American Housing Survey as MAR (Table 1). In the current study, dummy variables are created based on the frequencies in each category. These categories are collapsed based on these frequencies. The frequencies indicated the necessity to collapse categories one and two into a new category called married and categories three through six into a new category called not married. In this case, not married is the omitted category.

The location in metropolitan or nonmetropolitan areas is measured using eight categories and is coded as METRO3 (Table 1). In the current study, nonmetropolitan was the omitted category. In this sample, only options one through five had a cell frequency. Therefore, options one through three were combined to form a category named metropolitan and options four and five were combined to form a category named nonmetropolitan. The number of persons in the household is measured using a

continuous, interval level scale, is coded as PER (Table 1), and remains the same in current study.

In order to ensure that people included in the subsample consciously made the decision to purchase a conventional home or a manufactured home, PREOCC, a variable measuring how the house was obtained was included. This excludes any person who obtained a house via a gift or inheritance.

The race of a person is coded as RACE (Table 1) and is measured using a nominal scale consisting of five categories. An analysis of the frequencies necessitated the collapse of the five categories to form two categories: White and non-white. Race is included as a variable in all the logistic regressions with the exception of the 65-74 year old group. There is a very low sample of non-white respondents, aged 65-74, who are highly educated. As a result, the combination of these factors caused the logistic regression to fail and nullify the results. Thus, race is excluded for the 65-74 year olds' logistic regression. The geographical location of the home is measured using the census regions and is coded as REGION (Table 1). Four categories measured via a nominal level of measurement are used to create three dummy variables. The South is the omitted category so the other categories are compared to the South.

In order to measure whether the household is female-headed or couple or male-headed household, two variables were combined. Sex of person (SEX) and marital status of person (MAR). This combination isolates female-headed households and dual/male-headed households.

Summary

The choice to purchase a manufactured versus a single-family detached house is interesting to explore. The hypotheses presented are grounded in Modigliani and Ando's life-cycle income hypothesis, and information found in the literature review. Results of the statistical analysis as well as descriptive statistics are presented in the following chapter.

CHAPTER 4

RESULTS

This chapter presents findings from statistical analyses. First, analyses describing the characteristics of the three different age groups and their homes will be presented. Then, findings from the statistical analyses are presented by age group and logistic regression. Finally, the effect of each hypothesized factor related to home purchasers' choice of manufactured housing is summarized across the age groups.

Sample Description

This sample consisted of 794 homebuyers who purchased a single-family detached house or a manufactured home in 1996 or 1997 (HUD, 1998a). The majority of the sample (86.5%) owned a single-family detached home. Many homebuyers cited as the main reason for purchasing their homes: room layout/design (26.6%) and (financial reasons (20.3%) (Table 2). The majority of homebuyers liked their new neighborhoods better than (48.9%) or about the same (40.6%) as their old neighborhoods (Table 2). Only 10.7% of the sample preferred their old homes to their new homes (Table 2). The majority of homebuyers experienced an increase in housing costs with the move; approximately 53.8% of the sample reported that their housing costs increased when they moved (Table 2). An almost equal percentage of homebuyers said their housing cost decreased (21.3%) as said that their cost stayed about the same (22.9%) (Table 2).

Table 2

Characteristics of Homebuyers

| Variable | Overall Sample | | 45-54 year olds | | 55-64 year olds | | 65-74 year olds | |
|-------------------------|----------------|------|-----------------|------|-----------------|------|-----------------|------|
| | n=794 | % | n=454 | % | n=222 | % | n=118 | % |
| Main Reason Home Chosen | | | | | | | | |
| Room layout/design | 203 | 26.6 | 111 | 25.3 | 62 | 29.0 | 0 | 0.0 |
| Financial reasons | 155 | 20.3 | 104 | 23.7 | 34 | 15.9 | 17 | 15.6 |
| Other | 107 | 14.0 | 62 | 14.1 | 33 | 15.4 | 12 | 11.0 |
| All reasons equal | 67 | 8.8 | 34 | 7.7 | 18 | 8.4 | 15 | 13.8 |
| Size | 66 | 8.7 | 36 | 8.2 | 17 | 7.9 | 13 | 11.9 |
| Yard/trees/view | 61 | 8.0 | 32 | 7.3 | 20 | 9.3 | 9 | 8.3 |
| Quality of construction | 43 | 5.6 | 21 | 4.8 | 13 | 6.1 | 9 | 8.3 |
| Exterior appearance | 35 | 4.6 | 28 | 6.4 | 6 | 2.8 | 1 | .9 |
| Only one available | 20 | 2.6 | 9 | 2.1 | 8 | 3.7 | 3 | 2.8 |
| Kitchen | 5 | .7 | 2 | .5 | 3 | 1.4 | 30 | 27.5 |
| Neighborhood Comparison | | | | | | | | |
| Better | 371 | 48.9 | 226 | 51.7 | 94 | 44.3 | 51 | 46.4 |
| About the same | 308 | 40.6 | 168 | 38.4 | 91 | 42.9 | 49 | 44.5 |
| Worse | 44 | 5.8 | 25 | 5.7 | 16 | 7.5 | 3 | 2.7 |
| Same neighborhood | 36 | 4.7 | 18 | 4.1 | 11 | 5.2 | 7 | 6.4 |
| House Comparison | | | | | | | | |
| Better | 493 | 64.6 | 307 | 69.8 | 130 | 61.0 | 56 | 50.9 |
| About the same | 188 | 24.6 | 87 | 19.8 | 55 | 25.8 | 46 | 41.8 |
| Worse | 82 | 10.7 | 46 | 10.5 | 28 | 13.1 | 8 | 7.3 |
| Housing Cost Comparison | | | | | | | | |
| Increase | 397 | 53.8 | 260 | 61.0 | 98 | 47.8 | 39 | 36.4 |
| Stayed the same | 169 | 22.9 | 85 | 20.0 | 48 | 23.4 | 36 | 33.6 |
| Decrease | 157 | 21.3 | 73 | 17.1 | 54 | 26.3 | 30 | 28.0 |
| Don't know | 15 | 2.0 | 8 | 1.9 | 5 | 2.4 | 2 | 1.9 |

Total household income averaged \$56,425, while the median income was slightly less at \$46,300. In this sample, 40.8% earned more than the average income. Those earning over \$150,001 comprise four percent of the sample (Table 3). Respondents in the sample were relatively well educated; 27.7% had completed some college, 19.5% received bachelor's degree, and 11.3% had completed post-baccalaureate degrees (Table 3). At 90.1% Caucasian respondents dominated the sample, while six percent of the sample were of Spanish descent (Table 3). Metropolitan dwellers dominated the sample as 70.2% of households resided in metropolitan areas (Table 3). The average household size was 2.46 people, 45.6% of the households consisted of two people, and only three percent of the households had five or more people. Married couples comprised 67.5% of the sample, 20.0% of the households were female-headed, and males headed the remaining 12.5% (Table 3).

In 1996-97 dollars, the average house purchase price was \$114,402 and the median was \$100,000. The majority of the homebuyers (57.5%) paid \$150,000 or less for their homes, while those paying \$250,001 or more comprised 6.5% of the sample (Table 4). Homes averaged 1971.5 square feet and were an average of 24 years old in 1997 (Table 4). The median square footage for homes in this sample was 1800 square feet. Most of the respondents were not first-time homebuyers about 83.3% of the sample had owned a home prior to this purchase.

Table 3

Demographic Characteristics of Household Head/Co-Head

| Variable | <u>Overall Sample</u> | | <u>45-54 year olds</u> | | <u>55-64 year olds</u> | | <u>65-74 year olds</u> | |
|-------------------------------------------|-----------------------|------|------------------------|------|------------------------|------|------------------------|------|
| | n=794 | % | n=454 | % | n=222 | % | n=118 | % |
| Household Income | | | | | | | | |
| \$0-25,000 | 206 | 25.9 | 76 | 16.7 | 76 | 34.2 | 54 | 45.8 |
| 25,001-50,000 | 228 | 28.8 | 118 | 26.0 | 66 | 29.8 | 44 | 37.3 |
| 50,001-75,000 | 146 | 18.3 | 106 | 23.4 | 30 | 13.5 | 10 | 8.4 |
| 75,001-100,000 | 102 | 12.9 | 68 | 15.0 | 28 | 12.6 | 6 | 5.1 |
| 100,001-125,000 | 58 | 7.3 | 49 | 10.8 | 6 | 2.7 | 3 | 2.6 |
| 125,001-150,000 | 22 | 2.8 | 15 | 3.3 | 7 | 3.1 | 0 | 0.0 |
| 150,001-175,000 | 13 | 1.6 | 8 | 1.7 | 4 | 1.8 | 1 | .8 |
| 175,001 or more | 19 | 2.4 | 14 | 2.1 | 5 | 2.3 | 0 | 0.0 |
| Household Head's Educational Level | | | | | | | | |
| Less than high school | 39 | 4.9 | 19 | 4.2 | 10 | 4.5 | 10 | 8.5 |
| Some high school | 63 | 7.9 | 27 | 5.9 | 25 | 11.3 | 11 | 9.3 |
| High school graduate | 227 | 28.6 | 121 | 26.7 | 64 | 28.8 | 42 | 35.6 |
| Some college | 220 | 27.7 | 128 | 28.2 | 56 | 25.2 | 36 | 30.5 |
| Bachelor's degree | 155 | 19.5 | 95 | 20.9 | 47 | 21.2 | 13 | 11.0 |
| Post-baccalaureate | 90 | 11.3 | 64 | 14.1 | 20 | 9.0 | 6 | 5.1 |
| Race of Household Head | | | | | | | | |
| White | 716 | 90.2 | 408 | 89.9 | 199 | 89.6 | 109 | 92.4 |
| Black | 47 | 5.9 | 24 | 5.3 | 15 | 6.8 | 8 | 6.8 |
| Other | 31 | 3.9 | 22 | 4.8 | 8 | 3.7 | 1 | .8 |
| Spanish Origin of Household Head | | | | | | | | |
| Yes | 48 | 6.0 | 39 | 8.6 | 6 | 2.7 | 3 | 2.5 |
| No | 746 | 94.0 | 415 | 91.4 | 216 | 97.3 | 115 | 97.5 |

Table 3 (continued)

| Variable | Overall Sample | | 45-54 year olds | | 55-64 year olds | | 65-74 year olds | |
|----------------------------|----------------|------|-----------------|------|-----------------|------|-----------------|------|
| | n=794 | % | n=454 | % | n=222 | % | n=118 | % |
| Geographical Region | | | | | | | | |
| Northeast | 79 | 9.9 | 50 | 11.0 | 16 | 7.2 | 13 | 11.0 |
| Midwest | 185 | 23.3 | 109 | 24.0 | 51 | 23.0 | 25 | 21.2 |
| South | 326 | 41.1 | 182 | 40.1 | 89 | 40.1 | 55 | 46.6 |
| West | 204 | 25.7 | 113 | 24.9 | 66 | 29.7 | 25 | 21.2 |
| Place of Residence | | | | | | | | |
| Metropolitan | 557 | 70.2 | 341 | 75.1 | 136 | 61.3 | 80 | 67.8 |
| Nonmetropolitan | 237 | 29.8 | 113 | 24.9 | 86 | 38.7 | 38 | 32.2 |
| Household Size | | | | | | | | |
| 1 person | 159 | 20.0 | 74 | 16.3 | 49 | 22.1 | 36 | 30.5 |
| 2 persons | 362 | 45.6 | 170 | 37.4 | 125 | 56.3 | 67 | 56.8 |
| 3 persons | 130 | 16.4 | 90 | 19.8 | 30 | 13.5 | 10 | 8.5 |
| 4 persons | 82 | 10.3 | 72 | 15.9 | 7 | 3.2 | 3 | 2.5 |
| 5 or more people | 61 | 7.7 | 48 | 10.6 | 11 | 5.0 | 2 | 1.7 |
| Respondent's Sex | | | | | | | | |
| Male | 508 | 64.0 | 287 | 63.2 | 149 | 67.1 | 72 | 61.0 |
| Female | 286 | 36.0 | 167 | 36.8 | 73 | 32.9 | 46 | 39.0 |
| Household Type | | | | | | | | |
| Female-headed | 159 | 20.0 | 91 | 20.0 | 42 | 18.9 | 26 | 22.0 |
| Single-male headed | 99 | 12.5 | 54 | 11.9 | 27 | 12.2 | 18 | 15.3 |
| Dual-headed | 536 | 67.5 | 309 | 68.1 | 153 | 68.9 | 74 | 62.7 |

Table 4

Characteristics of Housing Units

| Variable | <u>Overall Sample</u> | | <u>45-54 year olds</u> | | <u>55-64 year olds</u> | | <u>65-74 year olds</u> | |
|-----------------------------|-----------------------|------|------------------------|------|------------------------|------|------------------------|------|
| | n=794 | % | n=454 | % | n=222 | % | n=118 | % |
| House Purchase Price | | | | | | | | |
| \$0-50,000 | 150 | 23.8 | 78 | 21.0 | 44 | 26.5 | 28 | 29.8 |
| 50,001-100,000 | 168 | 26.6 | 97 | 26.2 | 38 | 22.9 | 33 | 35.1 |
| 100,001-150,000 | 155 | 24.6 | 91 | 24.5 | 45 | 27.1 | 19 | 20.2 |
| 150,001-200,000 | 74 | 11.7 | 49 | 13.2 | 18 | 10.8 | 7 | 7.5 |
| 200,001-250,000 | 32 | 5.1 | 19 | 5.1 | 9 | 5.5 | 4 | 4.2 |
| 250,001 or more | 52 | 8.2 | 37 | 10.0 | 12 | 7.2 | 3 | 3.2 |
| House Square Footage | | | | | | | | |
| 0-500 | 15 | 2.1 | 5 | 1.2 | 4 | 2.0 | 6 | 5.6 |
| 501-1000 | 89 | 12.2 | 43 | 10.3 | 31 | 15.2 | 15 | 13.8 |
| 1001-1500 | 169 | 23.2 | 92 | 22.2 | 56 | 27.4 | 21 | 19.5 |
| 1501-2000 | 170 | 23.4 | 91 | 21.8 | 44 | 21.6 | 35 | 32.4 |
| 2001-2500 | 116 | 15.9 | 69 | 16.6 | 29 | 14.2 | 18 | 16.7 |
| 2501-3000 | 76 | 10.4 | 56 | 13.5 | 15 | 7.3 | 5 | 4.6 |
| 3000 or larger | 93 | 12.8 | 60 | 14.4 | 25 | 12.3 | 8 | 7.4 |
| Housing Type | | | | | | | | |
| Single-family detached | 687 | 86.5 | 406 | 89.4 | 187 | 84.2 | 94 | 79.7 |
| Manufactured | 107 | 13.5 | 48 | 10.6 | 35 | 15.8 | 24 | 20.3 |
| First House | | | | | | | | |
| No | 662 | 83.9 | 369 | 81.8 | 189 | 85.5 | 104 | 88.9 |
| Yes | 127 | 16.1 | 82 | 18.2 | 32 | 14.5 | 13 | 11.1 |
| Year Moved In | | | | | | | | |
| 1996 | 434 | 54.7 | 246 | 54.2 | 123 | 55.4 | 65 | 55.1 |
| 1997 | 360 | 45.3 | 208 | 45.8 | 99 | 44.6 | 53 | 44.9 |

Table 4 (continued)

| Variable | Overall Sample | | 45-54 year olds | | 55-64 year olds | | 65-74 year olds | |
|------------------|----------------|------|-----------------|------|-----------------|------|-----------------|------|
| | n=794 | % | n=454 | % | n=222 | % | n=118 | % |
| Year House Built | | | | | | | | |
| 1919-1930 | 82 | 10.3 | 55 | 12.1 | 18 | 8.1 | 9 | 7.6 |
| 1940 | 36 | 4.6 | 19 | 4.2 | 11 | 5.0 | 6 | 5.1 |
| 1950 | 63 | 7.9 | 40 | 8.8 | 11 | 21.9 | 12 | 10.2 |
| 1960 | 83 | 10.4 | 51 | 11.2 | 21 | 9.5 | 11 | 9.3 |
| 1970-1979 | 127 | 16.0 | 75 | 16.6 | 34 | 15.3 | 18 | 15.3 |
| 1980-1989 | 97 | 12.3 | 52 | 11.4 | 31 | 14.0 | 14 | 11.8 |
| 1990-1995 | 81 | 10.2 | 43 | 9.5 | 28 | 12.6 | 10 | 8.5 |
| 1996 | 149 | 18.7 | 76 | 16.7 | 45 | 20.2 | 28 | 23.7 |
| 1997 | 76 | 9.6 | 43 | 9.5 | 23 | 10.4 | 10 | 8.5 |
| Month Moved In | | | | | | | | |
| First Quarter | 136 | 17.1 | 79 | 22.2 | 35 | 15.9 | 22 | 18.6 |
| Second Quarter | 272 | 34.3 | 152 | 33.5 | 85 | 38.3 | 35 | 29.7 |
| Third Quarter | 251 | 32.5 | 160 | 35.2 | 62 | 28.0 | 36 | 30.5 |
| Fourth Quarter | 128 | 16.1 | 63 | 13.9 | 40 | 18.1 | 25 | 21.2 |

Table 5

Characteristics of Purchasers of Manufactured Homes

| Variable | Overall Sample | | 45-54 year olds | | 55-64 year olds | | 65-74 year olds | |
|-----------------------|----------------|------|-----------------|------|-----------------|------|-----------------|------|
| | n=794 | % | n=454 | % | n=222 | % | n=118 | % |
| Mobile Home Group 2 + | | | | | | | | |
| Yes | 60 | 56.1 | 32 | 66.7 | 16 | 45.7 | 12 | 50.0 |
| No | 47 | 43.9 | 16 | 33.3 | 19 | 54.3 | 12 | 50.0 |
| House on Initial Site | | | | | | | | |
| Yes | 66 | 66.7 | 28 | 58.3 | 24 | 68.6 | 14 | 58.3 |
| No | 19 | 17.8 | 11 | 22.9 | 5 | 14.3 | 3 | 12.5 |
| Don't know | 22 | 20.6 | 9 | 18.8 | 6 | 17.1 | 7 | 29.2 |
| Own Lot | | | | | | | | |
| Yes | 44 | 41.1 | 25 | 52.1 | 11 | 31.4 | 8 | 33.3 |
| No | 63 | 58.9 | 23 | 47.9 | 24 | 68.6 | 16 | 66.7 |

Among this age group (45-74), manufactured home purchasers in 1996 and 1997 numbered 107; and, of these homes, 56.1% were located in a group of manufactured

homes of two or more (Table 5). Only 17.8% of the sample had moved their manufactured home after it was initially moved to their site from the factory or retail location and 41.1% of the sample owned the land upon which their manufactured home sits (Table 5).

Homebuyers aged 45-54

Respondents aged 45-54 numbered 454. Homebuyers in this age group paid slightly more for their homes when compared to the entire sample; an average \$121,685 was spent to purchase a home with the median price being \$106,000. Those paying over \$200,000 comprised 15.1% of the sample, while those paying over \$250,001 comprised approximately eight percent of the sample (Table 3). This subset of the sample earned more, compared to the overall sample, with an average annual income of \$65,894, and a median income of \$59,800. According to the frequency distribution (Table 3), the youngest group had the lowest proportion of the sample in the lowest two income groups, the middle group had more, and the oldest group had the highest proportion. Those earning \$50,000 or less comprised 42.7% of 45-54 year old age group compared with 65.0% of the 55-64 year old group and 83.1% of those aged 65-74. The youngest age group also had the highest proportion of post-baccalaureate graduates: 14.0% compared to 9.0% compared to 5.1% (Table 3).

The distribution of race seemed similar over the three age groups, although the 45-54 year old group had a higher proportion of people of Spanish origin than the other two groups (Table 3). This reflects the changing demographics of the 21st century, which predicts an increase in minorities, especially minorities of Spanish descent. Household size of 45-54 year olds differs when compared to the older age groups (Table

3). The proportion of households with only two persons is 37.4% among 45-54 year olds compared to 56.3% for 55-64 year olds and 56.8% for 65-74 year olds. As shown in Table 4, proportionately more 45-54 year olds (18.2%) purchased their first house in 1996 and 1997 when compared with 55-64 year olds (14.5%) and 65-74 year olds (11.1%).

Homebuyers aged 55-64

In this sample, there were 222 homebuyers aged 55-64. The majority of these homebuyers liked their neighborhood about the same or better when compared to their old neighborhood (87.2%), were paying more or about the same in housing costs (71.2), but liked their home better or about the same as their former homes (86.8%) (Table 2).

Homebuyers in this age group averaged \$112,484 for a home purchase, which is slightly, less than the average for the entire sample. The median priced home for this age group was \$201,475. Those paying over \$200,000 comprised eight percent of the sample, while those paying over \$250,001 comprised approximately seven percent of the sample (Table 3). Compared to the overall sample, this subset earned slightly less with an average annual income of \$49,476, and median at \$38,750. As shown in Table 3, the majority (63.0%) of the sample had at least some college education. Most of the respondents (89.6%) were Caucasian and were not of Spanish origin (97.3%) (Table 3). This subset had the highest proportion of nonmetropolitan dwellers (38.7%) compared to the younger subset (24.9%) and the older subset (32.2%) (Table 3). As shown in Table 3, most households were dual-headed (68.9%) and consisted of one to two people (78.4%).

Respondents owning a home 2501 square feet or larger (19.6%) represented a smaller proportion compared to the younger group (27.9%) and a larger proportion

compared to the older group (12%) (Table 4). As shown in Table 4, a higher percentage of respondents in this subset purchased manufactured homes (15.8%) compared with 45-54 year olds (10.6%) while those aged 65-74 had the highest percentage of manufactured homes purchases at 20.3%. The majority of manufactured homebuyers had homes that were placed on rented land (68.6%), which was the home's initial site (68.6%), and were not part of a mobile home group of two or more (54.3%) (Table 5).

Homebuyers aged 65-74

Homebuyers in this age range numbered 118. Their average house purchase price was \$89,046 and the median was \$80,700, which is lower than the overall sample and the lowest average and median of all three groups. No one in this age group paid more than \$175,000 for their home (Table 3). This subset of the sample earned considerably less when compared to the overall sample with an average annual income of \$33,068 and a median of \$29,420. As shown in Table 3, a lower proportion of the sample pursued post-secondary education (46.6%) when compared to 55-64 year olds (55.4%) and 45-54 year olds (63.2%). The majority of respondents were Caucasian (92.4%) and a very low proportion (.8%) reported that they were a minority other than African-American (Table 3). Most of the respondents resided in the South and the West (67.8%), and 67.8% resided in metropolitan areas (Table 3). As shown in Table 4, a higher proportion of homebuyers (32.4%) in this age group owned homes ranging from 1501-2000 square feet when compared to the younger households. Manufactured homebuyers in this group were equally likely to have their home in a group of two or more, and rent the land that the home was placed on (Table 5). The majority of the homebuyers (90.9%) of the homebuyers liked their neighborhood about the same or better than their old

neighborhoods, while most respondents' (70%) housing costs increased or stayed about the same (Table 2). Only 7.3% of homebuyers reported that they liked their current house less than their old home (Table 2).

Results of Analyses

Logistic regression models are used in this data analysis. The model includes eight independent variables: household income, purchase price of house, household size, metropolitan area, respondents' race, geographical region, household type, and educational level. For the 65-74 year old age group only, it was necessary to eliminate race as a variable and change the coding of the household type variable. Race was removed from the model because of the effect of race and education together. The sample for this age group did not include enough non-white respondents who were highly educated. Thus, an empty cell was produced which, in turn, caused the logistic regression to fail. Due to the low sample size of male-headed households, for this age group only, dual-headed households will be compared to all single-headed households, both male and female. The model tests the overall null hypothesis that the set of factors does not predict the choice of housing when compared to the null model. The individual null hypotheses state that there is no statistically significant relationship between the independent variable and the choice of manufactured housing. The effects of these variables were tested under *ceteris paribus* conditions. The odds ratio is used as the primary measure of strength and direction of the relationship between each independent variable and the choice of manufactured housing. In this analysis, all odds ratios are less than one, thus, indicating a negative relationship. Odds ratios less than one are more difficult to interpret. To alleviate this problem, in most situations, the odds of the omitted

group, which is one, was divided by the odds ratio reported in the tables. This produced a whole number, which can be more easily interpreted than a number less than one. In this discussion, the statistical significance of each variable included in the model will be examined.

Factors Affecting Purchase of Manufactured Housing by 45-54 Year Olds

This model (Table 6) produced a log likelihood of 231.72 and model chi-square of 74.72 ($p = .0001$). The overall null hypothesis is rejected at $\alpha = .05$. Educational level, household income, metropolitan area, and Midwest geographical region were significantly related to choice of housing type. Those with higher educational levels differ statistically from those with lower education as indicated by a Wald chi-square of 7.80 ($p = .0052$). The odds ratio of .816 indicates that people with one less year of education have odds of purchasing a manufactured home slightly larger than those with one more year of education. Household income produced a Wald chi-square of 9.28 ($p = .0023$) and an odds ratio of .979. Thus, for every extra \$1000 increase in income the odds of purchasing manufactured housing decrease by about three percent. Metropolitan area had a Wald chi-square of 13.98 ($p = .0002$) and an odds ratio of .256. Therefore, those living in nonmetropolitan areas have odds of purchasing manufactured housing approximately four times greater than those living in metropolitan areas. The Wald chi-square produced by the Midwest variable was 7.03 ($p = .0080$).

Table 6

Factors Affecting the Choice of Manufactured Housing Among 45-54 Year Olds (N = 454)

| Variable | Coefficient | Standardized Estimate | Wald chi-square | Odds ratio |
|--------------------------------------|-------------|-----------------------|-----------------|------------|
| Educational Level | -.203 | -.34 | 7.80** | .816 |
| Household Income (in thousands) | -.021 | -.52 | 9.28** | .979 |
| Household Size (number of people) | -.323 | -.27 | 3.19 | |
| Metropolitan Area (nonmetropolitan) | -1.364 | -.33 | 13.98*** | .256 |
| Respondents' Race (nonwhite) | .044 | .01 | .01 | |
| Geographical Region (South) | | | | |
| Northeast | .572 | .11 | 1.52 | |
| Midwest | -2.057 | -.48 | 7.03** | .128 |
| West | .300 | .07 | .65 | |
| Household Type (female headed) | | | | |
| Dual-headed | .353 | .09 | .60 | |
| Single-male headed | -.398 | -.07 | .50 | |
| Intercept | 3.098 | | | |
| -2 Log likelihood | 231.722 | | | |
| Chi-square | 74.716*** | | | |
| Pseudo R-square | .244 | | | |

*p < .05 **p < .01 ***p < .001

The odds ratio indicates that those living in the South have odds of purchasing a manufactured home eight times larger than those residing in the Midwest. This model improves the predictive efficacy over the null model by about 24%.

Factors Affecting Purchase of Manufactured Housing by 55-64 Year Olds

This model (Table 7) produced a log-likelihood of 154.64 and a model chi-square of 38.83 ($p = .00001$). Because this model predicts the choice of housing type more accurately than the null model, the overall null hypothesis is rejected at $\alpha = .05$. Three factors were statistically significant. Educational level was statistically significant with a Wald-chi square of 5.01 ($p = .0253$). The odds ratio of .845 indicates that people with one less year of education have odds of purchasing a manufactured home slightly larger than those with one more year of education. Household income had a Wald-chi square of 10.36 ($p = .0013$) and had an odds ratio of .972. Thus, for every extra \$1000 increase in income the odds of purchasing a manufactured housing decrease by about three percent. A Wald-chi square of 4.91 ($p = .0267$) was found for the Midwest variable. Compared with those living in the Midwest, homebuyers in the south have odds of purchasing a manufactured home about six and half times greater. When analyzing the relative effect of household income when compared to living in the Midwest (with standardized estimated of -.70, -.42 respectively), the effect of household income is relatively stronger. A pseudo R-square of .201 indicates that model B predicts housing choice approximately 20% better than the null model.

Table 7

Factors Affecting the Choice of Manufactured Housing Among 55-64 Year Olds (N = 222)

| Variable | <u>Coefficient</u> | <u>Standardized</u> <u>Estimate</u> | <u>Wald</u> <u>chi-square</u> | <u>Odds</u> <u>ratio</u> |
|--------------------------------------|--------------------|----------------------------------------|----------------------------------|-----------------------------|
| Educational Level | -.169 | -.28 | 5.01* | .845 |
| Household Income (in thousands) | -.029 | -.70 | 10.36** | .972 |
| Household Size (number of people) | .399 | .22 | 3.52 | |
| Metropolitan Area (nonmetropolitan) | -.318 | -.09 | .59 | |
| Respondents' Race (nonwhite) | 1.430 | .24 | 2.26 | |
| Geographical Region (South) | | | | |
| Northeast | .832 | .14 | 1.88 | |
| Midwest | -1.828 | -.42 | 4.91* | .161 |
| West | .232 | .06 | .25 | |
| Household Type (female headed) | | | | |
| Dual-headed | .163 | .04 | .09 | |
| Single-male headed | .194 | .03 | .06 | |
| Intercept | -.523 | | | |
| -2 Log likelihood | 154.646 | | | |
| Chi-square | 38.834*** | | | |
| Pseudo R-square | .201 | | | |

*p < .05 **p < .01 ***p < .001

Factors Affecting Purchase of Manufactured Housing by 65-74 Year Olds

A log-likelihood of 93.82 and an overall chi-square of 25.37 ($p = .0013$) was produced by this model (Table 8). The overall null hypothesis was rejected at $\alpha = .05$. No factors were found have a statistically significant influence on choosing manufactured housing. Although the number of persons in the household and those residing in the Midwest were almost statistically significant. The p-values for these variables were .0569 and .0591 respectively. As indicated by the pseudo R-square, this model predicts the selection of manufactured housing approximately 29% better than does the null model.

Comparison of Results across Age Groups

H₁: Active adult consumers differ from 44-54 year olds and 65-74 year olds on several factors influencing the type of housing purchased. This hypothesis is accepted. As shown by Table 9, factors that were found to be statistically significant for active adult consumers were not universally the same factors that were found to be statistically significant for the other age groups.

Ia: Homebuyers with higher incomes are less likely to purchase a manufactured home than homebuyers with lower incomes. Among those aged 45-54 and 55-64, results indicated that those with higher incomes are less likely to purchase a manufactured house. For those aged 65-74, income was not a statistically significant factor influencing the type of housing purchased. Due to mixed results, this hypothesis can neither be accepted or rejected.

Table 8

Factors Affecting the Choice of Manufactured Housing Among 65-74 Year Olds (N = 118)

| <u>Variable</u> | <u>Coefficient</u> | <u>Standardized Estimate</u> | <u>Wald chi-square</u> | <u>Odds ratio</u> |
|--------------------------------------|--------------------|----------------------------------|----------------------------|-----------------------|
| Educational Level | -.079 | -.13 | .60 | |
| Household Income (in thousands) | -.022 | -.34 | 2.14 | |
| Household Size (number of people) | -1.306 | -.57 | 3.63 | |
| Metropolitan Area (nonmetropolitan) | .028 | .01 | .01 | |
| Geographical Region (South) | | | | |
| Northeast | .580 | .12 | .70 | |
| Midwest | -2.115 | -.47 | 3.56 | |
| West | 1.206 | .28 | 3.93 | |
| Household Type (single headed) | | | | |
| Dual-headed | .406 | .11 | .27 | |
| Intercept | 2.037 | | | |
| -2 Log likelihood | 93.823 | | | |
| Chi-square | 25.373*** | | | |
| Pseudo R-square | .213 | | | |

Table 9

Summary of Relationships between Independent Variables and Choice of Manufactured Housing by Age Group

| | <u>45-54</u> | <u>55-64</u> | <u>65-74</u> |
|--------------------------------------|--------------|--------------|--------------|
| Educational Level | - | - | 0 |
| Household Income | - | - | 0 |
| Household Size | 0 | 0 | 0 |
| Metropolitan Area (nonmetropolitan) | - | 0 | 0 |
| Respondent's race(nonwhite) | 0 | 0 | ^a |
| Geographical Region (South) | | | |
| Northeast | 0 | 0 | 0 |
| Midwest | - | - | 0 |
| West | 0 | 0 | 0 |
| Household type (female-headed) | | | |
| Dual-headed | 0 | 0 | 0 |
| Single-male headed | 0 | 0 | ^b |
| R ² | .244 | .201 | .213 |

Note. - indicates negative relationship, 0 indicates no relationship.

^aRace was not included due to sample size considerations, ^bOmitted category are all single-headed households.

1b: Homebuyers with more education are less likely to purchase manufactured homes when compared to homebuyers with less education. Among those aged 45-54 and 55-64, higher levels of education are associated with a decreased likelihood of purchasing a manufactured home. For those aged 65-74, no statistically significant relationship was found between educational level and the type of housing purchased. Thus, this hypothesis can neither be accepted nor rejected.

1c: Homebuyers who are Caucasian will be more likely to purchase a manufactured home when compared to other minority homebuyers. A respondents' race was not found to be a statistically significant factor influencing the purchase of a manufactured home among 45-54 year olds and 55-64 year olds. Race was not included as a variable in for the 65-74 year old logistic regression. This hypothesis is rejected.

1d: Homebuyers in the South and West are more likely than homebuyers in North and East to purchase manufactured homes. Although not statistically significant among all age groups, this hypothesis is partially supported by the results. Among 45-54 and 55-64 year olds, living in the Midwest decreased the likelihood of purchasing a manufactured home when compared to the South. No statistically significant relationship was found between geographical region and choice of manufactured housing among the 65-74 year old age group. No difference was found between those living in the Northeast or the West and those living in the South in their choice to purchase manufactured housing. Thus, this hypothesis can neither be accepted nor rejected.

1e: Homebuyers in nonmetropolitan areas are more likely to purchase manufactured homes than homebuyers in metropolitan areas. For those aged 45-54, living in a metropolitan area negatively affected the decision to purchase a manufactured home

when compared to those living in a nonmetropolitan area. Across the two other age groups, no relationship between metropolitan area and housing choice was found. Thus, this hypothesis can neither be accepted nor rejected.

If: Smaller-sized households are more likely to purchase manufactured homes than larger households are. Household size was not a statistically significant factor influencing housing choice. No statistically significant relationship was found between this variable and the choice to purchase manufactured housing in any of the three age groups. Therefore, this hypothesis is rejected.

Ig: Female-headed households are more likely to purchase manufactured homes than dual-headed households are.. No relationship was found between female-headed and dual-headed households and choice of housing type. Among all three age groups, this factor was not found to be a statistically significant influence. This hypothesis is rejected.

Ih: Individuals who purchased manufactured homes paid less at time of purchase than individuals who purchased comparable site-built single-family detached homes.

This hypothesis is accepted. The average purchase price for a single-family detached home is substantially higher than the average purchase price for manufactured homes in all three age groups. It should be noted that the purchase price for manufactured homes does not include the price of the land in this particular data set. Those aged 45-54 paid an average of \$133,899 for conventional home compared to \$33,198 for a manufactured home. The average price of a conventional home purchased by 55-64 year olds was \$129,847 compared to \$33,775 for manufactured homes.

For the oldest group of homebuyers, those aged 65-74, the average price of a conventional home was \$102,982 compared to \$37,485 for a manufactured home. These results are discussed further in the following chapter.

CHAPTER 5

SUMMARY AND IMPLICATIONS

The sample used in the current study is derived from the 1997 American Housing Survey (HUD,1998a). The subsample includes those with household heads aged 44 to 75, who are owners of a manufactured or single-family detached home which was purchased in 1996 or 1997. The combination of age and purchasing a home in 1996 and 1997 variables narrows the sample, as the purchase of a home becomes increasingly rare with age. Thus, the sample consists of 454 respondents aged 45-54, 222 respondents aged 55-64, and 118 respondents aged 65-74. This study uses an *ex post facto* multivariate cross-sectional design to analyze the type of housing purchased by active adult consumers in 1996-1997. Independent variables are expected to affect active adult consumers' choice of housing type purchased in 1996 or 1997—manufactured versus conventional single-family detached homes. The purpose of this study is to assess economic and demographic factors influencing housing purchase while comparing active adult consumers (55-64) with consumers of other ages. An analysis of demographic and economic factors affecting choice of housing type provides means for comparison.

Modigliani & Ando's (1963) life-cycle hypothesis of saving serves as the theoretical basis for this study. This theory postulates that people will smooth consumption across their lifetime by making a series of savings and dissavings decisions. As applied here, this theory partially explains a household's motivation to move before or when they reach retirement. It is postulated that families adjust their housing

consumption to meet their needs. Thus, as family size shrinks some families adjust their housing consumption to better accommodate their needs. No statistical tests were calculated to determine if this theoretical framework is accurate. An analysis of the descriptive data available shows support that this theory of smoothing housing consumption is correct. First, housing cost comparisons can be analyzed. In the youngest age group, 61% of the respondents reported an increase in housing costs (after moving from their previous residence), while the middle group 48% reported the same, compared with only 36% of the oldest group. These figures are consistent with the theoretical framework that postulates that as people grow older, they are a likely to purchase a smaller house. Since housing cost can roughly approximate size, it appears that as people got older, they were more likely to purchase smaller homes that cost less. House square footage can also be analyzed to provide insight to this theory. Among those aged 65-74 years old, about 32% live in houses that are 1501-2000 square feet, compared with approximately 22% of the sample for the other age groups. Among the youngest age group, 14% reside in homes 3000 square feet or larger compared with 12% of the middle group, and only seven percent of the oldest group. Thus, it seems as people age, they purchase smaller houses. Household size also decreases with age. Of those aged 45-54, almost half (46%) of the households reported a household size of greater than two people. This compares to 22% of 55-64 year old households and 13% of 65-74 year old households. These figures support the theoretical framework presented.

Based on this study, the race of the respondent, being from the Northeast, being from the West, number of people in the household and household type are not statistically significant factors influencing housing choice. This refutes stereotypes that all

manufactured housing dwellers are a certain race, as race was not found to be statistically significant. It should be noted that this sample had a high percentage of Caucasian respondents, 90% of the sample were Caucasian. Most people also assume that manufactured housing is not prevalent in the Northeast. No relationship, either negative or positive was found between housing choice and residing in the Northeast when compared to the South. Researchers have found that manufactured housing is more prevalent in the South and West. In this study, however, no statistically significant relationship was found between choice of manufactured housing and living in the West when compared to the South. Contrary to the stereotype that manufactured housing developments are overcrowded, no statistically significant relationship is found between household size and choice of manufactured housing. Neither smaller or larger families are found to be more likely to purchase a manufactured home. Household type (whether or not the household head is married) is not statistically significantly related to choice of manufactured housing. This contradicts the stereotype that more unmarried, divorced, or widowed people live in manufactured homes when compared with single-family detached homes. Based on this study, this does not seem to be the case.

Those aged 45-54 reported a statistically significant negative relationship for metropolitan area. Among this age group only, residing in a metropolitan area decreased the likelihood of purchasing a manufactured home. This refutes the stereotype that manufactured housing is only appropriate in nonmetropolitan settings because metropolitan location is not significant in two of the three logistic regressions. These inconsistent results point to the fact that all elderly cannot be considered a homogenous group; obviously different factors influence their decisions.

Both educational level and household income were statistically significant for the younger two age groups. These variables seem to address the affordability issue of manufactured housing, as increases in these education and income is associated with a decrease in the likelihood of purchasing a manufactured home. Regional variables also prove to be significant. Residing in the Midwest compared to the South was negatively related to purchasing a manufactured home for the younger two groups. This research provides support to earlier findings that manufactured housing is more prevalent in the South and not prevalent at all in the Midwest.

This study shows that different factors motivate the purchase of a manufactured home for different age groups. Thus, retirees cannot be considered as a homogenous group because different factors influence their choice of housing type. The American Housing Survey data used in this study is advantageous due to the high internal and external validity associated with this data set. Modigliani and Ando's theory of household consumption is supported by the descriptive data in this sample. Households adjust their housing consumption as they age. Among the eldest age group, the housing costs increased the least, the household size was, on average, smaller and a higher percentage of the eldest group lived in the smallest homes. This study refutes widely held stereotypes and shows that elderly cannot be considered as a homogenous group where 'one size fits all' housing can be easily applied.

Implications

Characteristics of Homeowners

This study shows that homeowners in different age groups are influenced by different factors when deciding to purchase a manufactured home. Although

manufactured housing's affordability is reflected in the significance of the household income variable, it seems the similarities end there. Different factors for different age groups were statistically significant; thus, elderly cannot be considered a homogenous group.

Characteristics of Purchase Price of House

The average purchase price of a manufactured home is considerably lower than the purchase price of a conventional house. It should be noted that the purchase price for manufactured homes in the American Housing Survey data does not include the price of the land. Although even with the additional land costs, manufactured housing would still be considerably less expensive. Those aged 45-54 paid an average of \$133,899 for conventional home compared to \$33,198 for a manufactured home. The average price of a conventional home purchased by 55-64 year olds was \$129,847 compared to \$33,775 for manufactured homes. For the oldest group of homeowners, those aged 65-74, the average price of a conventional home was \$102,982 compared to \$37,485 for a manufactured home.

It is interesting to note that the relationship between conventional housing price and age is negatively related to price while a positive relationship exists between manufactured home price and age. Thus, in this study, as the oldest age group (65-74) paid the least for a conventional home but the most for a manufactured home. These statistics indicate that manufactured housing is more affordable and strides should be made to promote the virtues of its' affordability. While manufactured housing is part of the President's National Homeownership Plan, public perceptions are still limiting its acceptance thorough NIMBYism, and zoning and regulatory barriers. Retailing and the

aesthetic appeal of manufactured housing could also be modified to encourage wide spread acceptance and assimilation. Demonstration projects should be provided in order that the consumer can more accurately experience the product. Metropolitan areas need more manufactured homes as affordability problems tend to be even more problematic there. Zoning barriers often exist in metropolitan areas an issue that is compounded by the problem of the limited land availability for single family housing.

Policy Makers

Manufactured housing can provide a solution to the housing affordability crisis in this nation, but policy makers must work at breaking down the barriers preventing widespread assimilation. The greatest barriers to manufactured housing lie with local zoning ordinances and other regulatory barriers. Nearly all zoning ordinances discriminate against manufactured housing in any form, even if it is indistinguishable from site-built housing. Developers who try to integrated manufactured housing into their subdivisions face serious problems due to these restrictions. Policy needs provide incentives and reward these developers for finding a solution that provides affordable housing, a chance at homeownership, and quite possibly a better environment for low to moderate-income families. Policy makers must realize when they zone manufactured housing out of amenity-rich areas and into undesirable areas, they are affecting not just housing location but developmental opportunities for children and parents as well as promoting and reinforcing the negative stereotypes.

Financing manufactured homes continues to be a problem, although great strides have been made in the last few years. Some manufactured homeowners are able to secure a mortgage at the same rate as conventional mortgages when the home is attached

to land. Some, however, still have to pay a higher interest rate or may even be forced to finance their home with a personal property loan. Financing greatly impacts the affordability of housing and policy makers must continue to work to ensure affordable financing is available.

Policy makers must make it feasible for developers to use manufactured housing creatively. Infill lots in metropolitan areas could be a wonderful application for manufactured housing. Houses could be finished in one day, thereby reducing problems from theft, vandalism, and reducing construction noise for the neighbors. Mixing manufactured homes in with site-built homes would also prove quite beneficial to the community. The community could offer affordable housing in pleasant neighborhoods with little or no opposition from the neighborhood. The low-maintenance and the generally smaller square footage of manufactured housing could provide a perfect solution for people looking to downsize or buy their first house.

Housing Industry

This study supports the creation of three market niches for housing manufacturers. Different factors influence the purchase of manufactured homes for different age groups. It is vital that the “elderly” or “retirees” not be treated as one homogenous group served by one housing option. The industry must develop housing that will be appropriate for each age group and address the factors that are significantly related to housing choice for that particular age group.

After reviewing the literature for this study, it became clear that manufactured housing professionals need to devote a great deal of time and effort to reversing the negative stereotypes people have concerning manufactured housing. Most of the

opposition centers on the 'curb appeal' or the aesthetics of manufactured housing. People are concerned about the aesthetics for many reasons, but many are due to an unsupported fear that manufactured housing decreases property values. The market is ready for manufactured homes that mirror the appearance of site-built homes. An industry partnership with a developer or the city could be very beneficial to the industry as well as the consumers. Another aspect of the industry that needs attention is the retailing aspect of manufactured homes. Many consumers object to retailing centers on the sides of highways where homes are sold like automobiles. While this type of retailing appeals to some consumers, it also contributes to the negative stereotype people have about manufactured housing. Model homes sited in planned communities could alleviate this problem while simultaneously showcasing the product.

Housing Researchers

This study contributes to the body of research concerning manufactured housing as an affordable housing alternative. As educators, it is important to utilize this information to refute stereotypes and educate students, consumers, and policy makers. Housing educators should research how to improve the design of manufactured homes as well as promoting the benefits of manufactured housing to consumers while dispelling negative stereotypes. The implications of this study as it relates to senior housing options are also interesting. Housing researchers, as they interact with the public, now have evidence that different factors influence the purchase of manufactured homes among these three age groups. The elderly or retired population cannot be thought of as one homogenous group; there are real differences between these groups such as the

impact of educational level, household income, metropolitan area, and Midwest geographical region on choice of manufactured housing.

Consumers

Manufactured housing provides the consumer with an affordable housing alternative to site-built homes. As people retire, they often find ways to reduce expenditures while simultaneously enjoying their non-working years. Manufactured housing can provide the same benefits as site-built housing at almost half of the cost. Not only can manufactured homes benefit retirees, but also low to middle income citizens who need safe and decent housing. While not included in this study, first time homebuyers could also benefit from these starter homes. Manufactured housing fills a niche for affordability and consumers need to be educated to consider this a viable option.

Future Study

The findings from this study have implications for many groups. It provides insight about how active adult consumers differ from those younger and older and how housing alternatives must meet their differing needs. Consumers can use this research to make better-informed housing decisions as well as reverse some of the commonly held stereotypes. The housing industry can use this study to understand the different factors that motivate people to choose manufactured housing in order to provide adequate options and more effectively meet consumers' needs. The statistical insignificance of several variables included in this model challenges the stereotypical image of manufactured home owners. This study also provides empirical evidence to support the changing image of manufactured housing. Affordable housing is becoming a critical

situation in this country and it needs to continue to be studied. The cost of the house is influenced by many factors, including zoning, regulations, land costs, alternatives to site-built homes, and financing. These factors should be examined in future studies.

A great deal of research on manufactured housing was completed in the late 1970s and early 1980's. Manufactured housing has changed and evolved over the last twenty years and thus new studies should be completed, focusing on current manufactured housing. The industry has made progress with design such as higher roof pitches and the addition of porches. These studies would be useful to the housing industry and would enable them to focus their energies on issues still impacting manufactured housing instead of outdated issues. The Manufactured Housing Research Alliance has recognized these voids in the knowledge base and has developed a research agenda. Housing researchers should review this agenda and conduct studies that contribute to the body of knowledge in a more organized fashion.

In conclusion, affordable housing is a societal problem in this country that mandates attention. People desire to own their own private space; yet for some the dream of homeownership is unachievable. Manufactured housing is a workable alternative, but it often hindered by zoning, regulations, financing, and public perception. Housing costs as well as the elderly population continue to grow. This study shows that the elderly population is not homogeneous, so one housing alternative will not meet the needs of different age groups. The development and acceptance of different types of manufactured housing could alleviate the housing affordability crisis while providing a superior alternative for the elderly population.

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APPENDIX A

Appendix A

Correlation Coefficient Matrix of Significant Factors for those aged 45-54

| | Educational Level | Household Income | House Purchase Price | Household Size | Metropolitan Area | Race | Northeast | Midwest | West | Dual-Headed Household |
|------------------------------|-------------------|------------------|----------------------|----------------|-------------------|--------|-----------|---------|--------|-----------------------|
| Educational Level | | | | | | | | | | |
| Household Income | .3257 | | | | | | | | | |
| House Purchase Price | .4120 | .5329 | | | | | | | | |
| Household Size | -.1074 | .2754 | .2032 | | | | | | | |
| Metropolitan Area | .0881 | .2488 | .2894 | .1616 | | | | | | |
| Race | .0485 | .0853 | .0689 | -.0538 | -.0920 | | | | | |
| Northeast | .0248 | -.0585 | -.0197 | -.0413 | .0924 | .0681 | | | | |
| Midwest | .0522 | .0136 | -.0327 | .0505 | -.0284 | .0489 | -.2188 | | | |
| West | -.0507 | .0302 | .1048 | .0062 | .0480 | -.1026 | -.1435 | -.3272 | | |
| Dual-Headed Household | .0500 | .3505 | .3204 | .4499 | .1301 | .0048 | -.0626 | .0019 | -.0284 | |
| Single-Male Headed Household | -.0590 | -.1213 | -.1624 | -.2755 | -.1032 | .0106 | .0149 | -.0117 | .0324 | -.5364 |

Note: A correlation coefficient of .70 or greater indicates a multicollinearity problem.

Appendix A (continued)

Correlation Coefficient Matrix of Significant Factors for those aged 55-64

| | Educational Level | Household Income | House Purchase Price | Household Size | Metropolitan Area | Race | Northeast | Midwest | West | Dual-Headed Household |
|------------------------------|-------------------|------------------|----------------------|----------------|-------------------|--------|-----------|---------|--------|-----------------------|
| Educational Level | | | | | | | | | | |
| Household Income | .2885 | | | | | | | | | |
| House Purchase Price | .3785 | .5080 | | | | | | | | |
| Household Size | -.0519 | .2484 | .0520 | | | | | | | |
| Metropolitan Area | .0770 | .1975 | .2619 | .0001 | | | | | | |
| Race | .0706 | .0078 | .0021 | -.1444 | -.0883 | | | | | |
| Northeast | -.0207 | .0550 | -.0591 | .0264 | .0276 | -.0299 | | | | |
| Midwest | -.0935 | .0166 | -.0624 | .0776 | -.1341 | .0384 | -.1809 | | | |
| West | .0841 | -.0281 | .1952 | -.0778 | .1109 | .0829 | -.1812 | -.3350 | | |
| Dual-Headed Household | .1246 | .3057 | .1789 | .3366 | .0454 | .0272 | .0686 | -.1119 | -.0090 | |
| Single-Male Headed Household | -.0927 | -.1304 | -.0840 | -.1207 | -.1002 | -.0544 | -.1265 | .1343 | .0103 | -.5541 |

Note: A correlation coefficient of .70 or greater indicates a multicollinearity problem.

Appendix A (continued)

Correlation Coefficient Matrix of Significant Factors for those aged 65-74

| | Educational Level | Household Income | House Purchase Price | Household Size | Metropolitan Area | Race | Northeast | Midwest | West | Dual-Headed Household |
|------------------------------|-------------------|------------------|----------------------|----------------|-------------------|--------|-----------|---------|--------|-----------------------|
| Educational Level | | | | | | | | | | |
| Household Income | .3423 | | | | | | | | | |
| House Purchase Price | .2521 | .3495 | | | | | | | | |
| Household Size | -.1167 | .4169 | .1787 | | | | | | | |
| Metropolitan Area | .2944 | .3129 | .2895 | .0798 | | | | | | |
| Race | .2667 | .1218 | -.0036 | -.1234 | .0070 | | | | | |
| Northeast | .1559 | -.0177 | -.0781 | .0106 | -.1237 | .0447 | | | | |
| Midwest | -.0999 | -.1854 | -.1058 | -.1632 | -.0573 | -.0134 | -.2283 | | | |
| West | .1869 | .0989 | -.0029 | .0279 | -.0274 | -.0013 | -.0767 | -.2686 | | |
| Dual-Headed Household | .0055 | .2316 | .2591 | .3925 | .1437 | .1086 | -.1655 | -.0458 | -.0552 | |
| Single-Male Headed Household | -.0906 | -.2018 | -.3612 | -.1148 | -.1616 | -.1445 | .1853 | .0784 | -.0118 | -.5502 |

Note: A correlation coefficient of .70 or greater indicates a multicollinearity problem.