

# **Housing Behavior of Older Adults in Multifamily Housing**

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## Abstract

People age 55 and over will dramatically increase in the next 25 years, and will comprise approximately 30% of the total population. They may want to maintain their current lifestyle, and at the same time, they will experience changes of their lifecycle stage that could affect their housing choices. Even though single-family, detached housing is the most dominant housing type in the U.S., a significant number of older adults could choose to live in multifamily housing if their motivations and background are understood. The choice to live in multifamily housing by adults' in their later life may be influenced by their past experiences living in multifamily housing, and by their current satisfaction with multifamily housing living.

The purpose of this study was to investigate the past, current, and future housing behavior of residents 55 and older living in multifamily housing. The research framework for this study was developed based on Morris and Winter's (1975, 1978) theory of housing adjustment and Wiseman's (1980) model of elderly migration. The research framework was comprised of five major sections: (a) Current Demographic Characteristics, (b) Previous Demographic Characteristics, (c) Reasons for Moving into Current housing, (d) Residential Satisfaction, and (e) Intention to Move in the Future. Five major hypotheses were tested.

This study was designed as a quantitative study, using a self-administered questionnaire administered by an online survey company. Between February 2, 2012 and February 4, 2012, a total of 431 usable surveys for this study were collected. Several statistical methods were employed: descriptive statistics, one-way ANOVA, Pearson's correlation, crosstabs, exploratory factor analysis (EFA), and structural equation model (SEM).

From EFA, three major reasons for moving into current housing (the *multifamily living reason*, the *nearby activities reason*, and the *financial reason*), and three residential satisfaction factors (satisfaction with the *unit design*, the *multifamily community*, and the *location*) were derived.

*Multifamily living reason* significantly positively influenced satisfaction with the *unit design*, the *multifamily community*, and the *location*. There was a significant influence of the *nearby activities reason* only on satisfaction with the *location*. *Financial reason* significantly negatively influenced satisfaction with the *unit design*, the *multifamily community*, and the *location*. Satisfaction with the *unit design* and the *multifamily community* significantly negatively related to the *intention to move*.

The findings from this study can help older adults and their advisors to better understand the housing decision-making process in later life, and inform the housing industry about the perceived potential benefits and challenges in developing multifamily housing for older adults.

## **DEDICATION**

*To my parents, Soonkurl Kwon and Sunho Lee,  
and to my sister Youngjoo, who are the biggest supporters in my life*

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## **CHAPTER 1**

### **INTRODUCTION**

The U.S. Census Bureau (2009) reported that 72 million people age 55 and over represented 23.9 % of the total U.S. population in 2009. The number of people in this age group is expected to more than double in the next 25 years, and peak in 2035 due to increasing life expectancy and the aging of the Baby Boom generation. Boomers, born between 1946 and 1964, comprise about 30% of the total U.S. population and is the largest consumer group encompassing almost half of the U.S. market (Chaston, 2009). This generation has started to reach the retirement age marker of 65 (U.S. Census Bureau, 2010a). The increase in the number of people retiring and moving into a new stage in their lifecycle indicates that new housing opportunities may be needed to meet the demands of this group.

The U.S. Census Bureau (2011a) estimated that life expectancy of people age 55 and older in 2011 is almost 82 years, which is more than 10 years longer than it was 50 years ago. Therefore, many people are expected to be older adults during a significant period of their lives. As we anticipate the aging population in the future, Boomers have had substantially different lifestyles compared to previous generations and may be expected to carry those lifestyles into their later life. For example, Boomers are more likely to be involved in their community, to look for personal gratification, and to focus on health and wellness (Chaston, 2009; Lynn & Wang, 2008). In terms of housing preferences, Boomers prefer independent living in convenient and comfortable residential settings and will appreciate having housing options (Del Webb, 2010; NAHB, 2009; Schriener & Kephart, 2010).

Older adults may experience changes in family structure, health status, and career patterns as they transition through the stages of the lifecycle (van Vliet, 1998). Incongruence between older adults' housing needs and their actual residential situation may cause residential dissatisfaction, leading to their desire to alter their residential environment (Lawton & Nahemow, 1973; Morris & Winter, 1975; Wiseman, 1980). In fact, many researchers predict that a significant number of Boomers will move to smaller housing units or communities targeting older adults when they become empty-nesters (Haughey, 2003; Joint Center for Housing Studies of Harvard University, 2010). Therefore, it is important to provide appropriate residential environments for older adults, such as housing that is of a manageable size, is affordable, has

adequate physical assistance, and contains services and amenities in the community (Carswell, Merrill, Sweaney, & Tremblay, 2006).

Multifamily housing, the second most dominant housing type in the U.S., has been suggested as a viable residential option for older adults in later life (Haughey, 2003; Kwon & Beamish, 2010; Mitchell, Beamish, Goss, & Kwon, 2009). According to the U.S. Census Bureau in 2010, multifamily housing comprised 17% of the country's total housing units, while single-family, detached housing made up 61% of the total (U.S. Census Bureau, 2010c). Although single-family, detached housing is still considered the contemporary housing norm in the U.S., multifamily housing has become an attractive housing option for residents who are single, couples without children, and older adults (Bookout, 1998; Rossi, 1980; Urban Land Institute [ULI], 1991).

Multifamily housing communities provide unique advantages such as maintenance services, amenities, and low upfront fees (Haughey, 2003). Studies show that contemporary multifamily housing is preferred by more people than ever before because of upgraded services and amenities such as concierge services, fitness centers, and business centers (Haughey, 2003; Joint Center for Housing Studies of Harvard University, 2003; National Association of Home Builders [NAHB], 2004). In fact, increasing numbers of people are choosing multifamily housing because of their lifestyle. According to Fannie Mae's 2001 Housing Survey, 41% of multifamily housing renters made the decision to live in multifamily housing by choice, not by necessity. This was an increase from 32% in 1999 (National Multi Housing Council, 2001).

In addition, the Fair Housing Accessibility Guidelines impose accessibility features on multifamily housing, which are not a requirement for single-family, detached housing and help provide ease-of-use living environments particularly for senior or physically disabled residents. The guidelines require accessible design features related to the concept of universal design throughout a multifamily housing building and a housing unit after 1991. For example, a multifamily housing building should have an elevator or ground level housing units for access to a housing unit, and housing units should have wide enough doors, an accessible route and reinforcements in bathroom walls for grab bars (U.S. Department of Housing and Urban Development, 1991; U.S. Government Printing Office, 2001).

## **Statement of the Problem**

People age 55 and over will dramatically increase in the next 25 years, and will comprise approximately 30% of the total population. Most of the future cohort of people age 55 and over will be the Baby Boom generation. They may want to maintain their current lifestyle, and at the same time, they will experience changes in their lifecycle stage that could affect their housing choices. Contemporary multifamily housing may fit older adults' residential needs. Even though single-family, detached housing is the most dominant housing type in the U.S., a significant number of older adults choose to live in multifamily housing. The choice to live in multifamily housing by adults' in their later life may be influenced by their past experiences living in multifamily housing, and by their current residential satisfaction with multifamily living.

Therefore, it is necessary to understand older adults' housing behaviors and needs as they relate to multifamily housing. This study focuses on identifying older adults living in multifamily housing, determining why they made the decision to move into multifamily housing, assessing their current satisfaction with their multifamily housing, and examining their future residential plans. This information will help older adults better understand the housing decision-making process in later life and inform the housing industry about the perceived potential benefits and challenges in developing multifamily housing for older adults.

## **Purpose of the Study**

The purpose of this study is to investigate the past, current, and future housing behavior of residents 55 and older living in multifamily housing. This will include an examination of: (a) residents' Current Demographic Characteristics, (b) their Previous Demographic Characteristics, (c) their Reasons for Moving into Current Housing, (d) their Residential Satisfaction with their multifamily housing, and (e) their Intention to Move in the Future. Three main areas of residential satisfaction will be investigated: the "housing unit," the "multifamily housing community," and the "local area."

## Research Questions

The following research questions were developed to direct this study:

1. What is the demographic profile of residents 55 and older currently living in multifamily housing, including their Current Socio-economic Characteristics and Current Housing Characteristics?
2. What is the demographic profile of residents age 55 and older living in multifamily housing prior to moving into their current housing, including their Previous Socio-economic Characteristics and Previous Housing Characteristics?
3. What are their Reasons for Moving into Current Housing?
4. What is the profile of Residential Satisfaction of people 55 and older living in multifamily housing?
5. What is the profile of residents' Intention to Move in the Future?
6. What is the profile of residents' Reasons for Intending to Move in the Future from their current multifamily housing and their Future Housing Preference?
7. What is the relationship between residents' Previous Demographic Characteristics prior to moving into their current housing and their Reasons for Moving into Current Housing?
8. What is the relationship between residents' Current Demographic Characteristics and their Residential Satisfaction with multifamily housing?
9. What is the relationship between residents' Current Demographic Characteristics and their Intention to Move in the Future?
10. What is the relationship between residents' Reasons for Moving into their Current Housing, and their Residential Satisfaction with multifamily housing?
11. What is the relationship between residents' Residential Satisfaction with multifamily housing, and their Intention to Move in the Future?

## **Significance of the Study**

This study is important for several reasons. A research framework has been developed for this study. It attempts to explain the past, current and future housing behavior of older adults living in multifamily housing. This study employed the theory of housing adjustment (Morris & Winter, 1975, 1978) and the model of elderly migration (Wiseman, 1980), as well as the concept of housing behavior into an original research framework, in order to investigate the relationships among Reasons for Moving into Current Housing, Residential Satisfaction and Intention to Move in the Future, under the assumption that older adults' previous housing behavior and current residential satisfaction will be significantly related to Intention to Move in the Future. Particularly, the proposed research framework includes: (a) Previous Demographic Characteristics prior to the residents moving into their current housing, (b) Reasons for Moving into Current Housing, (c) Current Demographic Characteristics, (d) Residential Satisfaction, and (e) Intention to Move in the Future. Older adults' Reasons for Moving into Current Housing will be predictors of Residential Satisfaction, and Residential Satisfaction variables will play a role as independent variables influencing Intention to Move in the Future, a dependent variable.

Overall residential satisfaction with multifamily housing features has not been developed and only partially examined in previous research. For this reason, a survey instrument to measure the following aspects of satisfaction with multifamily housing was developed based on previous studies of the housing unit, the multifamily housing community, and the local area. The items in the three sub-dimensions of residential satisfaction will measure more detailed aspects of the concept of residential satisfaction and will provide useful information to: (a) researchers studying housing behavior in multifamily housing, (b) older adults considering multifamily housing as a housing option in their later life, (c) housing designers and developers targeting older adult consumers, and (d) property managers having senior residents in their properties.

By identifying Reasons for Moving into Current Housing, the multifamily industry will be able to more easily predict prospective older adults' needs for multifamily housing. By doing so, the housing industry will be able to understand current senior residents' expectations of multifamily housing.

This study will also analyze older residents' Reasons for Intending to Move in the Future, and their Future Housing Preferences by asking older people if they intend to move in the future.

The results are expected to provide useful information to general multifamily housing developers as well as senior housing developers.

## **Definitions of Terms**

### **Current Demographic Characteristics**

Socio-economic and housing characteristics at the present time. Current Socio-economic Characteristics include *age, gender, marital status, household size, health status, employment status, education level* and *income*. Current Housing Characteristics include *tenure type, monthly housing costs, primary residence, geographical location, length in current dwelling, presence of an elevator, year of construction* and *number of bedrooms*.

### **Housing Behavior**

Older adults' past, current and future housing experiences in terms of their reasons for moving and residential satisfaction.

### **Migration**

Long distance move from one housing market to another in a different region.

### **Mobility**

Moving to a different housing unit within the same housing market.

### **Multifamily Housing**

A structure type that contains several housing units vertically and/or horizontally within a single building. Residents self identified that they lived in multifamily housing which was an apartment, condominium, and cooperative.

### **Multifamily Housing Community**

A market-rate multifamily housing community consists of residential buildings containing five or more housing units and providing amenities and services. Excludes subsidized and age-restricted multifamily housing communities.

## **Older Adults**

People age 55 and over. Target population of most senior housing markets is people age 55 and older, even though typical retirement age is 65 and older.

## **Previous Demographic Characteristics**

Socio-economic and housing characteristics of residents prior to moving into their current housing. Previous Socio-economic Characteristics include *age, marital status, household size, health status, employment status* and *income*. Previous Housing Characteristics include *housing type, tenure type, length in previous dwelling* and *number of bedrooms*.

## **Residential Satisfaction**

“A state of the level of contentment with current housing conditions. Low levels of satisfaction are experienced as stress. The term may refer to the entire continuum of satisfaction from very dissatisfied to very satisfied” (Morris & Winter, 1978, p. 80). In this study, Residential Satisfaction with multifamily housing includes three conceptual sub-dimensions: (a) satisfaction with the housing unit, (b) satisfaction with the multifamily community, and (c) satisfaction with the local area.

**Satisfaction with the housing unit.** Satisfaction with an individual housing unit located in a multifamily housing community, such as satisfaction with size and number of rooms, storage, layout, quality of appliances or finishing materials, as well as cost of housing.

**Satisfaction with the multifamily housing community.** Satisfaction with management and maintenance services, physical amenities, and safety and security in a multifamily housing community.

**Satisfaction with the local area.** Satisfaction with characteristics of local area such as climate, neighborhood, cost of living in the area, easy access to relatives, and local services for daily living.

## **CHAPTER 2**

### **LITERATURE REVIEW**

The purpose of this study is to investigate the past, current, and future housing behavior of residents 55 and older living in multifamily housing. This chapter provides a review of literature relevant to understanding the theoretical background and concepts incorporated into the study including older adults, multifamily housing, elderly migration, residential satisfaction, and intention to move.

#### **Theoretical Perspectives**

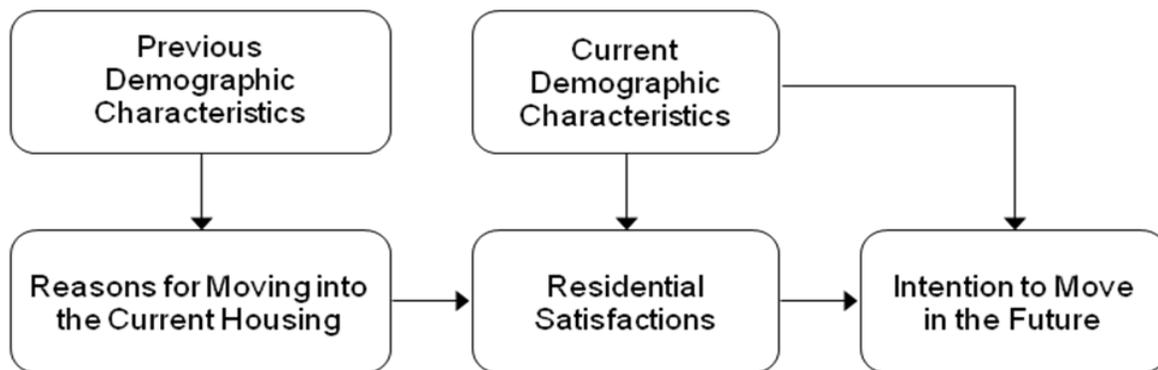
This study is based on the theory of housing adjustment (Morris & Winter, 1975, 1978) and the model of elderly migration (Wiseman, 1980) in order to examine Reasons for Moving into Current Housing, Residential Satisfaction with current housing, and Intention to Move in the Future among people age 55 and over living in multifamily housing.

The theory of housing adjustment has been widely used in housing research to investigate residential satisfaction, housing preferences, and housing decisions such as residential mobility (Bruin & Cook, 1997; McAuley & Nutty, 1982; Steggell, Binder, Davidson, Vega, Hutton, & Rodecap, 2003). Morris and Winter (1978) explain the family's complex residential decision making process using five types of variables: (a) constraints, (b) housing deficit, (c) housing satisfaction, (d) propensity to move, and (e) housing adjustment. The model of elderly migration has been broadly applied to explain older adults' relocation behavior (Junk & Anderson, 1993; Malroux & Brandt, 1997; Pope & Kang, 2010). Wiseman's (1980) model includes three factors that can strongly impact elderly migration: (a) triggering mechanism throughout lifecycle stages, and push-pull factors, (b) residential satisfaction, and (c) economic status.

In this study, both Morris and Winter's theory of housing adjustment, and Wiseman's model of elderly migration will be modified to identify the relationships among residents' demographic characteristics, Reasons for Moving into Current Housing, Residential Satisfaction with their current housing, and Intention to Move. More specifically, research using the housing adjustment theory and the model of elderly migration suggest that the demographic characteristics of older adults and their residential satisfaction might affect their intention to

move in the future. For example, if older adults are satisfied with their residential situation, they would not intend to move.

In addition, the concept of housing behavior impacting current housing choice will be tested by examining the relationship between Reasons for Moving into Current Housing and Residential Satisfaction with current housing choice (Clapham, 2002; Clapham, Means, & Munro, 1993; Forrest & Kemeny, 1984; Francescato, 1998; Lewin, 2001). The items for Reasons for Moving into Current Housing were modified from Wiseman’s model to identify major reasons that led older adults to move into multifamily housing (Figure 1).



*Figure 1.* A Simplified Research Framework of this Study

A discussion of the concepts presented in this model is presented in the following sections. More detailed definitions and explanations of the theories, typologies, measurements and relationships will provide background to better understand predicted relationships in this research framework.

### **Older Adults**

This section provides background information about older adults, including socio-economic and housing characteristics in the United States. Even though there is no mandatory retirement age in the U.S., the term “older adults” has been understood to refer to people age 65 and over which has been the typical retirement age since this has been the age when full Social Security retirement benefits traditionally become available (Wachter, 2002). However, according

to the U.S. Department of Labor (2001), the average retirement age is less than 62 years. Moreover, leading housing related organizations such as NAHB and AARP, senior housing developers, and some national data (U.S. Department of Housing & Urban Development, 2009) forecast senior housing market trends by categorizing older adults as people age 55 and over.

### **Socio-economic Characteristics**

The number of older adults in the United States is growing rapidly. According to the U.S. Census Bureau (2009), the number of people age 55 and over will represent more than 30% of the total U.S. population by 2030 – 110.8 million, compared to 21% in 2000 – 59.5 million. This dramatic increase is primarily due to the aging of 77 million Baby Boomers who were born between 1946 and 1964 (U.S. Census Bureau, 2000a). Increasing life expectancy is another main reason for the growing aging population. Life expectancy in 1960 was 69.7 years; however people who are 55 years old in 2012 are expected to live until they are 81.8 years of age (U.S. Census Bureau, 2011a).

The U.S. Census Bureau reported (2011a) that in 2010 only 56% of people age 65 and older were married, and 28% of people age 65 and over were widowed. In terms of gender differences in marital status, among people 54 or younger, 50% of women and 46% of men were living with their spouse. However, among people age 55 and over this situation changes. Approximately 50% of women and 74% of men were living with their spouse and the gap in marital status between women and men is statistically different in the group of people age 65 and older (U.S. Department of Commerce, 2005).

Marital status and different life expectancy by gender may affect family composition of older adults. According to the U.S. Census Bureau (2004), almost 20% of men age 65 and older were in single person households and nearly 80% of them lived in households with two members. In the case of female older adults age 65 and older, about 40% of them were living alone and slightly over 60% of them were living with their spouse or in another living arrangement.

Major income sources for older adults include social security, traditional pensions, workplace retirement savings plans, employment, and other savings (AARP, 2007). Generally, older adults are likely to have lower annual incomes than younger people due to retirement. In fact, the median income of householders 65 and over in 2009 was \$31,354 compared to \$55,821 of householders under age 65 (Carmen, Proctor, & Smith, 2010). However, median income of

people age 50 and over increased by 13% from 1995 to 2005 when adjusted for inflation (AARP, 2007).

According to the U.S. Census Bureau (2011a) of the 6.5 million people age 65 and older, 16% of the total U.S. labor force, had a job in 2009. The U.S. Census Bureau (2011a) predicted that the number of people in the labor force will increase and reach 11.1 million by 2018. In fact, an AARP (2004) survey shows that 22% of Boomers intend to start a new business or get a full-time job in a new career, 30% plan to work part-time for enjoyment, and 25% will need to work for income after their retirement.

As people grow older, they experience some physical or mental changes. According to the U.S. Administration on Aging (2003), 45% of people age 65 and over experience some health impairments. However, reaching old age does not always mean having poor health and health limitations. The National Center for Health Statistics asked subjective and self-assessed health conditions that determined that 96% of people age 50 to 64, 93% of older adults age 65 to 74, and 81 % of people age 75 or over do not need human assistance with physical limitations due to aging (AARP, 2007).

In terms of education level, the U.S. Census Bureau (2011a) reported that almost 77% of people 65 and over had finished high school and 20% had obtained a bachelor's degree or higher. Education level decreases as age increases among older adults. In fact, 86% of people aged 55 to 64, 78% of people aged 64 to 74, and 70 % of people age 75 and over were high school graduates (U.S. Department of Commerce, 2005). On the other hand, older adults are also interested in continuing their education. According to the U.S. Census Bureau (2010b), 7.3 million people age 65 or over had taken adult education courses between 2004 and 2005.

### **Housing Characteristics**

Homeownership is a housing norm in the U.S. As people have stabilized income, homeownership rates tend to increase. According to NAHB (2009), while 61% of people under age 55 were homeowners, 80% of people age 55 and over own their home.

In terms of housing type, 75% of the people 55 and over lived in a single-family, detached homes and almost 25% lived in a type of housing that includes multiple units such as single-family, attached housing, townhomes, and other types of building that contains more than two housing units. In contrast, approximately 65% of people age 55 or younger were living in

single-family, detached housing and 35% were living in housing with more than two housing units.

According to the U.S. Census Bureau (2000b), California, Florida, New York, and Texas are the states with the largest number of adults age 60 and over. Thirty-six percent of the total number of older adults age 60 and over lived in the Southern region, including Florida, Texas, Georgia, North and South Carolina and Virginia, which was the highest proportion among the four regions in the United States in 2000 (U.S. Census Bureau, 2000b). Almost 83% of people age 60 and over live in metropolitan areas, while 17 % had their residence in nonmetropolitan areas (U.S. Census Bureau, 2000b).

The length of residence among older adults tends to be longer than among younger generations. Marlay, Fields and the U.S. Census Bureau (2010) reported that people age 65 and over showed the longest median length of residence in their current housing among all the age categories - 19.6 years. Residents in the Northeast region, including Vermont, Rhode Island, Pennsylvania and New York, had the highest proportion of residents, 44%, who had lived in their current housing at least 10 years (Marlay et. al, 2010).

On the other hand, older adults tend to have less income and spend more of their budgets on housing compared to younger adults. The median sales price of single-family detached housing was \$172,100 in 2009, and the average monthly mortgage payment was \$825. The average monthly payment was \$807 in 2009 (Joint Center for Housing Studies of Harvard University, 2010). During this same time period, owners spent 16% of their income on housing, and renters paid almost 30% of their income (Joint Center for Housing Studies of Harvard University, 2010). In addition, AARP (Salomon, 2010) reported that older adults who are 55 or over spend one-third of their income for housing expenses, while most people 85 or over expend more than 50 percent of their income for housing.

### **Housing Options for Older Adults**

Most older adults want to stay in their current housing as long as possible. According to AARP (2000), 89% of older adults want to age-in-place, as opposed to moving to institutional care settings. However, as people grow older, they may experience some financial and physical declines, and changes in their household composition and lifestyle that could significantly impact

their housing relocation in later life. Housing options for older adults can be categorized by tenure type, community type, and assistance level.

**Tenure type.** Tenure options for older adults may include owning, renting, or a life lease. More than three-fourths of people 55 and older in the U.S. own their home and more than three-fourths of their housing is single-family, detached housing (U.S. Census Bureau, 2011b). The major benefits of homeownership may be the availability of equity in their housing, lower costs if the mortgage has been paid, and maintaining privacy and control of their home environment. Moreover, homeownership may provide psychological satisfaction. Previous studies show that people who own their housing are more likely to feel that they belong to a place, have neighborhood stability, and are satisfied with their overall lives (Dietz & Haurin, 2003; Ng, Kam, & Pong, 2005; O'Bryant & Wolf, 1983; Rohe, Van Zandt, & McCarthy, 2002).

Renting may provide a wide range of housing choices in terms of housing type, location, and service and amenities. Older adults may rent single-family, detached houses, mobile homes, housing units in multifamily housing buildings, or a room in shared housing. Older adults may want to rent housing for either their primary housing or secondary housing in different locations for a certain purpose such as a temporary job or enjoying retirement in an area with a warm climate. If older adults sell their owned housing before moving into rental housing, they may have cash from their home's equity (National Association of Area Agencies on Aging, 2010). Renters in multifamily housing communities may also have additional benefits such as community services, 24-hour maintenance, pools, fitness centers, business centers and theaters.

Life leases allow seniors to live independently in a retirement community setting such as a continuing care retirement community (CCRC), and offer older adults security of tenure. Life lease housing is typically established by non-profit organizations, religious institutions or charitable groups (Life Lease Development Inc., 1997). Residents in a life lease community have a private unit, typically a multifamily rental apartment or townhouse, and share common areas such as dining rooms and lounges (Murray, 2011). Residents pay an entrance fee for a rental unit and a monthly payment that covers the maintenance, management, and insurance. A lease usually can be sold to new residents or transferred to a development when the resident moves out or dies (Murray, 2011).

**Community type.** Most older adults age 55 and over live in age-integrated communities. According to the American Housing Survey of 2007, only 7% of the total number of people age 55 and older were living in age-targeted or age-qualified communities (NAHB, 2009). However, as the size of the aging population grows rapidly, the need for age-qualified or -restricted communities is expected to increase (Joint Center for Housing Studies of Harvard University, 2010).

Both age-targeted and age-qualified communities are designed to appeal to older adults and provide amenities and services that are beneficial to them. An age-targeted community focuses more on a home with one-story, maintenance-free building; but, there is no age qualification to be a resident. On the other hand, an age-qualified community typically provides more social events, various types of services, including formal and informal medical services, and on-campus amenities. Age-qualified communities require that at least one resident is a senior, typically age 55 or older (NAHB, 2005). However, future older adults may not choose housing settings planned for only older adults. Del Webb (2010) research found that only 10% of Baby Boomers have a preference for an age-qualified housing community.

**Assistance level.** Older adults' residential environments can also be categorized by assistance level. Age integrated and independent living settings may include single-family detached housing, single-family attached housing, townhouses, mobile homes and multifamily housing. Some of the community settings, such as multifamily housing communities provide services and amenities, such as management and maintenance services, fitness centers, pools, libraries, and some activity programs such as yoga classes and cooking classes (Mitchell, et al., 2009).

On the other hand, older adults could obtain more intensive and various types of services and amenities in age-targeted or -qualified communities. For example, senior housing communities or active adult retirement communities target healthy active older adults. They offer amenities, activity programs, recreational facilities, and some daily living services such as meals and house cleaning. Senior housing communities may contain a range of housing options such as single-family detached housing, townhomes, and multifamily rental housing (Suchman, 2001).

Assisted living facilities typically provide daily living services, meals and medication management, but not nursing care. Residents in assisted living facilities are likely to be older and

female, and have a higher education level than average (Pearce, 2007). Residents in an assisted living facility occupy a unit and share common areas. The average cost of assisted living varies with quality of a facility, location, and levels of assisted services. Average costs range between \$1800 to \$4000 per month or \$38,220 per year in 2011 (Genworth Financial Inc., 2011).

Residents in nursing homes have severe functional limitations and obtain daily living services as well as skilled nursing care. Older adults in nursing homes tend to have lower incomes, have a lower level of education, be more unhealthy, and be from a minority group than people in assisted living facilities (Pearce, 2007). The average cost for a nursing home resident was \$67,525 per year in 2011, which is nearly twice as much as assisted living (Genworth Financial Inc., 2011).

Continuing Care Retirement Communities (CCRC) offer a comprehensive housing environment for older adults as they go through various stages of health during later life. The housing offered in these types of communities includes independent living (both single-family homes and multifamily housing), congregate care facilities, assisted living facilities, as well as nursing homes. Once older persons move into a CCRC, they can move from one level to another as their needs change (National Association of Area Agencies on Aging, 2010). Residents in CCRCs pay entrance fees, which range from \$100,000 to \$1 million, and monthly charges ranging from \$3,000 to \$5,000 to cover upkeep and services. The monthly fees can increase as residents add more services or move into more supported housing types (AARP, 2011).

## **Multifamily Housing**

### **Definition of Multifamily Housing**

Multifamily housing refers to a structure type that contains several housing units vertically and/or horizontally within a single building (Bookout, 1998; Hendron & Engebrecht, 2010; Schmitz & Urban Land Institute, 2000). However, the definition of multifamily housing varies by organization in terms of the number of units. The U.S. Census Bureau defines multifamily housing as a housing building that contains five or more housing units. Schmitz and the ULI (2000) define multifamily housing as “a building that contains more than one unit” (p. 4) and units can be attached upright or horizontally. However, they also use the definition of the U.S. Census Bureau, five or more units in one building, in their book.

In contrast, the U.S. Department of Housing and Urban Development (1991) defines multifamily housing as “buildings consisting of four or more dwelling units, if such buildings have one or more elevators, and ground floor dwelling units in other buildings consisting of four or more dwelling units” (U.S. Department of Housing and Urban Development, 1991, para. 24). This definition is applied to enforce the Fair Housing Amendments Act of 1988 which impacts the design and construction of multifamily dwellings (U.S. Government Printing Office, 2001).

On the other hand, Bookout (1998) defines multifamily housing more broadly as “units in a multifamily building are stacked atop each other and, therefore, are physically attached to three or more other units” (p. 373). Schafer (1974) also defines multifamily housing as “structures with three or more units” (p. 1).

### **Types of Tenure in Multifamily Housing**

Residents in multifamily housing can either rent or own a housing unit. Since almost 90% of the total multifamily housing market is rental (U.S. Census Bureau, 2011c), multifamily housing in the U.S. is often thought of as rental, and the units are called apartments (Follain, 1994). However, multifamily housing units can also be owned, and this tenure type is referred to as condominium or cooperative (Bookout, 1998; Schmitz & Urban Land Institute, 2000).

Since the difference between condominiums and apartments comes from the type of ownership instead of structure type, the ownership type is interchangeable according to residents’ needs or market circumstances (Dinkelspiel, Uchenick, Selesnick, & Harbridge House Inc., 1981). For example, before the housing crisis, significant numbers of condominiums were created by converting apartments from rental to ownership rather than by new construction. In southern California, almost half of the condominium units sold in 2005 were apartments conversions (Bach, 2006). However, the number of condominium owners decreased after 2006 (NAHB, 2011) and many units switched to multifamily rental housing. The Joint Center for Housing Studies of Harvard University (2010) reported that many people switched from owner to renter after the housing crisis, and people age 45 to 64 contributed to 70% of renter growth.

**Ownership.** Condominiums and cooperatives are owner-occupied multifamily housing. Condominium is defined as “a legal form of ownership and not a type of building or residence” (Dombal & American Institute of Real Estate Appraisers, 1976, p. 8). The homeowners own the interior of the unit in which he/she lives. The common areas of this multifamily housing

community are owned jointly by all owners in the development. When a person buys a housing unit in a condominium community, the housing unit owner automatically joins the condominium unit owner association (UOA) and pays condominium fees which are payable monthly for maintenance of public space, amenities and services (Bach, 2006; Dinkelspiel, et al., 1981). Condominium residents pay monthly mortgage payments and upfront down payments to purchase their housing. The upfront down payment is typically 20% of the total condominium price (Keown, 2010).

In contrast, cooperative ownership, which is rare, has been developed in high-rise multifamily housing in urban areas such as New York City and Chicago (Bookout, 1998; Schmitz & Urban Land Institute, 2000). Residents in a cooperative purchase shares in a corporation and invests those funds to buy a multifamily housing building and the technical owner of the building is the corporation rather than residents. Residents lease a housing unit and own shares in the corporation. Therefore, the residents have a right to occupy the property as a co-owner (Institute of Real Estate Management, 2011).

**Renting.** Apartments are multifamily rental housing. The Institute of Real Estate Management [IREM] (2003) defines apartment as “an individual dwelling unit, usually on a single level and often contained in a multi-unit building or development” (Institute of Real Estate Management, para. 1).

**Conventional rental housing.** The system of market-rate multifamily rental housing is that private companies or individual investors own a multifamily housing property and residents rent a housing unit in the property. Multifamily housing developers may both own the property and provide management services, or professional property management companies can be hired by multifamily housing owners to manage the communities. Renters in market-rate multifamily rental housing pay a security deposit at the beginning of the contract and monthly rent during the first few days of each month. A security deposit may be retained for ensuring regular monthly payments, and could be used for paying unpaid rent or damage to a housing unit (Kelly, 2011). Monthly payments are for the rent of a housing unit, use of common spaces and other amenities and services in the multifamily rental community (Kuperberg & Patellis, 2003). Most of the multifamily housing rental contracts require a one year term (Kelly, 2011).

***Subsidized multifamily housing.*** Residents with low-to moderate-income may get housing assistance from the federal government in two ways: in a project based multifamily housing development such as Rental and Cooperative Housing program, and through a rent subsidy such as the Housing Choice Voucher program (U.S. Department of Housing and Urban Development, 2012). Project based programs include public housing developments, Section 8 developments, and Section 202 developments which are planned for seniors. These developments are almost exclusively multifamily developments. Significant research has been conducted about residents in these housing types, especially among low-income older adults (Heumann, Winter-Nelson, & Amderson, 2001; Joint Center for Housing Studies of Harvard University, 2006; McGough, 1997).

Residents with a housing cost burden are eligible for a voucher if they are available. With a housing subsidy, qualified residents pay 30% of their household income for rent. Owners receive from the federal government the difference in the fair market rent determined by the local U.S. Department of Housing and Urban Development (HUD) office and the 30% of income paid by the renter (McGough, 1997).

Older adults in project based or subsidized rental multifamily housing are not being included in this study as they are viewed as living in this type of housing due to necessity and not because of a lifestyle choice. Therefore, their housing decisions may be made based almost exclusively on costs, rather than factors being explored in this study.

### **Overview of Contemporary Multifamily Housing**

Multifamily housing is the second most dominant housing type in the U.S. According to the U.S. Census Bureau (2011c). Multifamily housing, including both multifamily rental and owner-occupied housing, accounts for 17% of total housing units (Figure 2). By expanding the definition of multifamily housing to two or more housing units in a building, the national proportion increases to 24%.

Most of multifamily housing tenure type in this country is rental. Almost 90% of the total multifamily housing units are rental and slightly more than 10% are owner-occupied multifamily housing units. In contrast, approximately 85% of single-family, detached housing are owner-occupied housing units.

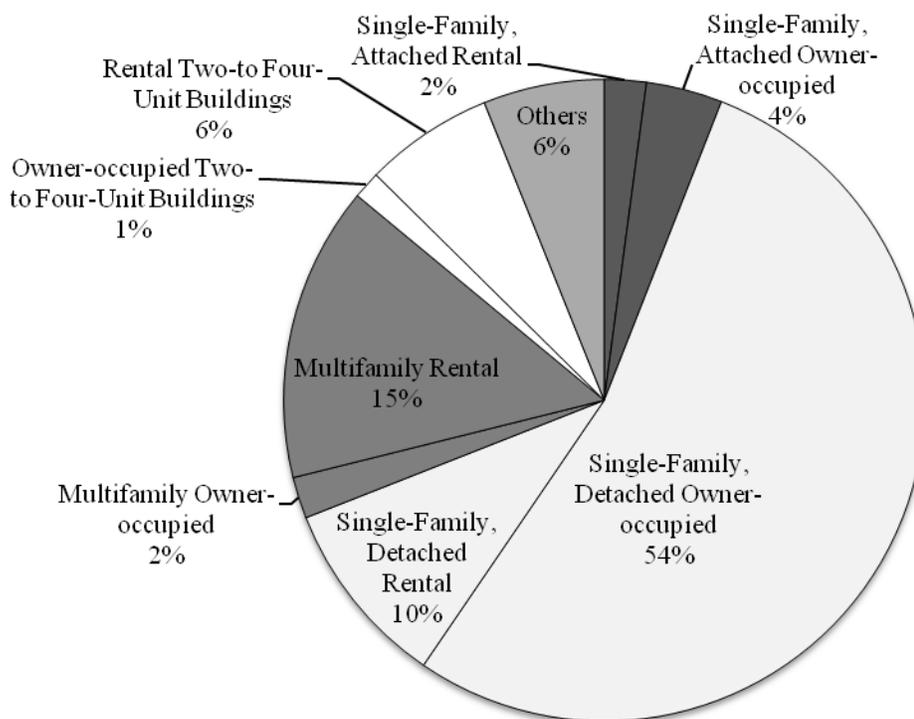


Figure 2. Tenure by Units in Structure. This figure illustrates U.S. Census data of 2010.

### Demographic Profile of Multifamily Housing

The American Community Survey of 2010 (U.S. Census Bureau, 2011b) reported that households age 15 to 34 years represented 36.5% of the total multifamily housing residents, 44% were households age 35 to 64, and residents age 65 and over represented almost 20% of the total multifamily housing households. The survey results indicate that owner-occupied multifamily housing ratio was the highest in households with a member age 65 and over. Specifically, 21% of senior households were multifamily housing owners, compared to only 10% among households under 65 (U.S. Census Bureau, 2011b).

The American Housing Survey of 2009 shows that the average income of households living in apartments was \$35,758 and the median income was \$26,000 (U.S. Department of Housing & Urban Development, 2009). Almost 50% of the renters in multifamily housing spent more than 30% of their income on housing. Similarly, 46% of renters in single-family, detached or attached housing spent more than 30% of their income on housing (U.S. Census Bureau, 2011d). On the other hand, the median sales price of a condominium was \$167,500, compared to

the median price of a single-family, detached house which was \$168,400 in August, 2011 (National Association of Realtors, 2011).

According to Goodman (1999), smaller household size is the most distinguishable characteristic of multifamily rental housing when compared to other housing types. More than 65% of the total multifamily rental housing residents are in households with a single person or a married couple without children (Goodman, 1999; Joint Center for Housing Studies of Harvard University, 2011). Duty and National Multi Housing Council (2002), analyzing the data of the U.S. Census Bureau, assert that since the average annual growth rate of single households and married couples without children is increasing, apartment demand is expected to increase.

### **Characteristics of Multifamily Housing**

Because multifamily housing is a dense structure type it may have unique characteristics in terms of the housing unit, building type, multifamily housing community, and local area. For example, residents in a multifamily housing communities share amenities and services such as pools and fitness centers that may not be affordable or available for households in most single-family detached housing developments (Haughey, 2003). Types of multifamily housing can be distinguished by characteristics of the housing unit, multifamily housing community, and local area.

**Housing unit.** Multifamily housing units can be classified based on the number of bedrooms, such as studio, one- or two-bedroom apartments, and the number of levels in one housing unit such as simplex, duplex or triplex apartments (De Chiara, Panero, & Zelnik, 1995). Each multifamily housing unit usually contains a living area, bedroom(s), bathroom(s), a kitchen, a dining area, and storage. Some may include a balcony, a patio or hobby room (Kuperberg & Patellis, 2003). In 2002, the average square footage of a multifamily housing unit was 1,115 square feet, and 55% of multifamily housing units had more than 2 bathrooms (Zietz, 2003).

The Fair Housing Amendments Act of 1988 established accessibility guidelines for multifamily housing built after 1991. Buildings covered by this act contain more than four housing units. All units in elevator buildings and ground floor units in buildings without elevators should meet the Fair Housing Accessibility Guidelines (FHAG). The accessibility features may provide ease-of-use living environments for people with physical disabilities as well as older adults. Covered multifamily housing developments and units must meet the

following seven basic design and construction requirements (Stoloff & Steven Winter Associates Inc., 2003):

- (1) An accessible building entrance on an accessible route;
- (2) Accessible public and usable public common use areas;
- (3) Usable doors;
- (4) Accessible route into and through the dwelling unit;
- (5) Light switches, electrical outlets, thermostats, and environmental controls in accessible locations
- (6) Reinforced walls for grab bars in bathrooms
- (7) Usable kitchens and bathrooms

**Multifamily housing community.** Multifamily housing community refers to varied configurations of building structures. These communities provide different types of services and amenities that could be related to characteristics of an area (Bookout, 1998).

**Building type.** There are various ways to distinguish multifamily housing by building type. One common way of classifying the type of multifamily housing is based on the height and design of a building. For example, ULI (2000) and Bookout (1998) distinguished three types: garden or garden density type buildings, mid-rise buildings, and high-rise buildings. By this classification, garden type buildings, containing 5 to 19 housing units are in two- to three-story buildings without elevators. Residents access their housing units through direct access from the outside. Mid-rise buildings are four to eight story buildings containing 20 to 49 units. High-rise buildings, which appeal to residents in downtown center areas, include more than 50 housing units in a building and have more than eight floors (Bach, 2006). Both mid-rise and high-rise buildings contain elevators (Bookout, 1998). In the past multifamily was built in a plain box shape: however, today aesthetically pleasing multifamily housing communities have more appealing design features (Haughey, 2003).

**Amenities and services.** Multifamily housing communities typically provide amenities in common areas such as fitness centers, pools, tennis courts, business centers and community centers. In addition, multifamily housing communities offer various types of services such as interior and exterior maintenance, garbage pick-up, and a concierge service (Bach, 2006; Bookout, 1998; Goodman, 1999; Mitchell, et al., 2009; Schmitz & Urban Land Institute, 2000).

Garden style multifamily housing, typically built in suburban areas, are more likely to provide surface parking, landscaped outdoor areas with walking trails, and a common area in a separate building that often serves as a community center. On the other hand, mid-rise and high-rise multifamily housing may have surface parking lots or lots below the first floor, and common areas may be located in the building with the housing units (Schmitz & Urban Land Institute, 2000).

**Local area.** Researchers have asserted that creating multifamily housing provides numerous benefits to multifamily housing residents as well as to other people in the same location (Colton & Collignon, 2001; ULI, 1998). Because of the density of multifamily housing, a community that includes this type of housing may provide more advantages to local services such as public transportation and commercial activities. According to NAHB (2009), closeness to convenient public transportation and other public services were frequently cited as reasons for choosing a community by multifamily movers than by movers to single-family, detached houses. Studies also show that local services and neighborhood amenities positively impact housing values (Bernes & Mitchell, 1990; Colton & Collignon, 2001; NAHB, 2011).

### **Multifamily Housing as a Housing Choice for Later Life**

Multifamily housing could be a viable residential option for older adults, especially Boomers, because of advantages such as little to no home maintenance, lower upfront costs, flexible mobility, as well as various amenities and services (Goodman & Scott, 1997; van Vliet, 1998). In fact, Myers and Gearin (2001), in their study of housing preference of people age 45 and older in the 1990s and 2000s, found that in the 2000s, 31% of respondents preferred denser and more compact housing which was almost double the proportion of respondents with this preference in the 1990s. In addition, senior housing developers have recognized that amenities and services in retirement communities, as well as local facilities and services, play essential roles for creating attractive retirement communities (Hunt & Gunter-Hunt, 1986). Some of these appealing features can also be found in market-rate multifamily housing. In fact, Kwon and Beamish (2010) found that there is no significant differences between active senior housing communities and market-rate multifamily communities in terms of local area characteristics, such as access to hospitals, shopping centers, and cultural facilities.

## **Elderly Migration**

The decision to move is a consumer behavior and many people repeat the housing decision to move to a new house or location many times throughout their life. Several reasons may influence the decision to move to another housing unit such as a change in the lifecycle stage, lifestyle choices, and housing experiences. For example, researchers have suggested that the concept of a “housing career” and “housing history” can impact housing decision behavior (Clapham, 2002; Clapham, et al., 1993; Forrest & Kemeny, 1984). These researchers focused on how an individuals’ housing behavior, particularly those based on their previous life events, changes in their socio-economic situations and their housing strategies, have produced their current housing situations. Forrest and Kemeny (1984) suggest that housing decision making behavior can be led by housing career, residential environment constraints, and adaptation of housing strategies. Lewin (2001) also argues that it is appropriate to include the housing experiential perspectives when investigating older adults’ housing behavior.

Regarding moving behavior Rossi states:

The decision to move is ordinarily broken into two parts, a decision to move from a dwelling and a decision to select an alternative dwelling. In the ideal typical case, a household becomes dissatisfied with its dwelling, decides to move, searches for a set of alternative dwellings that appear to be more satisfactory, and then decides among that set of alternatives. (Rossi, 1980, p. 24)

Even though many studies show that a large number of older adults wants to age in place -- stay in their current housing as long as possible -- a significant number of people are willing to relocate at their retirement (AARP, 2003, 2010). Pope and Kang (2010), in examining proactive and reactive groups of elderly movers, found that older people who had higher education and income, and are healthier, are more like to move proactively. Junk and Anderson (1993), in their study of 5,662 pre-retirees age 40 and older at nine land grant universities, found that more than 18% of respondents were very likely to move from their current house, and slightly more than 23% were somewhat likely to move from their current community at their retirement. Moreover, according to the Del Webb (2010) survey in 2010, 36 % of the Boomer residents in the Del Webb communities were willing to move at their retirement or for their later life.

Among people who want to move, older people are more likely to move out of state than younger people. According to the U.S. Census Bureau (2004), while people age 20 to 44 moved within 50 miles from their previous housing, the median distance of a move by people age 55 to 66 was 250 miles. These differences may reflect older adults' migration patterns at retirement including seeking amenities, better quality of living with lower prices, or being closer to family (Schachter & U.S. Census Bureau, 2004).

### **Elderly Migration Studies**

Researchers have developed decision making models and typologies to explain older adults' migration patterns. For example, Lawton and Nahemow (1973) proposed a framework to explain the fit between older adults' functional ability and the press of their environment. They asserted that high environmental press influences older adults' residential dissatisfaction, and as a result of this incongruence, older adults may consider new housing strategies such as adaptation or relocation (Lawton & Nahemow, 1973).

Wiseman and Roseman (1979) developed an elderly migration typology from a residential decision making perspective. They suggested three factors that can strongly influence older adults' migration: (a) triggering mechanism throughout lifecycle stages, and push-pull factors, (b) residential satisfaction, and (c) economic status. Their typology hypothesizes that subgroups of older adults have similar migration patterns based on their socio-economic status such as income, health status, household size, reasons for moving, housing type, preferred location, and housing outcomes. Wiseman and Roseman (1979) introduced two types of relocation of older adults in their typology based on distance of move: local moves and migration. Local moves include suburbanization and ex-urbanization, inner city relocation, apartmentalization, communalization, homes of kin, and institutionalization. Migration type moves include amenity area, return, and kinship. For example, older adults who choose apartmentalization are both pre- and post- retirees, predominantly widowed females or couples, and have adequate health. People who choose apartmentalization have various destination options, and their housing choice might be significantly influenced by services in the local area, such as public transportation (see Table 1).

Table 1.  
*A typology of elderly migration*

Type	Decision Maker	Differentials (Who Moves)	Reasons for Moving	Search Space	Housing Outcomes
<b>Local Moves</b>					
Suburbanization & Exurbanization	Mover	Pre-retirement Middle & Upper Income, Younger Couples	Housing & Neighborhood Environment	Suburban area	Home Ownership
Inner City Relocation	Mover; Govt. Bodies	Lower Income	Stress; Forced	Limited; Short Distance	Rental Home or Apartment
Apartmentalization	Mover	Middle & Upper Income	Changing Space & Maintenance Needs	Entire Urban Area	Apartment; Condominium
Communalization	Mover	Singles, Older	Need for Socialization; Limited Assistance	Limited to a Few Specific Places	High Density Communal
Homes of Kin	Mover & Family	Singles, Older	Need for Limited Care; Loss of Spouse	Very Limited	Family Home
Institutionalization	Family; Social Worker; Doctor	Singles, Older	Need for Personal Care	Limited to Specific Opportunities	Institution
<b>Migration</b>					
Amenity Area	Mover	Retirees, Couples, Middle & Upper Incomes	Retirement; Amenity Environment	Formed by Vacation Experience & Migration Experience of Others	All Types Except Institution
Return	Mover	Retirees, Middle & Lower Income	Retirement; Importance of Home	Formed by Previous Residential Experience	Family Home; Apartment; Institution
Kinship	Mover & Family	Singles, Older	Need for Limited Care; Loss of Spouse	Locations of Family Members	Family Home; Apartment; Institution

Note. Reused from Reprinted from “A typology of elderly migration based on the decision making process,” by R. F. Wiseman and C. C. Roseman, 1979, *Economic Geography*, 55(4), p. 332. Copyright 1979 by Clark University.

Wiseman (1980) described older adults' relocation as three sequences of decision making behavior: "the decision to move, the decision of where to move, and the decisions about housing unit type and living arrangements" (p. 146). Wiseman (1980) suggested a theoretical model that shows how triggering mechanisms influence elderly migration and older adults' moving decision process (see Figure 3). The model includes: (a) reasons for moving in elderly migration such as triggering mechanism, push and pull factors, indigenous and exogenous factors, (b) type of move, (c) destination selection, and (d) migration outcomes. Triggering mechanisms are the factors that encourage older adults to move, push factors describe personal and environmental stress, and pull factors explain attractive factors that do not exist in the current residence. In addition, the model includes indigenous factors that describe residents' personal resources and residential environment related experiences, and exogenous factors that explain objective social and economic reasons, such as housing market conditions.

Similarly, Litwak and Longino (1987) developed a typology that distinguishes three types of elderly migration based on change in lifecycle stage and significant life events. The first type of elderly migration happens after retirement. Retirees in this type of migration are relatively healthy, have adequate income, and are more likely to be married. The migration motivation of these people is amenities and lifestyle. A second and third type of migration is related to impairment in functional ability. The second type of migration is to move close to relatives to get assistance from family members when the older adult becomes less able to manage his/her life. Finally, the third type of migration is when older adults move to institutional care settings, such as an assisted living facility or a nursing home because their health problems are severe, family members can no longer take care of them, and they need a professional level of support (Litwak & Logino, 1987).

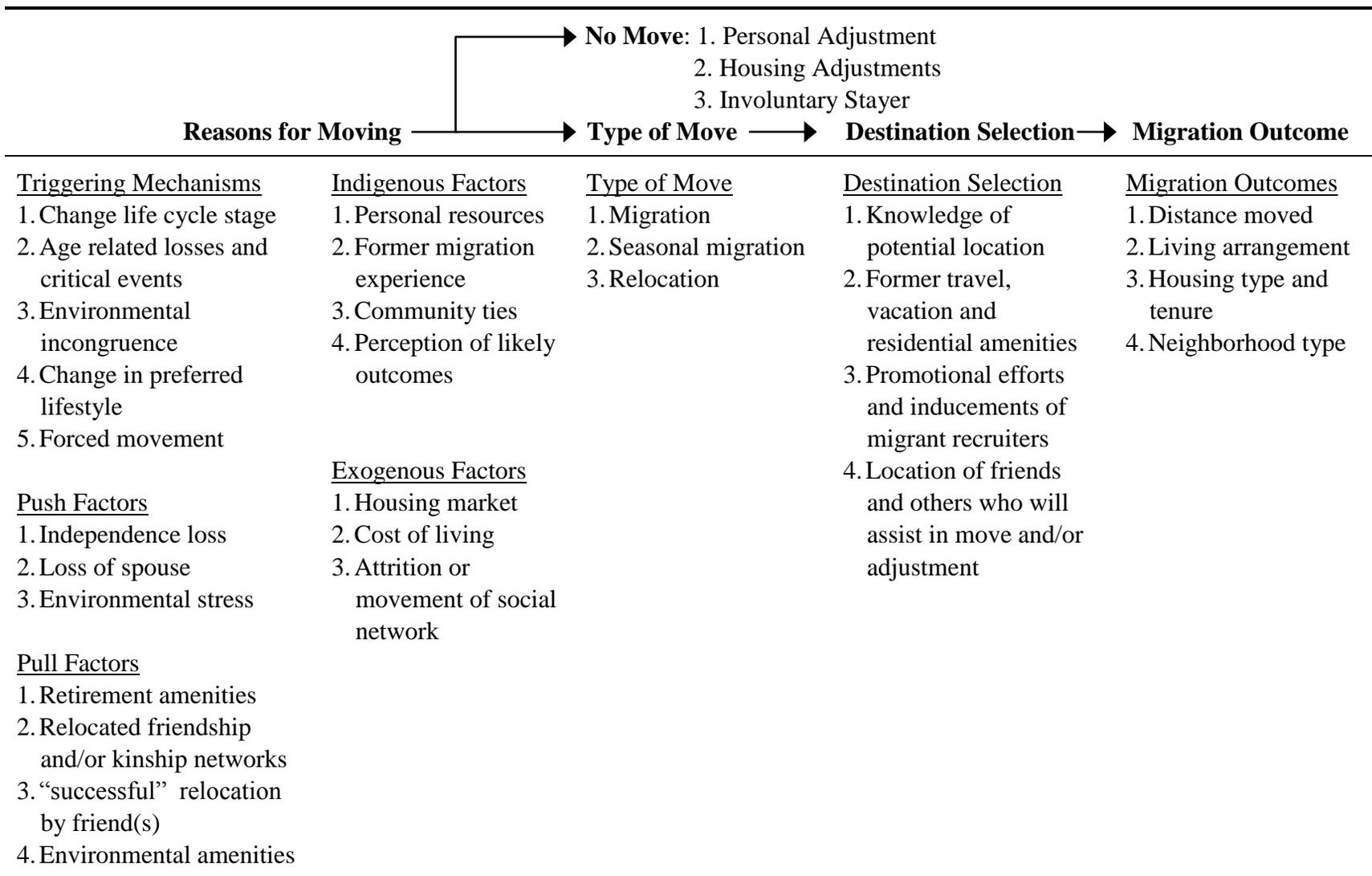


Figure 3. Theoretical Model of Elderly Migration Process. Adapted from “Theoretical Model of Elderly Migration Process,” by R. F. Wiseman, 1980, *Research on Aging*, 2, p. 145. Copyright 2011 by Sage Publications.

## Reasons for Moving at Retirement

Wiseman and Roseman (1979) argue that the reasons younger adults and older adults move are substantially different from each other. Younger adult moves are primarily related to life course events such as new family formations or changing jobs (Schachter & U.S. Census Bureau, 2004). However, older adults' migration may occur according to their age-based lifecycle stages such as retirement, and changes in financial, health status and lifestyle. Litwak and Longino (1987) classified three groups of elderly migration. The primary interest of this study is Litwak and Longino's first group, people who are healthier and younger, and decided to move for social and amenity reasons.

On the other hand, previous studies regarding elderly migration indicate that older adults are a diverse group and their moving can be stimulated by several reasons (NAHB, 2009; Wiseman, 1980). Wiseman (1980) stated that "The decision to move is strongly influenced by a number of factors which can both facilitate and impede actual movement" (p. 146). Reasons for moving at retirement may include change in lifecycle stage, change in lifestyle, external reasons, and previous housing behavior (Clough, Leamy, Miller, & Bright, 2004; Lawton & Nahemow, 1973; Litwak & Logino, 1987; Rossi, 1955; Wiseman, 1980; Wiseman & Roseman, 1979).

**Change in lifecycle stage.** As people grow older, they experience several changes in their lives such as family composition, financial status, and health condition. Rossi (1980) argues that the change through lifecycle stages, which is one of the most important factors impacting moving, may cause incongruence between older adults and their residential situation that cause residential dissatisfaction and the likelihood of moving.

**Family.** According to NAHB (2009) in their study of Americans who moved within the past two years, the most frequently cited reason of relocation of people age 55 and older were family reasons. Family composition that impact the decision to move include becoming an empty-nester, the loss of a spouse, divorce, and the birth of grandchildren (Del Webb, 2010; Malroux & Brandt, 1997).

**Finance.** Older adults, especially people who have retired, may have limited income resources which could impact their plans to move (Vanderhardt, 1998). Particularly, older people who relocate at their retirement tend to move to areas with lower costs of living (Longino & Bradley, 2003). Pope and Kang (2010), in their study of proactive and reactive elderly movers,

found that moving for older people age 65 and older who had less income and were older, was a stressful residential decision since these people often have limited financial resources. Their study also shows that older adults who have more income are more likely to move to a location with amenities and a different climate.

**Health.** Older adults' health status can be an important factor that impacts moving. For example, studies show that older adults with good health are more likely to move to an independent living setting in areas with amenities, compared to older adults who have poor health (Malroux & Brandt, 1997; Patrick, 1980). On the other hand, older adults who experience deteriorating health may consider a move into other residential alternatives. Stoeckel and Porell (2010), analyzing data from the 2002 Health and Retirement Study, found that more than 50% of older adults who are age 65 and older and experienced falls were willing to move within the next two years.

**Change in lifestyle.** Individuals' lifestyle and their regular patterns of behavior may be another important factor impacting the housing choice of older adults. Beamish, Goss, and Emmel (2001) assert lifestyle can be influenced by residents' personal factors such as demographic and socio-economic characteristics, as well as their values and interests. Older adults may want to keep their previous life patterns, or to embark upon a new lifestyle at their retirement. For example, Boomers may want to continue to improve their self-esteem, and to move to low maintenance housing (Schmitz & Urban Land Institute, 2000). Households may move to an appropriate housing unit and neighborhood with local amenities and services that match their lifestyle.

**Housing unit.** Achieving better quality in the housing unit, in regards to number of rooms, floor plan layout, and quality of furnishings and appliances may be an important factor in the housing selection of older adults. While younger adults are interested in moving into a larger home, older adults are more likely to seek a better quality in their housing rather than a larger house (NAHB, 2009). According to NAHB (2009), in their study of Americans who moved within the past two years, the second most frequently mentioned reason for moving among people 55 and older was seeking higher quality of housing units. In addition, Malroux and Brandt (1997), in their study of pre-retirees in three western states, found that pre-retirees living

in the perceived right size house for retirement were less likely to move from their current housing.

***Neighborhood.*** Quality of neighborhood related to safety and security is an important issue for older adults (Lawton, 1974). Studies show that feeling safe and secure and lower crime rates are important predictors of residential satisfaction impacting elderly migration (Benjamin, Sirmans, & Zietz, 1997). On the other hand, social bonds in a community may influence residential satisfaction and decisions to stay or move. Golant (1985), in his study examining the relationships between social and physical environmental attributes and the life satisfaction of older adults, found that people who spent more time and had good memories of their community or neighborhood were more satisfied with their lives.

***Local area.*** Local amenities and services may be important local resources for older adults. Older adults who move for amenity reasons are relatively younger, healthier, wealthier, and more active (Lawton, 1985; Litwak & Logino, 1987). Junk and Anderson (1993), in their study of 5,662 pre-retirees age 40 and older at land grant universities, found that more than 35% of the respondents considered community services, such as medical facilities, recreational facilities, a place for worship, and library facilities, as very important factors for the first 10 years of retirement. In addition, close proximity to a place of worship can contribute to the life satisfaction of retirees (Markides, Levin, & Ray, 1984). Good climate and geographic characteristics, such as being near a mountain or river, low humidity, and four seasons can also be important community-level amenities (Junk & Anderson, 1993; McAuley & Nutty, 1982). In fact, states most frequently cited as having a high elderly migrant receiving rate are areas with good climates such as Florida, California, Arizona and Texas (Longino & Bradley, 2003). In addition, amenity movers seek close proximity to shopping, restaurants, cultural resources, recreational facilities, parks or other natural areas, and public transportation (Clough, et al., 2004; McAuley & Nutty, 1982; NAHB, 2009; NAHB Research Center & The Joint Center for Housing Studies of Harvard University, 2005).

## **Residential Satisfaction**

### **Definition of Residential Satisfaction**

Residential satisfaction reveals feelings, evaluations, and behaviors of a resident, which are the results of differences between residents' desired needs and the actual conditions of the living environment (Galster, 1987; Golant, 1986). The living environment reflects not only the physical characteristics of housing, such as structures, neighborhood, and local area, but also the social, cultural and economic aspects of the environment (Francescato, 1998). Greater residential satisfaction indicates higher congruence between residents' needs and their actual environmental conditions; on the other hand, lower residential satisfaction means more gaps between desired housing aspirations and actual housing.

### **Residential Satisfaction Studies**

Residential satisfaction has been widely studied in the area related to the physical environment and social science. The numerous empirical studies can be classified into two approaches, a criterion for evaluating quality of life and a predictor of housing behavior (Wiedemann & Anderson, 1985). Residential satisfaction as an evaluation criterion of residential quality has been used as a dependent variable. Researchers have found that factors, such as personal and housing characteristics, influence residential satisfaction (Bruin, Cook, Dodor, & Cho, 2008; Galster & Hesser, 1981; Lu, 1999a; Peck & Stewart, 1985). In the latter approach, residential satisfaction has been used as an independent variable or a mediating variable to predict housing decision making behavior such as mobility and home modifications (Diaz-Serrano & Stoyanova, 2010; Morris & Winter, 1976; Oh, 2003; Speare, 1974). In this case, the results of research show which factors influence residential satisfaction and indicate that residents will change their living environment. In other words, these studies are useful to predict which housing products and services best fit particular types of consumers.

### **Predictors of Residential Satisfaction**

When studying residential satisfaction, it is important to consider two major aspects of the concept, objective residential conditions and residents' subjective opinion about their living

environments (Francescato, 1998). The objective dimensions may include residents' socio-economic characteristics such as age, family size or marital status, as well as physical residential environment conditions. The residential environment can be divided into several different dimensions such as housing units, neighborhood, and the wider region (Amole, 2009; McCrea, Stimson, & Western, 2005). The subjective opinions reflect residents' reactions, perceptions and evaluations to their living environment in terms of psychological, physical, and social dimensions (Hwang & Ziebarth, 2006). Figure 4 shows the conceptual typology of predictors of residential satisfaction.

Predictors of Residential Satisfaction	
<u>Objective Conditions</u>	<u>Subjective Opinions</u>
<ul style="list-style-type: none"> <li>• Residents' Characteristics (e.g., age, income, health status, education level, household size)</li> </ul>	<ul style="list-style-type: none"> <li>• Psychological Aspects (e.g., a sense of belonging to one's neighborhood)</li> </ul>
<ul style="list-style-type: none"> <li>• Residential Characteristics               <ul style="list-style-type: none"> <li>- Housing Unit (e.g., housing type, tenure type, physical housing conditions, housing design features)</li> <li>- Neighborhood/Local Area (e.g., easy accessibility to shopping, working places, public transportation or school)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Physical Aspects (e.g., privacy, safety, security)</li> <li>• Social/Cultural Aspects (e.g., neighborhood social environment and community services)</li> </ul>

*Figure 4.* Predictors of Residential Satisfaction

**Objective conditions.** Objective conditions include residents' socio-economic characteristics, the residential characteristics of the housing units, and the neighborhood or location that can be evaluated objectively.

***Residents' characteristics.*** Empirical studies have identified a number of important residents' socio-economic characteristics, such as age, income, health status, education level and household size, which were significantly related to residential satisfaction (Baillie, 1990; Cook, 1988; Galster, 1987; James III, 2007; Lee, Brandt, & McFadden, 1994; Lu, 1988; Oh, 2003). For example, older adults are more likely to show higher levels of residential satisfaction (Brown, 1995; Speare, 1974). Hwang and Ziebarth (2006), in their study of residential satisfaction among Korean American elders, found that older adults who have smaller households, lower education levels, and better health status were more likely to be satisfied with their housing. Empirical studies also show that people with higher levels of education are more likely to be satisfied with their housing (Brown, 1995; James III, 2008; Lam, 1985). Family income also has been found to have significant positive relationships with residential satisfaction (Galster & Hesser, 1981; James III, 2007; Morris, Crull, & Winter, 1976).

***Residential characteristics.*** Residential characteristics are also important objective predictors influencing residential satisfaction. Researchers (Francescato, 1998; McCrea, Stimson, & Western, 2005; Paris & Kangari, 2005b; Wiedemann & Anderson, 1982) have argued that it is important to evaluate residential satisfaction at various dimensions of environments that have a hierarchical order. The distinction of the levels of the environment could be different from the particular housing and community situations, and the levels are commonly assumed by the researcher from the morphology of the residential settings (Amole, 2009). For example, McCrea et al. (2005) investigated three different types of the environment to evaluate residential satisfaction: the housing units, the neighborhoods, and the wider region. Canter and Rees (1982), in their study of residential satisfaction used a multivariate model surveying 1,206 homeowners and found that residents interact with their living environment at diverse scales such as the interior space of housing, the neighborhood, and the city.

***Housing unit.*** Tenure type, particularly owning single-family, detached housing, almost always shows a significant positive relationship with residential satisfaction, especially in studies conducted in the U.S. (Crinstein-Weiss, Yeo, van Zandt, Freeze, & Quercia, 2011; Dillman, Tremblay, & Dillman, 1979; Elsinga & Hoekstra, 2005; O'Bryant & Wolf, 1983). However, some research shows that homeownership may not be a strong housing norm for older adults (Dillman, Tremblay, & Dillman, 1979; Sherman, 1972). Bruin et al. (2008), in their study of residential satisfaction of older women analyzed data from the American Housing Survey and

found that older female renters, who are more likely to be low-income people and single, showed higher residential satisfaction than owners. They also indicated that the female renters were more likely to have less income and be divorced. Whiteford and Morris (1986), in their study examining life satisfaction, found that older renters were as satisfied with their housing as older owners.

Physical housing conditions are one of the important predictors of residential satisfaction. O'Bryant and Wolf (1983), studied residential satisfaction by surveying older homeowners and renters living in a Midwestern city. They found that physical housing characteristics, mostly related to plumbing and air conditioning, were better predictors of residential satisfaction for renters than homeowners. Pleasant housing design features, such as enough floor space, number of rooms and visual appearance, have been used as important residential satisfaction predictors (Carsewell, 2006; Rossi, 1980). James III (2007), in his study of tenants' residential satisfaction in multifamily housing, determined that the greater number of rooms and the existence of a balcony or a patio were significantly associated with residential satisfaction. Accessible housing design is a desirable feature for older adults and people with disabilities. Memken and Earley (2007), in their study of the availability of accessible housing for the senior populations in the U.S., argue that it is important to consider accessible design from the first stage of planning to meet residents' desires for aging in place. Duration of living in current housing has been found to be a significant positive predictor of residential satisfaction (Amole, 2009; Peck & Stewart, 1985).

*Neighborhood and local area.* The physical neighborhood and local area conditions are other important factors that impact residential satisfaction. Presence and easy accessibility to local area services, such as schools, grocery stores, public transportations and working places, are related to residential satisfaction (Rossi, 1980). Goodman and Scott (1997), in their study rating multifamily housing, interviewed 15 apartment industry executives and found that accessibility to local services, such as shopping, work and public transportation, are some of the most important factors that determine multifamily housing quality.

**Subjective opinions.** Subjective opinions by residents about their living environment are another aspect influencing residential satisfaction. Francescato (1998) argues that residents' characteristics alone do not explain all aspects of satisfaction, and must be considered as a part of

the interaction between person-environment relations. Researchers have explained the interaction with the physical environment and human behavior using an ecological approach which addresses the importance of considering physical, psychological and social criteria (Barker, 1968; Bronfenbrenner, 1979; Gibson, 1979). These criteria refer to residents' perceptions in the social environment, such as personal attachment, privacy, social network, safety and security, and services. Shea and Inman (1994) suggested a conceptual framework of four levels of criteria in understanding older adults' residential behavior by adapting Bronfenbrenner's (1989) ecological model (See Figure 5). The criteria include factors at the psychological level (microsystem), the physical level (mesosystem), the social level (exosystem), and the cultural level (macrosystem) aspects. Hwang and Ziebarth (2006), in their study of Korean American elders' residential satisfaction applied Shea and Inman's (1994) conceptual framework and found that the psychological (a sense of belonging to one's neighborhood) and social aspects (neighborhood social environment and community services) were positively related to residential satisfaction. Various types of services such as public services in a community (Morrow-Jones, 1998) and maintenance services are significant predictors of residential satisfaction. Property management services and quality of staff are key factors impacting residential satisfaction especially in multifamily housing living (Paris & Kangari, 2005b; Prosper, 2004).

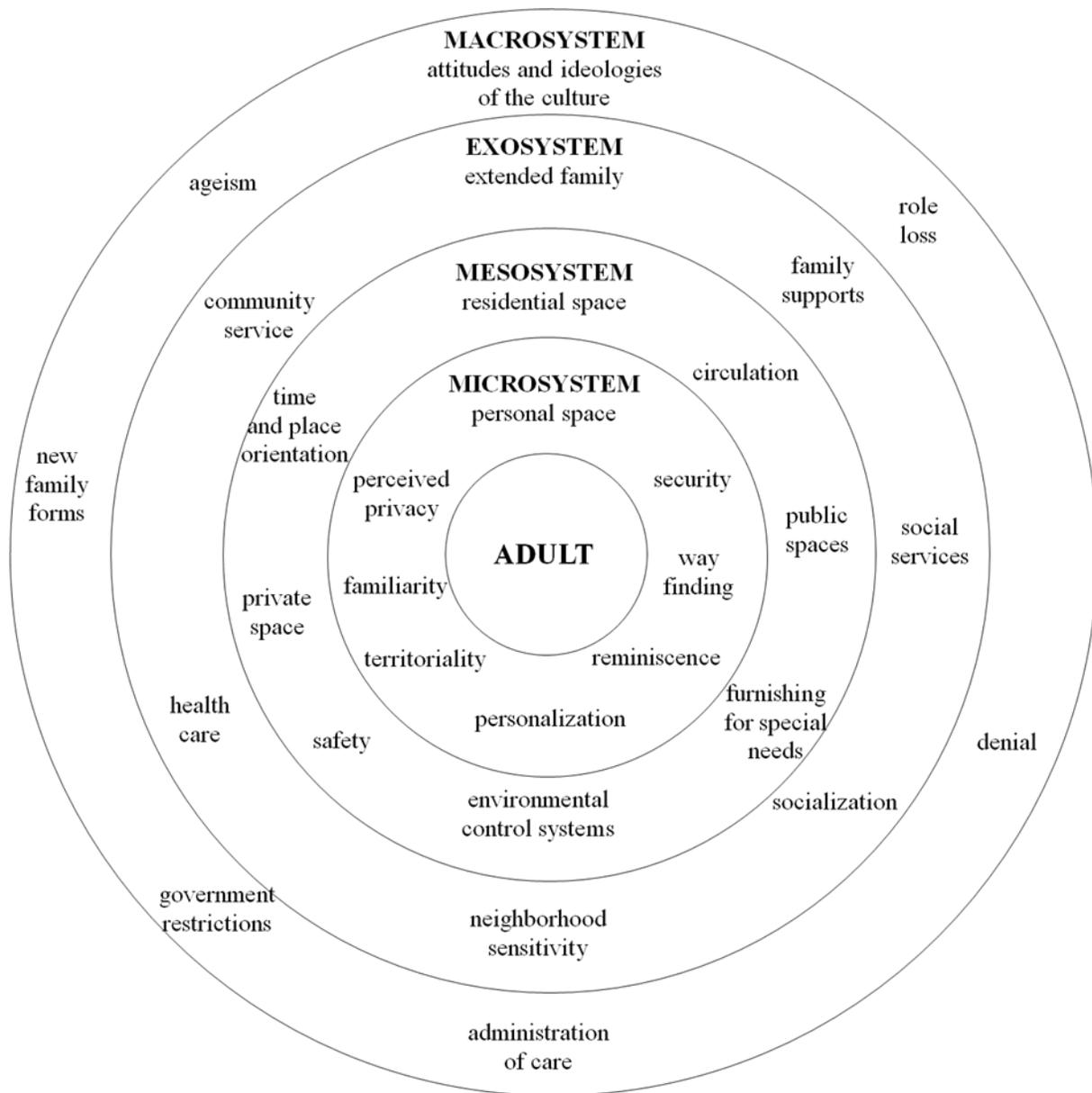


Figure 5. Ecological Model for the Assessment of Housing Design for the Aging. Reprinted from “An ecological model for assessment of housing design for aging populations,” by J. Shea and M. Inman, 1994, *Housing and Society*, 2, p. 92. Copyright 2003 by Housing Education and Research Association.

### Residential Satisfaction Measurement

**Measurement.** Measurement of residential satisfaction is based on the concept of post occupancy evaluation (POE): residents’ evaluation of the performance of their living

environment (Francescato, 1998). The way of measuring residential satisfaction in quantitative research is important since the measured results directly influence the findings. To measure residential satisfaction, researchers initially determine categories of the measurement, such as housing, community or neighborhood satisfaction. Respondents are asked to rate questions using a Likert-type scale, for example, 1 is very dissatisfied and 5 is very satisfied.

The type of questions can be either a comprehensive measurement of residential satisfaction using a single direct question, or more specific and indirect multiple questions (Amerigo & Aragonés, 1997). Amerigo and Aragonés (1990) compared direct and indirect measurement scales of residential satisfaction, and found that both scales have their advantages and disadvantages. Some researchers (Galster, 1987; Golant, 1982; Morris, et al., 1976) argue that a single question is appropriate since it represents comprehensive residential satisfaction and includes various features of the residential environment. Researchers have asked a single question such as “In general, how satisfied or dissatisfied are you with your current housing” using a seven-point Likert scale (Lee & Park, 2010). James III (James III, 2007, 2008), in his studies examining residents satisfaction in multifamily housing used a single direct scale employed by the American Housing Survey data, “How would you rate your house (or apartment) as a place to live?, 10 is best, 1 is worst” (U.S. Department of Housing & Urban Development, 2009, p. 234).

However, a single direct question makes it hard to measure specific aspects of satisfaction with a residential environment. Moreover, studies using a single comprehensive question tend to show high levels of residential satisfaction (Amerigo & Aragonés, 1997). For these reasons, researchers have measured residential satisfaction by asking indirect and multiple questions that might provide a more appropriate and practical measurement scales (Amerigo & Aragonés, 1997). For example, Paris and Kangari (2005a), in their study of residential satisfaction among residents in two apartment communities in Atlanta, examined residential satisfaction by asking “Would you recommend your apartment to one of your friends if he or she was looking for a place to live?” They also measured residential satisfaction with property management by asking several specific questions about property management staff, property policies, and customer services which were answered based on a four-point Likert scale. Ukoha and Beamish (1997) measured residential satisfaction with various housing characteristics and management services using a five-point Likert scale, “1” for very dissatisfied to “5” for very

satisfied. Their measurement scale included specific factors related to each characteristic. For example, satisfaction with building features included size and number of rooms, location, and privacy. Yet, Amerigo and Aragonés (1997) assert that when measuring residential satisfaction using indirect and multiple questions, validity needs to be examined. For example, if a questionnaire including indirect and multiple questions is a new measurement developed by a researcher, finding that the mean value of the new questions correlated with a single direct question could provide some assurance of criterion validity (Blumberg, Cooper, & Schindler, 2005). Face validity, or content validity, which can be proved by a subjective agreement of experts with a measurement, could be another way of improving validity of the satisfaction questions (Pedhazur & Schmelkin, 1991).

**Data analysis.** Residential satisfaction is usually measured using a Likert scale which is assumed as a continuous variable in social science. The most widely employed methods in previous studies related to residential satisfaction are one-way analysis of variance (ANOVA) and multiple regression when satisfaction was treated as a dependent variable in a research model (Amerigo & Aragonés, 1990; Fried, 1982; Hwang & Ziebarth, 2006; Ukoha & Beamish, 1997).

On the other hand, there are some studies in which residential satisfaction acts as an intervening variable and can be viewed as an indirect effect (Diaz-Serrano & Stoyanova, 2010; Kwon & Beamish, 2011; Oh, 2003; Speare, 1974). In this case, it is possible to show relationships between demographic variables and residential satisfaction, as well as relationships between residential satisfaction and intention to move. Spears (1974) argues that residential satisfaction should be more strongly related to intention to move when residential satisfaction acts as an intervening variable.

Recently, researchers have used advanced statistical analysis methods such as ordered logit model, path model, and structural equation modeling (SEM) in their analysis. For example, Lu (1999a) analyzed American Housing Survey data to investigate the effect of resident and housing characteristics on residential satisfaction using the ordered logit model, arguing that this data analysis technique is more appropriate for the ordinal level dependent variable coding. Studies using path model analysis showed a linear causal relationships among demographic variables, residential satisfaction, and further housing decision making behavior (Lee & Park, 2010; Lee, Brandt, & McFadden, 1994). Oh (2003) used SEM to investigate the relationships

among older adults' social bonds, residential satisfaction, and intention to move, treating residential satisfaction as an intervening variable.

### **Intention to Move**

When actual housing situations do not satisfy residential needs of a family, the family considers housing alternatives such as relocation or mobility, and the consideration may lead to actual moving (Morris & Winter, 1975, 1978; Rossi, 1980). Many empirical studies confirm that residential satisfaction has direct and indirect effects on housing decision making behavior about home modifications, relocation, and migration (Baillie, 1990; Diaz-Serrano & Stoyanova, 2010; Erickson, JROUT, Ewen, & Robison, 2006; Lu, 1988; Morris & Winter, 1976; Rossi, 1955; Speare, 1974). For example, Erickson et al. (2006), in their longitudinal study of residential satisfaction, plans to move, and actual moves of older adults, found that poor housing fit increases residential dissatisfaction and impacts actual moving. They also found that residential dissatisfaction predicts actual moving even when the plan to move is controlled.

The theory of housing adjustment (Morris & Winter, 1978) explains the American family's complex housing decision making process with five types of variables (Lee et al, 1994). The first type includes constraints, defined as "the factors that restrict a family's ability to engage in housing adjustment behavior" (Morris & Winter, 1978, p. 80), such as social and economic barriers. The second type is housing deficit, which is "a deficiency or imbalance created when a limit is exceeded by some aspect of the environment" (1978, p. 16). A deficit can be calculated by current residential conditions of the family and housing norms for tenure, structure, space and quality, and neighborhood and location norms. The third type of the theory of housing adjustment is housing satisfaction, which is "the level of contentment with current housing conditions" (1978, p. 80). The fourth type is the propensity to move. The last type is actual housing adjustment behavior, defined as "a process that may occur when a family experiences a normative housing deficit that causes a significant reduction in housing satisfaction. Housing adjustment takes place through residential mobility and residential alternations and additions" (1978, p. 80).

Even though, forecasting of older adults' relocation behavior is essential to understanding elderly migration, it is hard to measure actual moving from intention to move. Lu (1999b) found that a considerable number of people do not plan or realize their necessity of moving, and many

people move unexpectedly. One of the possible reasons for this disagreement is not all individuals could control or predict their migration behavior (Lu, 1999b). However, people who planned to move would be more likely to move than people who did not plan. In fact, a longitudinal study (Anderson et al., 1987) found that people who planned to move moved two to five times more than people who had no plan.

Intention to move can be asked giving a certain time period. For example, the American Housing Survey asked whether participants would like to continue living in their current house five years from now, and the answer was measured by dichotomous variable. A “same house (or apartment)” indicates that he or she does not intend to move, and a “someplace else” shows a desire to move (United States. & Inter-university Consortium for Political and Social Research, 1996). Erickson et al. (2006) measured moving plans using three categories, “would not consider moving, might consider moving, and currently considering moving” (p. 14).

### **Summary**

In this chapter, information about older adults, multifamily housing, elderly migration, residential satisfaction and intention to move have been discussed in order to inform an understanding of the variables in the research framework used in this study. Older adults’ demographic characteristics explain older adults’ previous and current socio-economic characteristics and housing characteristics. Reasons for moving into current housing include physical, psychological and social environmental expectations of housing in multifamily housing. Residential satisfaction has been frequently used to evaluate housing and can be measured by looking at various aspects of sub-dimensions. Older adults’ intention to move in the future and their future housing choice may reflect their demographic characteristics, previous housing behavior, current residential satisfaction, and lifestyles. For example, older adults who have poorer health status with lower income, and live in single-family detached housing compared to older people who have better health, make relatively more money, and live in multifamily housing may have different future housing preferences in terms of a housing type, service type in a community or location.

## **CHAPTER 3**

### **METHODOLOGY**

The major purpose of this study was to investigate the past, current, and future housing behavior of residents 55 and older living in multifamily housing. This study was designed as a quantitative study, using a self-administered questionnaire by an online survey company. This chapter discusses the methodology for the study including the instrument development, pretest, final instrument, procedures, and data analysis.

#### **Instrument Development**

The survey instrument was composed of five major sections: (a) residents' Current Demographic Characteristics, (b) residents' Previous Demographic Characteristics, (c) Reasons for Moving into Current Housing, (d) Residential Satisfaction, and (e) residents' Intention to Move in the Future.

Based on these five major sections, the original questionnaire included: (a) eight questions about Current Socio-economic Characteristics and seven questions about Current Housing Characteristics in the Current Demographic Characteristic section, (b) six questions about Previous Socio-economic Characteristics and five questions about Previous Housing Characteristics in Previous Demographic Characteristic section, (c) 50 items in Reasons for Moving into Current Housing section, (d) 41 items in the three conceptual sub-dimensions of Residential Satisfaction: satisfaction with the "housing unit (10 items)," satisfaction with the "multifamily housing (17 items)," satisfaction with the "local area (14 items)," and (e) three questions about Intention to Move in the Future, one open-ended question about Reasons for Intending to Move, and 20 items about Future Housing Preferences in Intention to Move in the Future section.

#### **Pretest**

Prior to distributing the full survey, two pretest steps were conducted to refine the survey instrument. First, four housing professionals reviewed the instrument to ensure validity of the survey. Second, a pilot study of the survey was conducted through the online data collection

company to get the respondents' feedback about the instrument, and to test the inter-item reliability of the Reasons for Moving into Current Housing section and the Residential Satisfaction section.

### **Step 1: Review by the Four Professionals**

The instrument was evaluated by four housing experts to ensure face validity, which is the process to test that the measurement provides adequate coverage of the research purpose of the study (Blumberg, Cooper, & Schindler, 2005)(Blumberg, et al., 2005). The questionnaire was revised to reflect the feedback after the review. An open-ended question for getting the respondents' feedback regarding the instrument was added at the end of each section. The revisions were as follows:

In the cover letter, some words were changed to make them more understandable and friendly. For example, "market-rate multifamily housing" was changed to "non-subsidized and non-age restricted multifamily housing," and "older adults" was switched to "people like you."

In the Current Housing Characteristics section, a question about the height of a building was changed to presence of an elevator in the building. One question about monthly housing cost was added.

For the Reasons for Moving into Current Housing section, two items regarding size of house and two items about space within the house were combined into one item, respectively. Items regarding low crime rate in the area and close to recreational facilities were removed since there was another question with similar meaning.

For the Residential Satisfaction section, one item about the size and the number of bedrooms and bathrooms was divided into two questions about bedrooms and bathrooms, separately. One item about satisfaction with shopping and restaurants in the local area was also divided into two questions.

For the Intention to Move in the Future section, the number of questions regarding future housing preferences was reduced since the original questions were in too much detail and made it hard to focus on the research topic of this study.

## **Step 2: Pilot Study**

After the revision of the instrument by the four housing professionals, an online survey for a pilot test was conducted to test the inter-item reliability of the items in the Reasons for Moving into Current Housing and Residential Satisfaction sections. Online questionnaires were distributed on December 7, 2011 and closed on December 11, 2011. Fifty usable surveys were collected with a response rate of 31.44%. The participants were the research panel members from the online survey company whose conditions were consistent with participants for the full survey.

Cronbach's Alpha reliability tests were used to examine inter-item reliability of the 46 reasons for moving into the current housing items, the 10 satisfaction with housing unit items, the 16 satisfaction with multifamily housing community items, and the 14 satisfaction with location items. In the reliability test, questions about overall satisfaction with the housing unit, the multifamily housing community and the local area were excluded. The reliability tests results revealed strong inter-item reliability scores ranging from .873 to .961.

Seven screen-out questions were added prior to starting the survey questions in order to exclude participants who did not meet the sample criteria. The unqualified participants were people younger than 55 years of age and those living in non-multifamily housing types such as single-family housing or town homes, subsidized multifamily housing, or age restricted communities.

In the Reasons for Moving into Current Housing section, the type of question was simplified from a sentence to a phrase, for example "I lost my spouse." became "loss of spouse," and the response was also changed from agreement of each sentence to importance of each phrase. In addition, two questions regarding entertainment and cultural attractions which implied similar concepts were combined, and a question about shopping and restaurants were divided into two questions. Finally, 46 items for Reasons for Moving into Current Housing were determined.

For the Residential Satisfaction section, the "not applicable" option was deleted. Instead of that, additional questions about the existence of a balcony or patio in satisfaction with the housing unit section, and the existence of an elevator, a clubhouse or community center, a fitness center, a business center/library, concierge services, a pool, outdoor activity areas, a walking trail, and activity and social programs in satisfaction with multifamily housing community were added.

## Final Instrument

After the review of four professionals and the pilot test, the final instrument was developed. A copy of the survey instrument can be found in Appendix A.

### Current Demographic Characteristics

Current Demographic Characteristics include the respondents' Current Socio-economic Characteristics and Current Housing Characteristics. All variables in each category were treated as categorical variables in hypotheses tests.

**Socio-economic characteristics.** This section of the questionnaire was composed of socio-economic characteristics of respondents' current situation. Variables related to Current Socio-economic Characteristics included *age, gender, marital status, household size, health status, employment status, educational level, and income* (see Table 2).

**Housing characteristics.** In this section, respondents were asked to answer questions about their current housing situation. Questions about Current Housing Characteristics included *tenure type, monthly housing cost, primary residence, geographical location, length in current dwelling, presence of an elevator, year of construction, and number of bedrooms* (see Table 3). *Year of construction* was measured as Before 1991 and After 1991, since this was the year that the Fair Housing Accessibility Guidelines went into effect and it was more likely that buildings constructed after 1991 would have more universal or accessible features.

Table 2.

*Current Socio-economic Characteristics Variables and Measurement*

Variables	Measurement Scale	Variable Name	Question Number
<i>Age</i>	Self input	CAge	60
<i>Gender</i>	Male Female	Sex	
<i>Marital status</i>	Married Widowed Divorced Separated Never married Other (please specify)	CMs	62
<i>Household size</i>	1 2 3 More than 4	CNr	63
<i>Health status</i>	Very poor Poor Fair Good Very Good	CHs	64
<i>Employment status</i>	Employed or self-employed full-time Employed or self-employed part-time Retired and employed (or self-employed) part-time Retired and not working Unemployed	CEs	65
<i>Education level</i>	Less than high school diploma High school diploma Technical school /Some college College degree Graduate degree or higher	CEdu	66
<i>Income</i>	Under \$ 25,000 \$ 25,000 to \$ 49,999 \$ 50,000 to \$ 74,999 \$ 75,000 to \$ 99,999 \$ 100,000 to \$124,999 \$ 125,000 to \$149,999 \$ 150,000 or above	CIn	67

Table 3.

*Current Housing Characteristics Variables and Measurement*

Variables	Measurement Scale	Variable Name	Question Number
<i>Tenure type</i>			
Own		CTt	21
Rent			
Other (Please specify)			
<i>Monthly housing cost</i>			
Less than \$500		CMcost	22
\$500 to \$999			
\$1,000 to \$1,499			
\$1,500 to \$1,999			
\$2,000 to \$2,499			
\$2,500 to \$2,999			
\$3,000 or over			
<i>Primary residence</i>			
Yes		CPrm	23
No, secondary residence			
Other (please specify)			
<i>Geographical location</i>			
Rural area		CLo	24
Small town			
City suburb			
City			
<i>Length in current dwelling</i>			
Less than a year		CLr	25
1-2 years			
3-5 years			
6-15 years			
More than 16 years			
<i>Presence of an elevator</i>			
Yes		CEle	26
No			
<i>Year of construction</i>			
Before 1991		CYrC	27
After 1991			
Don' know			
<i>Number of bedrooms</i>			
1		CCNb	28
2			
3			
More than 4			

## **Previous Demographic Characteristics**

Previous Demographic Characteristics included the respondents' Previous Socio-economic Characteristics and Previous Housing Characteristics prior to their move into their current multifamily housing. All variables in each category were treated as categorical variables in hypotheses tests.

**Socio-economic characteristics.** This section of the questionnaire was composed of general socio-economic questions about respondents' previous situation before they moved into their current housing and includes only changeable items such as *age, marital status, household size, health status, employment status, and income* (see Table 4).

**Housing characteristics.** This section asked questions about the respondents' housing experience before they moved into their current housing. Previous Housing Characteristics included *housing type, tenure type, length of residence, and number of bedrooms* (see Table 5).

Table 4.

*Previous Socio-economic Characteristics Variables and Measurement*

Variables	Measurement Scale	Variable Name	Question Number
<i>Age</i>	Self input	PAge	12
<i>Marital status</i>	Married Widowed Divorced Separated Never married Other (please specify)	PMs	13
<i>Household size</i>	1 2 3 4 5 6 More than 7	PNr	14
<i>Health status</i>	Very poor Poor Fair Good Very Good	PHs	15
<i>Employment status</i>	Employed or self-employed full-time Employed or self-employed part-time Retired and employed (or self-employed) part-time Retired and not working Unemployed	PEms	16
<i>Income</i>	Under \$ 25,000 \$ 25,000 to \$ 49,999 \$ 50,000 to \$ 74,999 \$ 75,000 to \$ 99,999 \$ 100,000 to \$ 124,999 \$125,000 to \$149,999 \$ 150,000 or above	PIn	17

Table 5.

*Previous Housing Characteristics Variables and Measurement*

Variables	Measurement Scale	Variable Name	Question Number
<i>Housing type</i>			
Single-detached housing		PHt	8
Townhouse			
Multifamily housing			
Other (please specify)			
<i>Tenure type</i>			
Own		PTt	9
Rent			
Other (please specify)			
<i>Length in previous dwelling</i>			
Less than 2 years		PLr	10
3-5 years			
6-15 years			
16-25 years			
More than 26 years			
<i>Number of bedrooms</i>			
1		PNb	11
2			
3			
4			
5			
More than 6			

**Reasons for Moving into Current Housing**

Reasons for Moving into Current Housing items were measured by asking how important each reason in their decision to move into their current housing was. To determine Reasons for Moving into Current Housing, 46 items were developed related to family composition, finance, health conditions, housing design, multifamily housing community amenities and services, neighborhood, and local area based on Wiseman and Roseman's (1979) typology of elderly migration, Wiseman's (1980) theoretical model of the elderly migration process, Litwak and Longino's (1987) conceptual framework of elderly migration, and other research literature (McAuley & Nutty, 1982; NAHB, 2009; NAHB Research Center & The Joint Center for Housing Studies of Harvard University, 2005). Participants were asked to evaluate each item

using a 5-point Likert scale, from 1 (very unimportant) to 5 (very important). Exploratory factor analysis was employed to identify major reasons for moving into current housing by treating each item as continuous (see Table 6).

Table 6.

*Reasons for Moving into Current Housing Items*

<i>Reasons for Moving into Current Housing Items</i>	Variable Name	Question Number
1. Healthy environment (clean air, water, etc)	RM-1	18-1
2. Design of the floor plan	RM-2	18-2
3. Close to parks and natural areas	RM-3	18-3
4. Close to grandchildren	RM-4	18-4
5. Reasonable cost of my new home	RM-5	18-5
6. Owning my own home	RM-6	18-6
7. People of different ages live in the community	RM-7	18-7
8. My family can assist me when needed	RM-8	18-8
9. Good weather in the area	RM-9	18-9
10. Renting a home	RM-10	18-10
11. Size of my new home	RM-11	18-11
12. Close to restaurants	RM-12	18-12
13. Low maintenance living	RM-13	18-13
14. Close to public transportation	RM-14	18-14
15. Amount of storage in my new home	RM-15	18-15
16. Security in the community	RM-16	19-16
17. Living downtown	RM-17	19-17
18. Outdoor activities in the community	RM-18	19-18
19. Living in a small town	RM-19	19-19
20. Quality of the materials and finishes in my new home	RM-20	19-20
21. Socializing with family and friends	RM-21	19-21
22. Good neighborhood	RM-22	19-22
23. Close to places for outdoor recreation	RM-23	19-23
24. Close to shopping areas	RM-24	19-24
25. Close to doctors' offices and hospitals	RM-25	19-25
26. The management team at the community	RM-26	19-26
27. Elevator in my building	RM-27	19-27
28. Loss of my spouse/partner	RM-28	19-28
29. Attractive exterior appearance of the community	RM-29	19-29
30. Close to entertainment and cultural attractions	RM-30	19-30

(Table continues)

<i>Reasons for Moving into Current Housing Items</i>	Variable Name	Question Number
31. Change of my financial status	RM-31	20-31
32. Business center in the community	RM-32	20-32
33. Becoming an empty nester	RM-33	20-33
34. Concierge service in the community	RM-34	20-34
35. Convenient parking in the community	RM-35	20-35
36. My/ or my spouse/partner's retirement	RM-36	20-36
37. Living in a larger town	RM-37	20-37
38. Reasonable cost of living in the area	RM-38	20-38
39. Close to work	RM-39	20-39
40. Change of my marital status	RM-40	20-40
41. Distance to an airport	RM-41	20-41
42. Club house in the community	RM-42	20-42
43. Close to my place of worship	RM-43	20-43
44. Quality of the kitchen and/or laundry appliances in my new home	RM-44	20-44
45. Type of management services in the community	RM-45	20-45
46. Fitness center in the community	RM-46	20-46

### **Residential Satisfaction with Multifamily Housing**

Residential Satisfaction included three conceptual sub-dimensions: satisfaction with the housing unit (10 items), satisfaction with the multifamily housing community (16 items), and satisfaction with the local area (14 items). Items in each sub-dimension were developed based on previous studies regarding multifamily housing living (James III, 2007; Kwon & Beamish, 2010; Lee, 2005; Lee, Beamish, & Goss, 2008; Prosper, 2004; Schmitz & Urban Land Institute, 2000) and residential satisfaction (Diaz-Serrano & Stoyanova, 2010; Morris & Winter, 1976; Oh, 2003; Paris & Kangari, 2005b; Speare, 1974). Participants were asked to rate their satisfaction with each item using a 5-point Likert scale, from 1 (very dissatisfied) to 5 (very satisfied).

Some items that referenced features that all respondents may not have in the satisfaction with the housing unit dimension (balcony/patio) and the satisfaction with the multifamily housing community dimension (elevator, clubhouse or community center, fitness center, business center/library, concierge services, pool, outdoor activity areas, walking trail, and activity and social programs), asked about the existence of those features using 1 (yes) and 2 (no) prior to answering about the satisfaction with those features.

A single question about overall satisfaction with each dimension was asked, such as “How satisfied are you with your housing unit?” or “How satisfied are you with your multifamily housing community?” to test criterion validity of the instrument (Blumberg, et al., 2005).

**Housing unit.** This section of the questionnaire was developed to investigate satisfaction with the housing unit, which included ten items: monthly cost, privacy, size and the number of bedrooms, number of bathrooms, amount of storage, universal design features, layout/floor plan, finishing materials, kitchen and/or laundry appliances, balcony/patio, and one overall satisfaction with housing unit question (see Table 7).

Table 7.

*Satisfaction with Housing Unit Items*

Satisfaction with Housing Unit Items	Variable Name	Question Number
Satisfaction with monthly cost of housing unit	H1cost	29-1
Satisfaction with privacy	H2priv	29-2
Satisfaction with size and the number of bedrooms	H3rm	29-3
Satisfaction with size and the number of bathrooms	H4brm	29-4
Satisfaction with amount of storage	H5strg	29-5
Satisfaction with universal design features	H6ud	29-6
Satisfaction with layout/floor plan	H7flo	29-7
Satisfaction with finishing materials	H8fnsh	29-8
Satisfaction with kitchen and/or laundry appliances	H9aapl	29-9
Satisfaction with balcony/patio	H10bal	31
Overall satisfaction with housing unit	Hovr	32

Prior to asking about satisfaction with balcony/patio, the existence of the feature was asked to identify the respondents who do not have this feature (Table 8).

Table 8.

*Existence of an Item in Housing Unit*

Item	Variable Name	Question Number
Existence of balcony/patio	H10bla1	30

**Multifamily housing community.** This section of the questionnaire was developed to measure satisfaction with the amenities and services of the multifamily housing community. This section includes 16 items: safety and security, relationships with neighbors, people of different ages, property managers, maintenance services, exterior design, parking, an elevator, community center, fitness center, business center, concierge services, pool, outdoor activity areas, walking trail, and activity programs. One item regarding overall multifamily housing community satisfaction was also asked (see Table 9).

Table 9.

*Satisfaction with Multifamily Housing Community Items*

Satisfaction with Multifamily Housing Community Items	Variable Name	Question Number
Satisfaction with safety and security	A1saft	33-1
Satisfaction with relationships with neighbors	A2nei	33-2
Satisfaction with living with people of different ages	A3gen	33-3
Satisfaction with professionalism of property management	A4man	33-4
Satisfaction with maintenance services	A5mnt	33-5
Satisfaction with exterior design	A6ext	33-6
Satisfaction with parking	A7p	33-7
Satisfaction with an elevator	A8ele	35
Satisfaction with community center	A9com	37
Satisfaction with fitness center	A10fit	39
Satisfaction with business center	A11bzn	41
Satisfaction with concierge services	A12cnc	43
Satisfaction with pool	A13pl	45
Satisfaction with outdoor activity areas	A14outd	47
Satisfaction with walking trail	A15wkt	49
Satisfaction with activity programs	A16acpr	51
Overall satisfaction with multifamily housing community	Aovr	52

Existence of an elevator, community center, fitness center, business center, concierge services, pool, outdoor activity areas, walking trail, and activity programs were asked to identify the respondents who do not have the features in their multifamily housing before asking about satisfaction with each feature (Table 10).

Table 10.

*Existence of Items in Multifamily Housing Community*

Existence of Items in Multifamily Housing Community	Variable Name	Question Number
Existence of an elevator	A8ele1	34
Existence of community center	A9com1	36
Existence of fitness center	A10fit1	38
Existence of business center	A11bzn1	40
Existence of concierge services	A12cnc1	42
Existence of pool	A13pl1	44
Existence of outdoor activity areas	A14outd1	46
Existence of walking trail	A15wkt1	48
Existence of activity programs	A16acpr1	50

**Local area.** This section measured satisfaction with the local area where participants' multifamily housing community was located. This section contains 14 items: safety and security, walkable street, climate, cost of living, access to family and friends, work place, restaurants, shopping areas, cultural places, public transportation, colleges and universities, medical centers, outdoor recreation, and natural areas. A single question about the satisfaction with the overall local area was asked to test the validity of the instrument (see Table 11).

Table 11.

*Satisfaction with Local Area items*

Satisfaction with Local Area Items	Variable Name	Question Number
Satisfaction with safety and security	L1saf	53-1
Satisfaction with walkable streets	L2wks	53-2
Satisfaction with climate	L3wth	53-3
Satisfaction with cost of living	L4cost	53-4
Satisfaction with access to family and friends	L5fam	53-5
Satisfaction with access to work places	L6wrk	53-6
Satisfaction with access to restaurants	L7rst	53-7
Satisfaction with access to shopping areas	L8shp	53-8
Satisfaction with access to cultural attractions	L9cul	53-9
Satisfaction with access to public transportation	L10ptrn	53-10
Satisfaction with access to colleges and universities	L11uni	53-11
Satisfaction with access to medical centers	L12med	53-12
Satisfaction with access to outdoor recreation	L13out	53-13
Satisfaction with access to natural areas	L14nat	53-14
Overall satisfaction with local area	Lovr	54

## Intention to Move in the Future

Participants were asked to respond to three statements about their Intention to Move in the Future using a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree) (Erickson, et al., 2006) (see Table 12).

Table 12.

### *Intention to Move in the Future Items*

Intention to Move in the Future Items	Variable Name	Question Number
I would not consider moving from my current home in the future.	InMV1	55
I might consider moving from my current home in the future.	InMV2	56
I am currently considering moving from my current home.	InMV3	57

**Reasons for intending to move in the future.** To the people who strongly disagreed or disagreed with the statement “I would not consider moving from my current home in the future” and strongly agreed or agreed with the statement “I might consider moving from my current home in the future,” Reasons for Intending to Move in the Future were asked using the open-ended question (see Table 13).

Table 13.

### *Reasons for Moving in the Future Variable and Measurement*

Variables	Question Number
Reasons for moving in the future	3-2-1

**Future housing preference.** The participants who intend to move in the future and answered the Reasons for Intending to Move in the Future questions were also asked about their Future Housing Preferences using a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree) with the 12 items. As Table 14 shows, the statements were related to “housing type,” “tenure type,” “generational mix in a housing community,” and “service in a community.”

Table 14.

*Future Housing Preference Variables and Measurement*

Variables	Variable Name	Question Number
Housing type: single-family, detached house	P_rul	59-1
Housing type: townhouse	P_twn	59-2
Housing type: multifamily housing	P_sbr	59-3
Tenure type: renting	P_dtn	59-4
Tenure type: owning	P_snH	59-5
Housing community with people of all ages	P_tnH	59-6
Housing community marketed to people age 55 and over	P_apr	59-7
Housing community that only allows people age 55 and over	P_own	59-8
Service type in a housing community: some of daily activities	P_rnt	59-9
Service type in a housing community: some of daily activities and supervising medications	P_LL	59-10
Service type in a housing community: medical services provided by nursing staff 24 hours a day	P_mxG	59-11
Service type in a housing community: a continuum of care services, from independent living to nursing care	P_cSt	59-12

### Procedures

A survey instrument was developed based on previous studies related to older adults' reasons for moving, residential satisfaction and intention to move in the future. The instrument was reviewed by the Institutional Review Board (IRB) at Virginia Tech to get an exemption approval before distributing the survey (see Appendix B). An online survey was conducted to collect data using the instrument.

### Sampling

The population of this study was people age 55 years and over living in non-subsidized and non-age restricted market-rate multifamily housing in the United States, including both renters and owners. The data was collected using convenience sampling by an online survey company. The firm has a marketing research panel of more than two million individuals who can

participate in various surveys. The company distributed the instrument to participants who met the requirements of this study:

- (1) People age 55 and over
- (2) Residents in market-rate multifamily housing, (i.e. non-subsidized and non-age restricted)
- (3) Both renters and owners

### **Data Collection**

The data were collected using an online survey questionnaire distributed by a market research company. The questionnaire was uploaded on to the online survey website, and the company gathered members who roughly fit the sample criteria for this study via email. The potential participants age 55 and over were guided to the introduction of the online questionnaire by clicking on the link presented on the email. When a respondent did not meet the sample requirement, they were forced to exit. The qualified participants completed a survey in exchange for non-monetary rewards such as gift cards or points. The company's privacy policy indicated that the participants' information was voluntarily offered, and the final data were given to the survey researcher without analysis of data. Between February 2, 2012 and February 4, 2012, a total of 431 usable surveys for this study were collected. Among the 4,096 participants, 3,581 were forced to exit from screen-out questions, 84 who qualified did not complete the survey.

### **Data Analysis**

The Statistical Package for the Social Sciences (SPSS) and Linear Structural Relations Program (LISREL) were used to describe and analyze data for this study. The data was described utilizing frequencies and chi-square tests. Exploratory factor analysis (EFA) was used to identify factors from the Reasons for Moving into Current Housing questions and the Residential Satisfaction questions. One-way analysis of variance (ANOVA) and *t*-test were employed to test hypotheses 1, 2, and 3. Pearson's correlation, measurement model and structural equation model (SEM) analyses were conducted to test hypotheses 4 and 5. A significant level of  $p < .05$  was

chosen as the criterion for accepting hypotheses. The five major hypotheses of this study were as follows:

H<sub>1</sub>: Previous Socio-economic Characteristics and Previous Housing Characteristics are significantly associated with Reasons for Moving into Current Housing.

H<sub>2</sub>: Current Socio-economic Characteristics and Current Housing Characteristics are significantly associated with Residential Satisfaction.

H<sub>3</sub>: Current Socio-economic Characteristics and Current Housing Characteristics are significantly associated with Intention to Move in the Future.

H<sub>4</sub>: Reasons for Moving into Current Housing are significantly related to Residential Satisfaction.

H<sub>5</sub>: Residential Satisfaction is significantly related to Intention to Move in the Future.

### **Exploratory Factor Analysis**

Prior to testing the hypotheses, exploratory factor analyses (EFA) were conducted to generate the Reasons for Moving into Current Housing factors and the Residential Satisfaction factors. Hair, Black, Babin and Anderson (2008) stated that “factor analysis can be utilized to examine the underlying patterns or relationships for a large number of variables and to determine whether the information can be condensed or summarized in a smaller set of factors or components” (p.91). EFA is widely used to retain only items that have a meaningful contribution and exclude items that negatively influence validity and/or reliability of the scale (Hair, et al., 2008; Hinkin, Tracey, & Enz, 1997; Thompson, 2004). Generally, a sample size of at least 50 is required and 100 is preferable. The sample size in this study ( $n = 431$ ) was suitable for this type of analysis (Hair, et al., 2008). To generate factors for Reasons for Moving into Current Housing, only the 24 items that had a mean score of 3.0 or higher were included in the EFA to identify important reasons for moving into the current housing. In the EFA for the Residential Satisfaction factors, 29 items were analyzed excluding 11 items with missing data.

### Hypotheses 1, 2 and 3

To examine Hypotheses 1, 2 and 3, one-way ANOVA and *t*-test were employed. ANOVA was used in order to analyze an association between an independent variable that included more than three categories and a continuous dependent variable. T-tests analyzed an association between an independent variable with two categories and a continuous dependent variable.

Independent variables for hypothesis 1 included Previous Socio-economic Characteristics (*age, marital status, household size, health status, employment status and income*) and the Previous Housing Characteristics (*housing type, tenure type, length in previous dwelling, and number of bedrooms*) which were treated as categorical variables.

Some response categories in the independent variables were combined when necessary. First of all, when a category with less than five respondents was found the category was combined with another category, and the new category was applied commonly to current and previous characteristics. Current and previous *health status* was originally asked using five-categories, and those categories were combined into three-categories (very poor or poor, fair, and good or very good). Current and previous *education level* was combined into four-categories from five-categories.

Second, data in a category for other (i.e., please specify) in current and previous *marital status*, current and previous *tenure type*, and current and previous *housing type* was treated as missing.

Lastly, *age* which was asked as a self-input question was grouped to have similar proportion among categories. Current *age* was combined into four categories (55 to 64 years, 65 to 74 years, 75 to 84 years, and 85 years or older), and previous *age* was grouped into three groups (less than 54 years, 55 to 64 years, and 65 years or older).

Dependent variables for Reasons for Moving into Current Housing factors and the Residential Satisfaction factors were identified from EFA. Mean scores of items that loaded in each factor were used.

## **Hypotheses 4 and 5**

Structural equation model (SEM) data analysis technique (used to examine hypotheses 4 and 5) simultaneously estimates multiple relationships, considers unobserved concepts in the relationships, and accounts for measurement error (Hair, et al., 2008). To find the best model fit indices, the maximum likelihood estimation procedure was employed.

Variables for Reasons for Moving into Current Housing and Residential Satisfaction were identified from the EFA. Two items were loaded in a dependent variable with *Intention to move*. The two items were “I would not consider moving” which was reverse coded and “I might consider moving.” Each item loaded in each variable was used without calculating mean scores in a measurement model and in a SEM model.

## **CHAPTER 4**

### **FINDINGS**

The major purpose of this study was to investigate the past, current, and future housing behavior of residents 55 and older living in multifamily housing. To implement this study, the research framework included five main parts: (a) residents' Current Demographic Characteristics, (b) residents' Previous Demographic Characteristics, (c) residents' Reasons for Moving into Current Housing, (d) residents' Residential Satisfaction with multifamily housing, and (e) residents' Intention to Move in the Future. This chapter presents descriptive analysis, analyses of the results, and tests of hypotheses.

#### **Overview of the Respondents**

Before providing results of data analyses and hypotheses testing, this section presents descriptive analysis of respondents related to Current Demographic Characteristics, Previous Demographic Characteristics, Reasons for Moving into Current Housing, Residential Satisfaction with multifamily housing, and Intention to Move in the Future.

#### **Current Demographic Characteristics of the Respondents**

**Current Socio-economic Characteristics.** Currently, 44% of the respondents were between ages 55 and 64, 29% were between 65 to 74, and 27% were age 75 and older. Fifty percent of the participants were male, and 50% were female. Thirty-eight percent of the respondents were married. The 62% of respondents who were unmarried reported their marital status as divorced (28%), widowed (15%), never married (15%), separated (1%), and other (3%). Almost 50% of the respondents lived alone, 46% were in 2-person households, and only 5% had more than two household members. Sixty-five percent of the respondents reported their health status as good (45%) or very good (20%), 27% said fair, and only 8% evaluated their health as poor (8%) or very poor (1%). Sixty-one percent of the respondents were retired and not working, 29% were currently employed or self-employed full-time or part-time, 6% were retired and employed (or self-employed) part-time, and 4% were unemployed. Sixty-five percent of the respondents had a technical school/some college degree (33%) or college degree (32%), 18% had

a graduate degree or higher, and 17% had a high school diploma or less. Thirty-four percent of the respondents had \$25,000 to \$49,999 in annual income, 23% earned under \$25,000, 23% had \$50,000 to \$74,999, and 19% made more than \$75,000 per year. Table 15 shows the summary of the description of Current Socio-economic Characteristics of the respondents.

Table 15.

*Current Socio-economic Profile of the Respondents (N=431)*

Current Socio-economic Characteristics	Frequency (n)	Percent (%)
<i>Age</i>		
55 to 64 years	189	44
65 to 74 years	126	29
75 to 84 years	95	22
85 years or older	21	5
<i>Gender</i>		
Male	215	50
Female	216	50
<i>Marital Status</i>		
Married	163	38
Widowed	64	15
Divorced	123	28
Separated	5	1
Never married	64	15
Other (please specify)	12	3
<i>Household Size</i>		
1	210	49
2	198	46
More than 3	23	5
<i>Health Status</i>		
Very poor	4	1
Poor	29	7
Fair	116	27
Good	195	45
Very Good	87	20
<i>Employment Status</i>		
Employed or self-employed full-time	86	20
Employed or self-employed part-time	38	9
Retired and employed (or self-employed) part-time	26	6
Retired and not working	262	61
Unemployed	19	4
<i>Education Level</i>		
Less than high school diploma	6	1
High school diploma	68	16
Technical school /Some college	141	33
College degree	137	32
Graduate degree or higher	79	18
<i>Income</i>		
Under \$ 25,000	99	23
\$ 25,000 to \$ 49,999	147	34
\$ 50,000 to \$ 74,999	101	23
\$ 75,000 or above	84	19

**Current Housing Characteristics.** Sixty-six percent of the respondents rented and 33% owned their current multifamily housing. Forty-six percent of the respondents spent \$500 to \$999 per month for their housing, 23% paid \$1,000 to \$1,499, 19% spent more than \$1,500, and 12% of the respondents spent less than \$500 monthly. The vast majority (98%) of the respondents reported their current multifamily housing as a primary residence. More than half (52%) of the respondents lived in a city suburb, 22% were small town residents, 20% lived in the city, and only 3% lived in a rural area. Thirty-six percent of the residents had lived 6 to 15 years in their current multifamily housing, 25% had lived more than 16 years, 16% had lived three to five years, and 23 % had lived in their current housing less than two years. Almost 70% of the respondents do not have an elevator in their multifamily housing building. Sixty-seven percent of the respondents reported that their multifamily housing building was built before 1991 (pre-FHAG), 20% were constructed after 1991 (post-FHAG), and 13% did not know when their building was built. More than half (52%) the respondents had two bedrooms in their multifamily housing units, 33% had one bedroom, and 15% had more than three bedrooms. Table 16 shows the summary of the description of the current housing profile for the respondents.

Table 16.

*Current Housing Profile of the Respondents (N=431)*

Current Housing Characteristics	Frequency (n)	Percent (%)
<i>Tenure type</i>		
Own	143	33
Rent	286	66
Other	2	1
<i>Monthly Housing Cost</i>		
Less than \$500	53	12
\$500 to \$999	199	46
\$1,000 to \$1,499	96	23
\$1,500 to \$1,999	44	10
\$2,000 to \$2,499	25	6
\$2,500 or over	14	3
<i>Primary residence</i>		
Yes	424	98
No, secondary residence	7	2
<i>Geographical location</i>		
Rural area	11	3
Small town	96	22
City suburb	239	55
City	85	20
<i>Length in current dwelling</i>		
Less than a year	48	11
1-2 years	52	12
3-5 years	69	16
6-15 years	153	36
More than 16 years	109	25
<i>Presence of an elevator</i>		
Yes	124	29
No	307	71
<i>Year of construction</i>		
Before 1991	287	67
After 1991	88	20
Don't know	56	13
<i>Number of bedrooms</i>		
1	143	33
2	223	52
More than 3	65	15

## **Previous Demographic Characteristics of the Respondents**

In this section, demographic characteristics of respondents at the time they decided to move into their current multifamily housing are reported.

**Previous Socio-economic Characteristics.** Thirty-seven percent of the respondents were between age 55 to 64 when they moved into their current multifamily housing, 20% were between 65 to 74, 18% were between 45 to 54, 17% were 44 or less, and 8% were 75 and older. Thirty-nine percent of the respondents were married when they had moved into their current multifamily housing. Sixty-one percent of the respondents were unmarried and reported their marital status as divorced (26%), never married (16%), widowed (12%), separated (4%), and other (3%). Forty-five percent of the respondents had two household members including themselves prior to moving into their current housing, 30% lived alone, and 25% had more than three household members. The majority (81%) of the respondents reported their health status as good (43%) or very good (37%), 15% said fair, and only 5% evaluated poor (4%) or very poor (1%) when they had moved into their current housing. More than half (51%) of the respondents had been employed or self-employed full-time (43%), or employed or self-employed part-time (8%) when they had moved into their current multifamily housing. Thirty-six percent were retired and not working, 6% were retired and employed (or self-employed) part-time, and 6% were unemployed. Thirty-four percent of the respondents made \$25,000 to \$49,999 annually, 26% earned under \$25,000, 23% made \$50,000 to \$74,999, and 17% made more than \$75,000 per year when they moved into their current housing. Previous Socio-economic Characteristics are summarized in Table 17.

Table 17.

*Previous Socio-economic Profile of the Respondents (N=431)*

Previous Socio-economic Characteristics	Frequency (n)	Percent (%)
<i>Age</i>		
Less than 34 years	27	6
35 to 44 years	48	11
45 to 54 years	76	18
55 to 64 years	161	37
65 to 74 years	86	20
75 years or older	33	8
<i>Marital Status</i>		
Married	166	39
Widowed	51	12
Divorced	113	26
Separated	19	4
Never married	70	16
Other	12	3
<i>Household Size</i>		
1	130	30
2	194	45
3	49	11
4	27	6
More than 5	31	8
<i>Health Status</i>		
Very poor	6	1
Poor	16	4
Fair	64	15
Good	186	43
Very Good	159	37
<i>Employment Status</i>		
Employed or self-employed full-time	187	43
Employed or self-employed part-time	33	8
Retired and employed (or self-employed) part-time	28	6
Retired and not working	157	36
Unemployed	26	6
<i>Income</i>		
Under \$ 25,000	111	26
\$ 25,000 to \$ 49,999	148	34
\$ 50,000 to \$ 74,999	101	23
\$ 75,000 or above	71	17

**Previous Housing Characteristics.** Slightly more than 50% of the respondents had lived in multifamily housing before they moved into their current multifamily housing, 39% had lived in single-family detached or attached housing, 7% had lived in townhouses (4%) or other housing type (3%). Fifty-two percent of the respondents rented, and 47% owned their previous housing. Thirty-four percent of the respondents had lived in their previous house for six to 15 years, 20% had lived for 16 to 25 years, 18% had lived for three to five years, 16% had lived for less than two years, and 13% had lived in their previous housing for more than 26 years before they moved into their current multifamily housing. Thirty-five percent of the respondents had two bedrooms in their previous housing, 31% had three bedrooms, 20% had one bedroom, and 14% had more than four bedrooms before they moved into their current multifamily housing. Table 18 shows the summary of the description of current housing profile for the respondents.

Table 18.

*Previous Housing Profile of the Respondents (N=431)*

Previous Housing Characteristics	Frequency (n)	Percent (%)
<i>Housing type</i>		
Single-family detached or attached housing	166	39
Townhouse	18	4
Multifamily housing	234	54
Other (please specify)	13	3
<i>Tenure type</i>		
Own	202	47
Rent	227	52
Other	2	1
<i>Length in previous dwelling</i>		
Less than 2 years	68	16
3-5 years	78	18
6-15 years	146	34
16-25 years	85	20
More than 26 years	54	13
<i>Number of bedrooms</i>		
1	86	20
2	150	35
3	133	31
More than 4	62	14

## Changes in Previous and Current Demographic Characteristics

In this section, differences between Current Demographic Characteristics and Previous Demographic Characteristics are reported. Chi-square tests for independence were conducted to investigate the association between Current Demographic Characteristics and Previous Demographic Characteristics. Since the result of chi-square test with a large enough sample can be statistically significant, even though practical differences are small (Pallant, 2007), the scores of frequencies and percentages were additionally calculated by subtracting Previous Demographic Characteristics from Current Demographic Characteristics.

Some responses in each categories were combined or treated as missing based on the assumptions of a chi-square test that each cell should have at least five or more responses (Pallant, 2007). For example, *health status* was combined into three categories because, if not, some cells would have included frequencies less than five. The previous and current *age* variables were combined into three categories since current age did not include the less than 54 years old group and previous age did not include 85 years or older category. The combined categories that were used in this section were also used for further hypotheses tests.

**Changes in Socio-economic Characteristics.** As Table 19 shows, all variables regarding Previous Socio-economic Characteristics and Current Socio-economic Characteristics were statistically significantly different from each other. As expected, the respondents had aged with the largest increase being in those 65 and older. A chi-square test for independence indicated a significant difference between current *age* and previous *age* when the respondents moved into their current housing,  $\chi^2(3, n=431) = 2.14, p = .00, Cramer's = .498$ . Respondents' marital status remained relatively unchanged, but showed a significant difference according to the Chi-square test,  $\chi^2(3, n=431) = 9.90, p = .00, Cramer's = .875$ . For *household size*, a chi-square test revealed a significant difference between current household size and previous household size,  $\chi^2(2, n=431) = 1.45, p = .00, Cramer's = .411$ . The number of persons living in single person households increased (19%) and there was a 20% decrease in the percentage of three or more person households. In terms of *health status*, a chi-square test revealed a significant difference,  $\chi^2(2, n=431) = 2.72, p = .00, Cramer's = .562$ . Specifically, the number of respondents who evaluated their *health status* as very poor or poor (3%) and fair (12%) increased and the

respondents with good or very good health status decreased (-15%). There was a significant difference in previous and current *employment status*,  $\chi^2 (1, n=431) = 3.71, p = .00, Phi = .928$ . The number of people who worked full-time decreased since they moved into their current housing (-23%), and the number of people who were retired and not working increased (25%). A chi-square test revealed a significant difference between previous *income* and current *income*,  $\chi^2 (3, n=431) = 4.55, p = .00, Cramer's = .594$ .

Table 19.

*Changes in Current and Previous Socio-economic Characteristics (N=431)*

Socio-economic Characteristics	Current	Previous	Current – Previous
	n (%)	n (%)	n (%)
<b><i>Age**</i></b>			
Less than 64 years	189 (44)	312 (72)	- 123 (- 28)
65 to 74 years	126 (29)	86 (20)	40 (9)
75 years or older	116 (27)	33 (8)	83 (19)
Total	431 (100)	431 (100)	
<b><i>Marital Status**</i></b>			
Married	163 (38)	166 (39)	- 3 (- 1)
Widowed	64 (15)	51 (12)	13 (3)
Divorced or separated	128 (30)	132 (31)	- 4 (- 1)
Never married or other	76 (18)	82 (19)	- 6 (- 1)
Total	431 (100)	431 (100)	
<b><i>Household Size**</i></b>			
1	210 (49)	130 (30)	80 (19)
2	198 (46)	194 (45)	4 (1)
More than 3	23 (5)	107 (25)	- 84 (- 20)
Total	431 (100)	431 (100)	
<b><i>Health Status**</i></b>			
Very poor or poor	33 (8)	22 (5)	11 (3)
Fair	116 (27)	64 (15)	52 (12)
Good or very good	282 (65)	345 (80)	- 63 (-15)
Total	431 (100)	431 (100)	
<b><i>Employment Status**</i></b>			
Employed or self-employed full-time	86 (20)	187 (43)	-101 (-23)
Employed or self-employed part-time	38 (9)	33 (8)	5 (1)
Retired and employed (or self-employed) part-time	26 (6)	28 (7)	-2 (-1)
Retired and not working	262 (61)	157 (36)	105 (25)
Unemployed	19 (4)	26 (6)	-7 (-2)
Total	431 (100)	431 (100)	
<b><i>Income**</i></b>			
Under \$ 25,000	99 (23)	111 (26)	- 12 (- 3)
\$ 25,000 to \$ 49,999	147 (34)	148 (34)	- 1 (0)
\$ 50,000 to \$ 74,999	101 (23)	101 (23)	0 (0)
\$ 75,000 or above	84 (20)	71 (17)	13 (3)
Total	431 (100)	431 (100)	

\*\*  $p < .01$

**Changes in Housing Characteristics.** Table 20 shows the differences in Current Housing Characteristics and Previous Housing Characteristics. A chi-square test for independence indicated a significant difference between current *tenure type* and previous *tenure type*,  $\chi^2(1, n=429) = 69.347, p = .00, Phi = .402$ . Thirteen percent of the respondents who had owned their previous housing rented their current housing.

A chi-square test revealed a significant difference between the current *number of bedrooms* and *number of bedrooms* in their previous housing,  $\chi^2(2, n=431) = 54.46, p = .00, Cramer's = .251$ . The percentage of people who had one bedroom (13%) and two bedroom (17%) increased, and the respondents who had three bedrooms or more decreased (-30%).

Table 20.

*Changes in Current and Previous Housing Characteristics (N=431)*

Housing Characteristics	Current	Previous	Current-Previous
	n (%)	n (%)	n (%)
<b><i>Tenure Type**</i></b>			
Own	145 (34)	202 (47)	- 57 (- 13)
Rent	284 (66)	227 (53)	57 (13)
Total	429 (100)	429 (100)	
<b><i>Number of bedrooms**</i></b>			
1	143 (33)	86 (20)	57 (13)
2	223 (52)	150 (35)	73 (17)
3 or more	65 (15)	195(45)	-130 (-30)
Total	431 (100)	431 (100)	

\*\*  $p < .01$

### **Reasons for Moving into Current Housing**

The 46 Reasons for Moving into Current Housing items were evaluated using five-point Likert scale rating from 1 (very unimportant) to 5 (very important). Good neighborhood ( $M = 4.09, SD = .889$ ), reasonable cost of my new home ( $M = 3.91, SD = 1.123$ ), security in the community ( $M = 3.90, SD = .922$ ), low maintenance living ( $M = 3.83, SD = 1.078$ ), close to shopping areas ( $M = 3.73, SD = .978$ ), and design of the floor plan ( $M = 3.73, SD = 1.029$ ) were the items with the highest means. Concierge service in the community ( $M = 2.00, SD = 1.054$ ), loss of my spouse/partner ( $M = 2.09, SD = 1.371$ ), club house in the community ( $M = 2.13, SD =$

1.164), change of my marital status ( $M = 2.16, SD = 1.368$ ), and distance to an airport ( $M = 2.17, SD = 1.153$ ) were the items with the lowest means (See Table C1 in Appendix C).

### Residential Satisfaction

Residential satisfaction with multifamily housing includes three conceptual sub-dimensions: satisfaction with the housing unit, the multifamily housing community, and the local area. Each satisfaction item was measured using a five-point dissatisfied-satisfied scale rating from 1 (very dissatisfied) to 5 (very satisfied).

**Satisfaction with Housing Unit.** Among the 10 items, satisfaction with balcony/patio ( $M = 3.95, SD = .917, n = 281$ ), satisfaction with size and the number of bedrooms ( $M = 3.91, SD = .941, n = 431$ ), satisfaction with size and the number of bathrooms ( $M = 3.88, SD = .942, n = 431$ ), and satisfaction with layout/floor plan ( $M = 3.86, SD = .884, n = 431$ ) were items with the highest means. Even though not all of the respondents had a balcony/patio in their housing unit, it showed the highest mean among the housing unit items. The item with the lowest mean was satisfaction with amount of storage ( $M = 3.31, SD = 1.106, n = 431$ ). Satisfaction with universal design features ( $M = 3.40, SD = .983, n = 431$ ) also had a low mean score. Residential satisfaction with the housing unit is summarized in Table 21.

Table 21.

#### *Residential Satisfaction with Housing Unit*

Residential Satisfaction with Housing Unit	<i>n</i>	<i>M</i>	<i>SD</i>
Satisfaction with balcony/patio	281	3.95	.917
Satisfaction with size and the number of bedrooms	431	3.91	.941
Satisfaction with size and the number of bathrooms	431	3.88	.942
Satisfaction with layout/floor plan	431	3.86	.884
Satisfaction with privacy	431	3.79	1.059
Satisfaction with kitchen and/or laundry appliances	431	3.68	1.005
Satisfaction with finishing materials	431	3.52	.992
Satisfaction with monthly cost of housing unit	431	3.50	1.114
Satisfaction with universal design features	431	3.40	.983
Satisfaction with amount of storage	431	3.31	1.106

*Note.* Scale: 1=very dissatisfied to 5=very satisfied.

**Satisfaction with the Multifamily Housing Community.** Respondents were satisfied with the multifamily housing community features. Among the 16 items, satisfaction with concierge services ( $M = 4.19$ ,  $SD = .910$ ,  $n = 31$ ), satisfaction with safety and security ( $M = 3.91$ ,  $SD = .886$ ,  $n = 431$ ), and satisfaction with walking trail ( $M = 3.90$ ,  $SD = .799$ ,  $n = 94$ ) were items with the highest means. Items with the lowest means were satisfaction with professionalism of property management ( $M = 3.64$ ,  $SD = 1.033$ ,  $n = 431$ ), satisfaction with fitness center ( $M = 3.69$ ,  $SD = .891$ ,  $n = 150$ ), and satisfaction with activity programs ( $M = 3.70$ ,  $SD = .840$ ,  $n = 94$ ). There were some items that not all of the respondents had in their multifamily housing communities. For those items, satisfaction with concierge services, satisfaction with walking trail, and satisfaction with an elevator were items with relatively higher means. Items with lower means were satisfaction with fitness center, satisfaction with activity programs, satisfaction with business center, and satisfaction with outdoor activity areas. Table 22 shows the summary of the description of residential satisfaction with the multifamily housing community of the respondents.

Table 22.

*Residential Satisfaction with Multifamily Housing Community*

Residential Satisfaction with Multifamily Housing Community	<i>n</i>	<i>M</i>	<i>SD</i>
Satisfaction with concierge services	31	4.19	.910
Satisfaction with safety and security	431	3.91	.886
Satisfaction with walking trail	78	3.90	.799
Satisfaction with an elevator	124	3.85	.960
Satisfaction with relationships with neighbors	431	3.84	.916
Satisfaction with parking	431	3.82	1.062
Satisfaction with living with people of different ages	431	3.80	.818
Satisfaction with exterior design	431	3.78	.929
Satisfaction with maintenance services	431	3.77	1.059
Satisfaction with pool	214	3.76	.971
Satisfaction with outdoor activity areas	148	3.73	.885
Satisfaction with business center	86	3.72	.762
Satisfaction with community center	157	3.72	.905
Satisfaction with activity programs	94	3.70	.840
Satisfaction with fitness center	150	3.69	.891
Satisfaction with professionalism of property management	431	3.64	1.033

*Note.* Scale: 1=very dissatisfied to 5=very satisfied.

**Satisfaction with the Local Area.** Residential satisfaction with the local area were evaluated using a five-point Likert scale rating from 1 (very dissatisfied) to 5 (very satisfied). Among the 14 items, satisfaction with access to shopping areas ( $M = 4.03$ ,  $SD = .858$ ,  $n = 431$ ), satisfaction with access to restaurants ( $M = 3.98$ ,  $SD = .858$ ,  $n = 431$ ), and satisfaction with access to medical centers ( $M = 3.97$ ,  $SD = .908$ ,  $n = 431$ ) were items with the highest means, and satisfaction with access to work places ( $M = 3.27$ ,  $SD = 1.020$ ,  $n = 431$ ), satisfaction with access to colleges and universities ( $M = 3.37$ ,  $SD = 1.059$ ,  $n = 431$ ), and satisfaction with cost of living in the local area ( $M = 3.44$ ,  $SD = 1.012$ ,  $n = 431$ ) were items with the lowest means (See Table 23).

Table 23.

*Residential Satisfaction with Local Area (N=431)*

Residential Satisfaction with Local Area	<i>M</i>	<i>SD</i>
Satisfaction with access to shopping areas	4.03	.858
Satisfaction with access to restaurants	3.98	.838
Satisfaction with access to medical centers	3.97	.908
Satisfaction with walkable streets	3.92	.864
Satisfaction with safety and security	3.89	.869
Satisfaction with climate	3.83	.866
Satisfaction with access to public transportation	3.78	1.057
Satisfaction with access to family and friends	3.75	.985
Satisfaction with access to natural areas	3.62	.997
Satisfaction with access to outdoor recreation	3.61	.994
Satisfaction with access to cultural attractions	3.60	.968
Satisfaction with cost of living in the local area	3.44	1.012
Satisfaction with access to colleges and universities	3.37	1.059
Satisfaction with access to work places	3.27	1.020

*Note.* Scale: 1 = very dissatisfied to 5 = very satisfied.

### **Intention to Move in the Future**

Thirty-one percent of the respondents strongly disagreed (13%) or disagreed (18%) with the statement “I would not consider moving from my current housing in the future.” More than

half of the respondents (52%,  $n = 224$ ) strongly agreed (17%) or agreed (35%) with the statement “I might consider moving from my current home in the future”. To the respondents who strongly disagreed or disagreed with “I would not consider moving from my current housing in the future” and strongly agreed or agreed with “I would consider moving in the future”, a statement of “ I am currently considering moving” was asked, and 42% of the respondents agreed (25%) or strongly agreed (17%) with that statement. Respondents’ Intention to Move in the Future are summarized in Table 24 (See Table C2 and Table C3 in Appendix C for socio-economic characteristics and housing characteristics for respondents who intend to move in the future).

Table 24.

*Intention to Move in the Future*

Intention to Move in the Future	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
I would not consider moving.	56 (13)	79 (18)	101 (24)	118 (27)	77 (18)	431 (100)
I might consider moving.	44 (10)	54 (13)	109 (25)	152 (35)	72 (17)	431 (100)
I am currently considering moving.	33 (15)	49 (22)	49 (22)	55 (25)	38 (17)	224 (100)

*Note.* Percents are valid percents within each feature. Total of percent may not be 100 due to rounding.

**Reasons for Intending to Move in the Future.** Respondents ( $n = 224$ ) who were currently considering moving were asked to describe their Reasons for Intending to Move in the Future using an open-ended question. Among the 224 responses, 210 valid answers were analyzed utilizing content analysis. Key words, such as cost, weather, and children from each response were counted. Some responses included more than one key word. Among 308 key words, 37% of them were related to the housing unit which includes cost (17%), space (13%), design (5%), and utilities/heating (2%). Twenty-seven percent of the key words were related to personal reasons including aging (11%), family (11%), retirement (3%), and finance (2%). Multifamily housing community related reasons were 22% of the reasons and included

neighborhood (10%), building design of multifamily housing (4%), multifamily housing community services (3%), amenities (4%), and restrictions or pet policies (1%). Fourteen percent of the reasons were related to location which included climate (4%), environmental characteristics of location (4%), access to local area (4%), and cost of living in the area (1%). Figure 6 shows the summary and more specific results of the respondents' Reasons for Intending to Move in the Future.

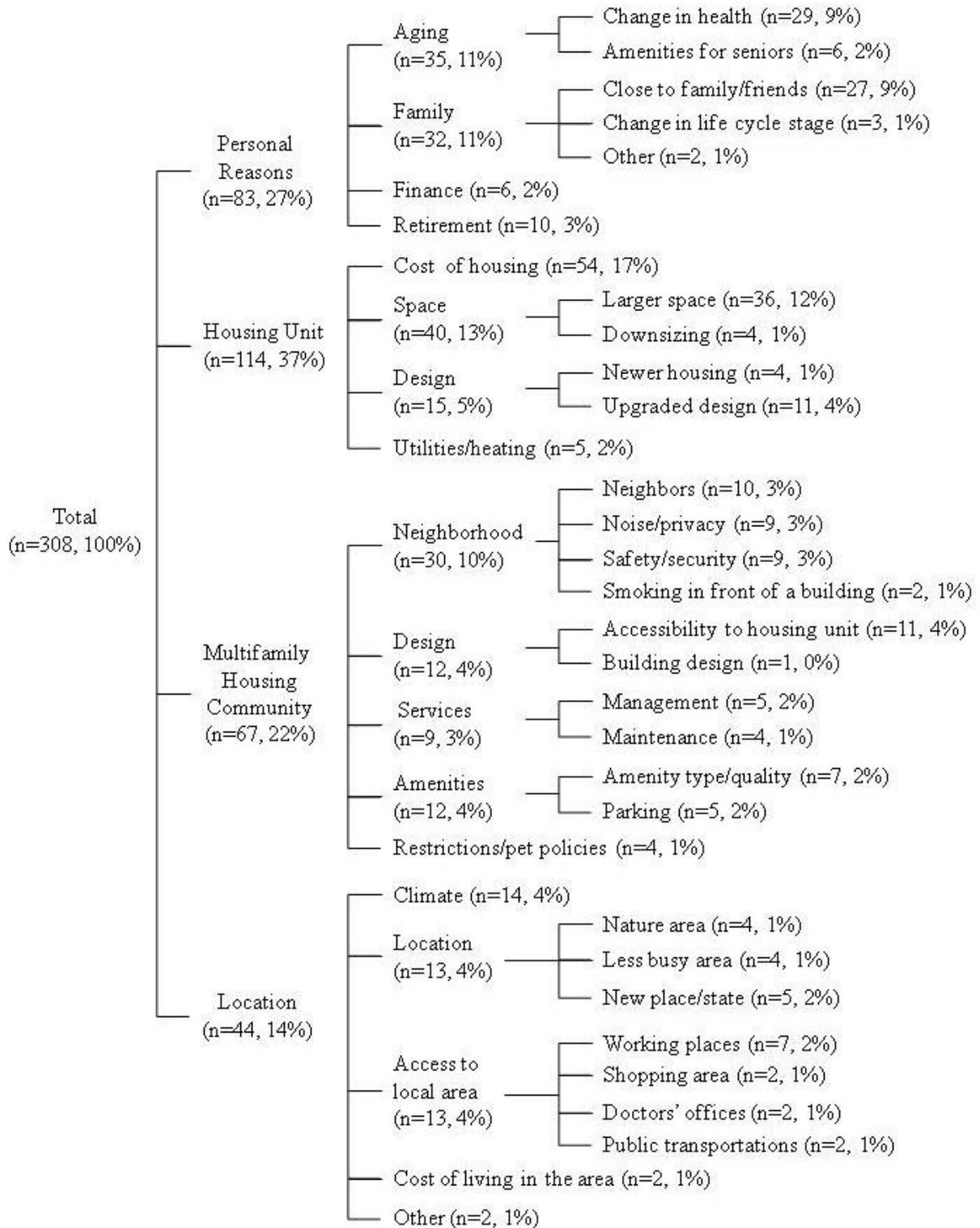


Figure 6. Reasons for Intending to Move in the Future (n = frequency of mentioned keywords)

**Future Housing Preference.** Among the 12 items of the Future Housing Preference regarding “housing type,” “tenure type,” “age restriction,” and “service type in the community,” multifamily housing ( $M = 3.10$ ,  $SD = 1.092$ ), owning ( $M = 3.15$ ,  $SD = 1.475$ ), housing community with people of all ages ( $M = 3.24$ ,  $SD = 1.102$ ), and some daily services ( $M = 2.72$ ,  $SD = 1.199$ ) were items with the highest means, and townhouse ( $M = 2.63$ ,  $SD = 1.148$ ), renting ( $M = 3.01$ ,  $SD = 1.475$ ), housing community that only allows people age 55 and over ( $M = 2.67$ ,  $SD = 1.197$ ), and medical services provided by nursing staff 24 hours a day ( $M = 2.09$ ,  $SD = 1.063$ ) were items with the lowest means (See Table 25).

Table 25.

*Future Housing Preferences (n = 224)*

Future Housing Preferences	M	SD
Housing type: single-family, detached house	3.03	1.354
Housing type: townhouse	2.63	1.148
Housing type: multifamily housing	3.10	1.092
Tenure type: renting	3.01	1.321
Tenure type: owning	3.15	1.475
Housing community with people of all ages	3.24	1.102
Housing community marketed to people age 55 and over	3.03	1.183
Housing community that only allows people age 55 and over	2.67	1.197
Service type in a housing community: some daily services	2.72	1.199
Service type in a housing community: some daily services and supervising medications	2.14	1.045
Service type in a housing community: medical services provided by nursing staff 24 hours a day	2.09	1.063
Service type in a housing community: a continuum of care services, from independent living to nursing care	2.25	1.141

*Note.* Scale: 1=strongly disagree to 5=strongly agree.

## **Analysis of Reasons for Moving into Current Housing**

Reasons for Moving into Current Housing items used a 5-point Likert scale, from 1 (very unimportant) to 5 (very important). Among the 46 items, 22 had less than 3.0 mean scores out of 5 and were excluded to keep only items which were identified as important. Therefore, 24 items were analyzed using factor analysis with principal components method to identify underlying dimensions of these items using SPSS 16.0.

Prior to performing principal components analysis, the suitability of data for factor analysis was assessed. The correlation matrix revealed that most of the coefficients were .3 and above. The Kaiser-Meyer-Olkin (KMO) value was .905, which is greater than the recommended value of .6 (Kaiser & Rice, 1974). Bartlett's Test of Sphericity (Bartlett, 1954) was also statistically significant.

Exploratory factor analysis (EFA) with principal components analysis revealed the presence of ten components with VARIMAX-rotation and eigenvalues exceeding 1, the threshold value. This factor solution accounted for 58.2% of the total variance. After the first factor solution, five or fewer factors were identified as the most reasonable number of factors to extract from rotated component matrix and scree test which is used to determine the optimal number of factors (Hair, et al., 2008).

After the first factor solution, factor analysis using the same method was conducted by extracting less than five factors. Any items with factor loadings of less than .45 were excluded due to lack of meaningful contribution. Cross-loading items which could negatively influence the validity of the scale were deleted since each factor should be orthogonal. After factors were found, inter-item reliability of items within each factor was tested using Cronbach's Alpha which should have values greater than .60 (Hair, et al., 2008). This process was repeated until none of the above exclusion reasons were found, and Cronbach's Alpha values of all factors were appropriate.

Finally, extracting three factors was confirmed which explained 55.1% of the total variance of the 17 items. The communality of each item ranged from .41 to .65, larger than .3, indicating that total variance of the original items shared with all other items was fairly strong (Hair, et al., 2008). Table 26 provides the results of the extraction of three factors of Reasons for Moving into Current Housing.

Table 26.

*VARIMAX-rotated Extraction: Final Three Factors of Reasons for Moving into the Current Housing*

Number of factors extracted	Eigenvalues	% of variance	Cumulative % of variance
1	4.039	23.759	23.759
2	3.141	18.474	42.234
3	2.814	12.848	55.082

The first factor included items that were mainly related to quality of living in multifamily housing such as management and maintenance service, and quality of the unit and building design. The second factor consisted of items regarding closeness to local services such as outdoor recreation, public transportation and shopping area. The third factor contained items about finance such as cost of living in the area and cost of the home, low maintenance and changes in personal financial status. Therefore, the three major reasons for moving into current housing factors were named the *multifamily living reason*, the *nearby activities reason*, and the *financial reason*, respectively (Table 27).

Table 27.

*Factor Loadings: Final Three Factors of Reasons for Moving into Current Housing (n=431)*

Items	VARIMAX-rotated loadings		
	Factor1 <i>Multifamily living reason</i>	Factor2 <i>Nearby activities reason</i>	Factor3 <i>Financial reason</i>
Type of management services in the community	.772		
Quality of the kitchen and/or laundry appliances in my new home	.751		
Quality of the materials and finishes in my new home	.731		
Attractive exterior appearance of the community	.699		
The management team at the community	.695		
Convenient parking in the community	.636		
Design of the floor plan	.524		
Close to places for outdoor recreation		.761	
Close to parks and natural areas		.743	
Close to entertainment and cultural attractions		.693	
Close to public transportation		.644	
Close to shopping areas		.620	
Close to doctors' offices and hospitals		.547	
Reasonable cost of living in the area			.687
Low maintenance living			.669
Reasonable cost of my new home			.658
Change in my financial status			.628

Cronbach's Alpha values for inter-item reliability of items within each factor ranged from .666 to .861, which were higher than the minimum acceptable value of .60 (Hair, et al., 2008). Table 28 shows the summary of Reasons for Moving into Current Housing items in each factor and their Cronbach's Alpha.

Table 28.

*Inter-item Reliability: Reasons for Moving into Current Housing Factors*

Factor	Number of items included	Cronbach's Alpha
<i>Multifamily living reason</i>	7	.861
<i>Nearby activities reason</i>	6	.811
<i>Financial reason</i>	4	.666

## Analysis of Residential Satisfaction with Multifamily Housing

Residential Satisfaction with multifamily housing was measured using 40 items on the questionnaire and consisted of three conceptual sub-dimensions: satisfaction with the housing unit, the multifamily housing community, and the local area. EFA was used to confirm whether the initial three sub-dimensions are supported by data, and to retain only items that have meaningful contribution (Hair, et al., 2008; Hinkin, et al., 1997). Among the 40 items, 11 items with missing values which were the items not all of the respondents had in their housing units or multifamily housing communities were excluded for further factor analysis.

The suitability of data for factor analysis was assessed prior to analyzing the remaining 29 items utilizing principal component analysis. The correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin (KMO) value was .916, exceeding the recommended value of .6 (Kaiser & Rice, 1974) and Bartlett's Test of Sphericity was significant (Bartlett, 1954).

Principal component method with VARIMAX-rotation and extraction eigenvalues over 1 was used for the first factor analysis to estimate the appropriate number of factors. The scree plot of the first factor analysis revealed less than six factors as the most reasonable number of factors. This factor solution accounted for 62.1% of the total variance.

After the first solution had been conducted, items which could negatively influence the scale were excluded as the following standards: (a) items with factor loadings of less than .5, (b) cross-loading items, (c) items with negative values which do not need reverse coding, and (d) unloaded items. Lastly, inter-item reliability of items within each factor was tested using Cronbach's Alpha, acceptable value of .7. After the series of factor analyses were repeated, three factors were identified which explained 57.215% of the total variance of the 22 items (Table 29).

Table 29.

*VARIMAX-rotated Extraction: Final Three Factors of Residential Satisfaction*

Number of factors extracted	Eigenvalues	% of variance	Cumulative % of variance
1	4.859	22.085	22.085
2	4.111	18.687	40.773
3	3.617	16.442	57.215

The first factor included items that were mainly related to housing unit design and quality, the second factor consisted of items regarding multifamily housing community, and the third factor contained items about access to the local area. Therefore, the three residential satisfaction with multifamily housing factors were named satisfaction with the *unit design*, the *multifamily community*, and the *location*, respectively (see Table 30).

Table 30.

*Factor Loadings: Final Three Factors of Residential Satisfaction (n=431)*

Items	VARIMAX-rotated loadings		
	Factor1 <i>Unit Design</i>	Factor2 <i>Multifamily Community</i>	Factor3 <i>Location</i>
Satisfaction with layout/floor plan	.808		
Satisfaction with size and the number of bathrooms	.786		
Satisfaction with size and the number of bedrooms	.748		
Satisfaction with universal design features	.703		
Satisfaction with amount of storage	.696		
Satisfaction with kitchen and/or laundry appliances	.635		
Satisfaction with finishing materials	.622		
Satisfaction with professionalism of property management		.792	
Satisfaction with maintenance services		.782	
Satisfaction with relationships with neighbors		.663	
Satisfaction with exterior design		.642	
Satisfaction with safety and security		.616	
Satisfaction with living with people of different ages		.552	
Satisfaction with access to colleges and universities			.784
Satisfaction with access to cultural attractions			.773
Satisfaction with access to outdoor recreation			.759
Satisfaction with access to restaurants			.748
Satisfaction with access to shopping areas			.707
Satisfaction with access to medical centers			.676
Satisfaction with access to natural areas			.643
Satisfaction with access to public transportation			.619
Satisfaction with access to work places			.569

Cronbach's Alpha values for inter-item reliability of items within each factor were all over .8, which were higher than the minimum acceptable value of .60 (Hair, et al., 2008) (Table 31).

Table 31.

*Inter-item Reliability: Residential Satisfaction with Multifamily Housing Factors*

Factor	Number of items included	Cronbach's Alpha
Satisfaction with the <i>unit design</i>	7	.878
Satisfaction with the <i>multifamily community</i>	6	.847
Satisfaction with the <i>location</i>	9	.887

**Validity**

Validity of a new measurement developed by a researcher can be established by testing the correlation between the mean value of the new multiple indirect questions and a single direct question (Blumberg, et al., 2005). In this study, criterion validity of the questionnaire was tested using Pearson's correlation. As Table 32 shows, there were significantly strong correlations between the mean values of items within the satisfaction with the *unit design* and the overall satisfaction with the housing unit ( $r = .765, p < .01$ ), the mean score of items within the satisfaction with the *multifamily community* and the overall satisfaction with the multifamily housing community ( $r = .728, p < .01$ ), and the mean value of items within the satisfaction with the *location* and the overall satisfaction with the local area ( $r = .684, p < .01$ ).

Table 32.

*Criterion Validity Test (N=431)*

No	Variables	1-1	1-2	2-1	2-2	3-1	3-2
1-1	Mean of multiple indirect items measuring satisfaction with the <i>unit design</i>	1					
1-2	Single direct items measuring overall satisfaction with the housing unit	.765**	1				
2-1	Mean of multiple indirect items measuring satisfaction with the <i>multifamily community</i>			1			
2-2	Single direct items measuring overall satisfaction with the multifamily housing community			.728**	1		
3-1	Mean of multiple indirect items measuring satisfaction with the <i>location</i>					1	
3-2	Single direct items measuring overall satisfaction with the local area					.684**	1

\*\*  $p < .01$ (2-tailed)

## Hypotheses Tests

Five hypotheses were proposed in this study. In this section, the first three hypotheses were tested to analyze associations between: (a) Previous Socio-economic Characteristics and Previous Housing Characteristics, and Reasons for Moving into Current Housing (hypothesis 1), (b) Current Socio-economic Characteristics and Current Housing Characteristics, and Residential Satisfaction (hypothesis 2), and (c) Current Socio-economic Characteristics and Current Housing Characteristics, and Intention to Move in the Future (hypothesis 3). ANOVA and *t*-tests were used to investigate the associations between dependent continuous variables (Reasons for Moving into Current Housing, Residential Satisfaction, and Intention to Move in the Future) and independent variables (Previous Demographic Characteristics and Current Demographic Characteristics). Prior to conducting ANOVA, three assumptions were checked, including normality of errors, homogeneity of variance of errors and independent observations. A post-hoc test was additionally conducted to check mean differences among the groups for variables that showed significant associations. Mean plots allowed visual comparison of the mean score of each group. Even though the mean scores of each group may look different in the mean plots, they may not be statistically significantly different since a post-hoc test compares mean scores as well as counts the number of respondents in each cell (Pallant, 2007).

### Hypothesis 1

H<sub>1</sub>: Previous Socio-economic Characteristics and Previous Housing Characteristics are significantly associated with Reasons for Moving into Current Housing.

For Previous Socio-economic Characteristics, *age*, *marital status*, *household size*, *health status* and *employment status*, were used. For Previous Housing Characteristics, *housing type*, *tenure type*, *length in previous dwelling* and *number of bedrooms*, were included. For Reasons for Moving into Current Housing, mean scores of the *multifamily living reason* ( $M = 3.36$   $SD = .841$ ), the *nearby activities reason* ( $M = 3.27$ ,  $SD = .794$ ), and the *financial reason* ( $M = 3.66$ ,  $SD = .778$ ) were used.

The dependent variable for the first two sub-hypotheses (H<sub>1-1-1</sub> and H<sub>1-1-2</sub>) was the *multifamily living reason* which included the items of type of management services in the

community, quality of the kitchen and/or laundry appliances in my new home, quality of the materials and finishes in my new home, attractive exterior appearance of the community, the management team at the community, convenient parking in the community, and design of the floor plan.

*Nearby activities reason* which was the dependent variable of H<sub>1-2-1</sub> and H<sub>1-2-2</sub> included the items of close to places for outdoor recreation, close to parks and natural areas, close to entertainment and cultural attractions, close to public transportation, close to shopping areas, and close to doctors' offices and hospitals.

For the last two sub-hypotheses (H<sub>1-3-1</sub> and H<sub>1-3-2</sub>), the *financial reason* was used as a dependent variable. Items of reasonable cost of living in the area, low maintenance living, reasonable cost of my new home, and change in my financial status were included in this variable.

H<sub>1-1-1</sub>: Previous Socio-economic Characteristics are significantly associated with the *multifamily living reason* for moving into the current housing.

ANOVA test revealed significant differences in the *multifamily living reason* score by age ( $F(2,428) = 4.836, p < .01$ ), marital status ( $F(3,415) = 9.839, p < .01$ ), employment status ( $F(4,426) = 2.979, p < .05$ ), and income ( $F(3,427) = 6.275, p < .01$ ).

Post-hoc comparisons indicated that the mean score for respondents age 65 years or older ( $M = 3.55, SD = .827$ ) was significantly different for those who were age 55 to 64 years ( $M = 3.34, SD = .899$ ) and those who were less than 54 years group ( $M = 3.24, SD = .761$ ), indicating that older respondents were more likely to move into their current housing for the *multifamily living reason*.

For *marital status*, the mean score for the never married group ( $M = 2.92, SD = .893$ ) was significantly different from those who were married ( $M = 3.53, SD = .817$ ), widowed ( $M = 3.52, SD = .701$ ), and divorced or separated ( $M = 3.32, SD = .816$ ). This means that people who were never married were less likely to move into their current housing because it was multifamily.

For *employment status*, there was a significant difference between the mean scores of the employed full-time group ( $M = 3.26, SD = .736$ ) and the retired and not working group ( $M =$

3.54,  $SD = .844$ ), indicating that older adults who retired and were not working were more likely to move into the current housing for the *multifamily living reason*.

In terms of *income*, the mean score of those who made under \$25,000 per year ( $M = 3.08$ ,  $SD = .913$ ) was significantly different from those who earned \$25,000 to \$49,999 ( $M = 3.42$ ,  $SD = .827$ ), \$50,000 to \$74,999 ( $M = 3.51$ ,  $SD = .732$ ) and \$75,000 or above ( $M = 3.49$ ,  $SD = .803$ ), indicating that people who made less money were less likely to move into the current housing because of the *multifamily living reason*.

Table 33 shows the mean comparisons of the *multifamily living reason* for moving into their current housing according to Previous Socio-economic Characteristics. Figure 7 presents mean plots of the *multifamily living reason* by *age*, *marital status*, *employment status* and *income* which revealed significant differences among groups.

Table 33.

*Mean Comparisons: Multifamily Living Reason for Moving into Current Housing by Previous Socio-economic Characteristics*

Previous Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Multifamily Living	
				<i>F</i>	<i>P</i>
<b><i>Age**</i></b>				4.836	.008
Less than 54 years	151	3.24	.761		
55 to 64 years	161	3.34	.899		
65 years or older	119	3.55	.827		
<b><i>Marital Status**</i></b>				9.839	.000
Married	166	3.53	.817		
Widowed	51	3.52	.701		
Divorced or separated	132	3.32	.816		
Never married	70	2.92	.893		
<b><i>Household Size</i></b>				1.616	.200
1	130	3.28	.869		
2	194	3.36	.890		
More than 3	107	3.47	.695		
<b><i>Health Status</i></b>				.955	.385
Very poor or poor	22	3.26	1.037		
Fair	64	3.25	.892		
Good or very good	345	3.39	.817		
<b><i>Employment Status*</i></b>				2.979	.019
Employed or self-employed full-time	187	3.26	.736		
Employed or self-employed part-time	33	3.22	.966		
Retired and employed (or self-employed) part-time	28	3.42	1.006		
Retired and not working	157	3.54	.844		
Unemployed	26	3.23	1.027		
<b><i>Income**</i></b>				6.275	.000
Under \$ 25,000	111	3.08	.913		
\$ 25,000 to \$ 49,999	148	3.42	.827		
\$ 50,000 to \$ 74,999	101	3.51	.732		
\$ 75,000 or above	71	3.49	.803		

\*  $p < .05$

\*\*  $p < .01$

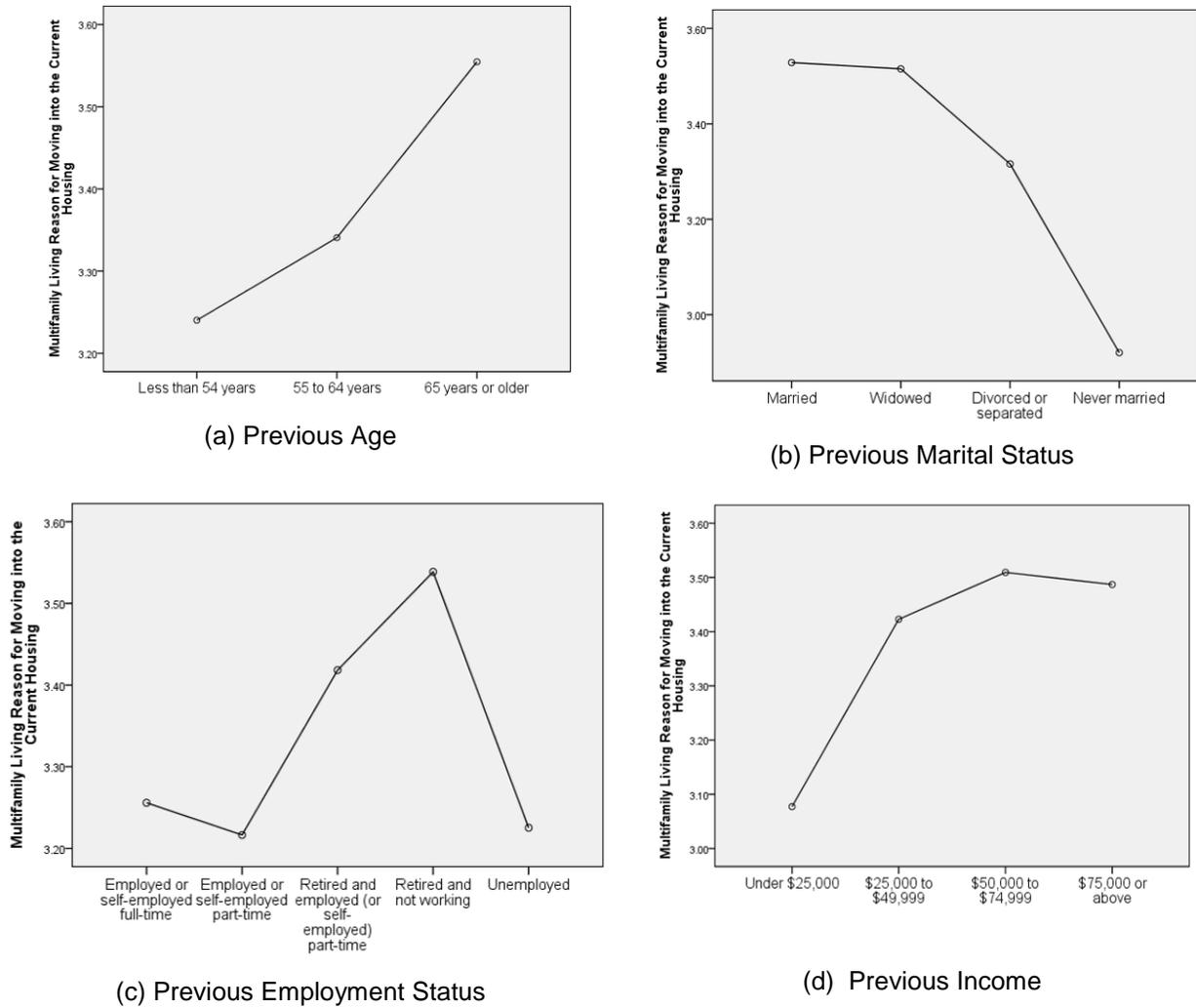


Figure 7. Mean Plots: Multifamily Living Reason for Moving into Current Housing by Previous Age, Marital Status, Employment Status, and Income

$H_{1-1.2}$ : Previous Housing Characteristics are significantly associated with the *multifamily living reason* for moving into the current housing.

As Table 34 shows, ANOVA test revealed that there is a significant difference in the *multifamily living reason* for moving into their current housing by *number of bedrooms* ( $F(2,428) = 4.638, p < .05$ ). Post-hoc comparisons indicated that the mean score of those who had one bedroom ( $M = 3.12, SD = .924$ ) was significantly different from those who had two bedrooms ( $M = 3.40, SD = .774$ ) and more than three bedrooms ( $M = 3.44, SD = .836$ ) before

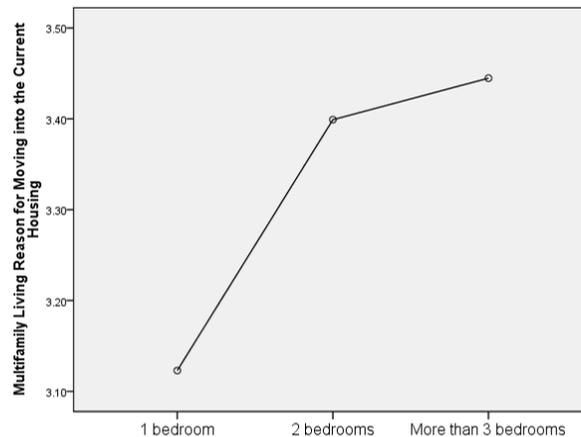
they moved into their current housing. It is likely that those who had more bedrooms were more likely to move into their current housing for the *multifamily living reason* compared to those who had a smaller number of bedrooms.

Table 34.

*Mean Comparisons: Multifamily Living Reason for Moving into Current Housing by Previous Housing Characteristics*

Previous Housing Characteristics	n	M	SD	Multifamily Living	
				F	P
<i>Housing type</i>				1.947	.144
Single-detached or attached housing	166	3.45	.780		
Multifamily housing	234	3.33	.843		
Townhouse or other	31	3.16	1.083		
<i>Tenure type</i>				t-value = 1.582	.114
Own	202	3.43	.814		
Rent	227	3.30	.863		
<i>Length in previous dwelling</i>				.143	.934
Less than 2 years	68	3.33	.899		
3-5 years	78	3.33	.818		
6-15 years	146	3.39	.855		
More than 16 years	139	3.38	.815		
<i>Number of bedrooms*</i>				4.638	.010
1	86	3.12	.924		
2	150	3.40	.774		
More than 3	195	3.44	.836		

\*  $p < .05$



(a) Previous Number of Bedrooms

Figure 8. Mean Plot: Multifamily Living Reason for Moving into Current Housing by Previous Number of Bedrooms

H<sub>1-2-1</sub>: Previous Socio-economic Characteristics are significantly associated with the *nearby activities reason* for moving into current housing.

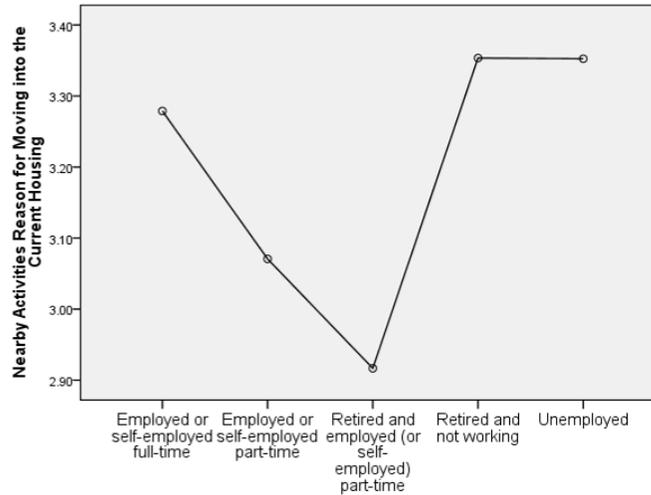
As Table 35 shows, ANOVA test revealed that there was a significant difference in the *nearby activities reason* for moving into the current housing by previous *employment status* ( $F(4,426) = 2.447, p < .05$ ). Post-hoc comparisons that considered mean scores as well as sample sizes indicated that, there was a significant difference between the mean scores of the employed full-time group ( $M = 3.28, SD = .736$ ) and the retired and not working group ( $M = 3.35, SD = .805$ ), indicating that older adults who were retired and not working were more likely to move into their current housing for the *nearby activities reason* (see Figure 9).

Table 35.

*Mean Comparisons: Nearby Activities Reason for Moving into Current Housing by Previous Socio-economic Characteristics*

Previous Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Nearby Activities	
				<i>F</i>	<i>P</i>
<i>Age</i>				1.496	.225
Less than 54 years	151	3.36	.729		
55 to 64 years	161	3.21	.847		
65 years or older	119	3.25	.796		
<i>Marital Status</i>				1.571	.196
Married	166	3.36	.780		
Widowed	51	3.28	.780		
Divorced or separated	132	3.17	.797		
Never married	70	3.19	.849		
<i>Household Size</i>				.652	.519
1	130	3.21	.763		
2	194	3.28	.829		
More than 3	107	3.32	.766		
<i>Health Status</i>				1.562	.211
Very poor or poor	22	3.30	.876		
Fair	64	3.11	.800		
Good or very good	345	3.30	.786		
<i>Employment Status*</i>				2.447	.046
Employed or self-employed full-time	187	3.28	.736		
Employed or self-employed part-time	33	3.07	.861		
Retired and employed (or self-employed) part-time	28	2.92	.882		
Retired and not working	157	3.35	.805		
Unemployed	26	3.35	.858		
<i>Income</i>				1.772	.152
Under \$ 25,000	111	3.16	.835		
\$ 25,000 to \$ 49,999	148	3.26	.794		
\$ 50,000 to \$ 74,999	101	3.41	.725		
\$ 75,000 or above	71	3.28	.808		

\*  $p < .05$



(a) Previous Employment Status

Figure 9. Mean Plot: Nearby Activities Reason for Moving into Current Housing by Previous Employment Status

H<sub>1-2-2</sub>: Previous Housing Characteristics are significantly associated with the *nearby activities reason* for moving into the current housing.

ANOVA test revealed significant differences in the *nearby activities reason* by *housing type* ( $F(2,428) = 5.864, p < .01$ ). Post-hoc comparisons indicated that the mean score of respondents who had lived in multifamily housing ( $M = 3.39, SD = .754$ ) was significantly different from the mean of those who had lived in single-family housing ( $M = 3.16, SD = .809$ ) and townhouses or other housing type ( $M = 3.16, SD = .809$ ). It is likely that the *nearby activities reason* is more important for people who had lived in multifamily housing before than people who had lived in single-family or other housing types prior to moving into their current housing.

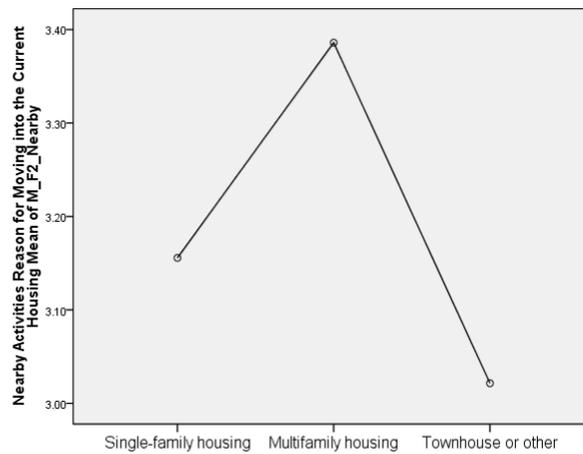
Table 36 shows the mean comparisons of the *nearby activities reason* for moving into current housing according to Previous Housing Characteristics. Figure 10 presents a mean plot of the *nearby activities reason* by previous *housing type* which revealed significant differences among groups.

Table 36.

*Mean Comparisons: Nearby Activities Reason for Moving into Current Housing by Previous Housing Characteristics*

Previous Housing Characteristics	n	M	SD	Nearby Activities	
				F	P
<b>Housing type**</b>				5.864	.003
Single-family detached or attached housing	166	3.16	.809		
Multifamily housing	234	3.39	.754		
Townhouse or other	31	3.02	.880		
<b>Tenure type</b>				t-value = -.942	.347
Own	202	3.24	.818		
Rent	227	3.31	.773		
<b>Length in previous dwelling</b>				.515	.672
Less than 2 years	68	3.17	.818		
3-5 years	78	3.28	.775		
6-15 years	146	3.32	.807		
More than 16 years	139	3.27	.783		
<b>Number of bedrooms</b>				2.357	.096
1	86	3.28	.766		
2	150	3.38	.739		
More than 3	195	3.19	.839		

\*\*  $p < .01$



(a) Previous Housing Type

Figure 10. Mean Plots: Nearby Activities Reason for Moving into Current Housing by Previous Housing Type

H<sub>1-3-1</sub>: Previous Socio-economic Characteristics are significantly associated with the *financial reason* for moving into the current housing.

ANOVA tests revealed that there is a significant difference in the *financial reason* for moving into the current housing by *health status* ( $F(2,428) = 3.561, p < .05$ ), *employment status* ( $F(4,426) = 2.505, p < .05$ ) and *income* ( $F(3,427) = 4.874, p < .01$ ).

Post-hoc comparisons indicated that the mean score of those who had very poor or poor health status ( $M = 4.03, SD = .599$ ) was significantly different from those who had good or very good health status ( $M = 3.62, SD = .776$ ). It is likely that those who had poorer health status were more likely to move into their current housing for the *financial reason* compared to those who had better health status.

In terms of *employment status*, there was a significant difference between the mean scores of the employed full-time group ( $M = 3.60, SD = .736$ ) and the retired and not working group ( $M = 3.71, SD = .844$ ), indicating that older adults who retired and were not working were more likely to move into their current housing for the *financial reason*.

For *income*, the mean score of those who made \$75,000 or above per year ( $M = 3.35, SD = .818$ ) was significantly different and was lower than the mean scores of \$50,000 to \$74,999 group ( $M = 3.69, SD = .770$ ), \$25,000 to \$49,000 group ( $M = 3.74, SD = .710$ ) and under \$25,000 group ( $M = 3.74, SD = .804$ ), indicating that people who had less income were more likely to move into their current housing for the *financial reason*.

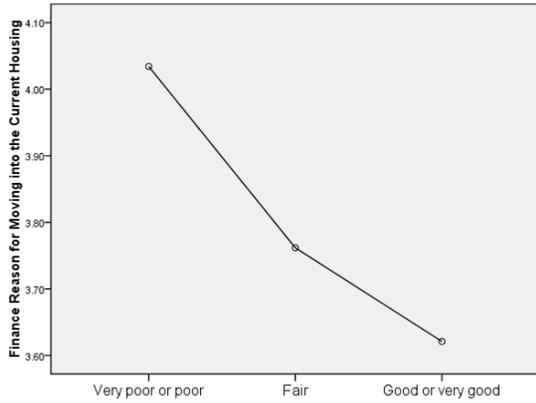
Table 37 shows the mean comparisons of the *financial reason* for moving into current housing according to Previous Socio-economic Characteristics. Figure 11 presents mean plots of the *financial reason* by *health status*, *employment status* and *income* which revealed significant differences among groups.

Table 37.

*Mean Comparisons: Financial Reason for Moving into Current Housing by Previous Socio-economic Characteristics*

Previous Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Finance	
				<i>F</i>	<i>P</i>
<i>Age</i>				1.089	.337
Less than 54 years	151	3.64	.735		
55 to 64 years	161	3.73	.761		
65 years or older	119	3.60	.849		
<i>Marital Status</i>				.566	.638
Married	166	3.72	.762		
Widowed	51	3.63	.750		
Divorced or separated	132	3.68	.850		
Never married	70	3.58	.704		
<i>Household Size</i>				2.671	.070
1	130	3.58	.746		
2	194	3.64	.789		
More than 3	107	3.81	.782		
<i>Health Status*</i>				3.561	.029
Very poor or poor	22	4.03	.599		
Fair	64	3.76	.806		
Good or very good	345	3.62	.776		
<i>Employment Status*</i>				2.505	.042
Employed or self-employed full-time	187	3.60	.755		
Employed or self-employed part-time	33	3.73	.670		
Retired and employed (or self-employed) part-time	28	3.43	.891		
Retired and not working	157	3.71	.781		
Unemployed	26	4.01	.823		
<i>Income**</i>				4.874	.002
Under \$ 25,000	111	3.74	.804		
\$ 25,000 to \$ 49,999	148	3.74	.710		
\$ 50,000 to \$ 74,999	101	3.69	.770		
\$ 75,000 or above	71	3.35	.818		

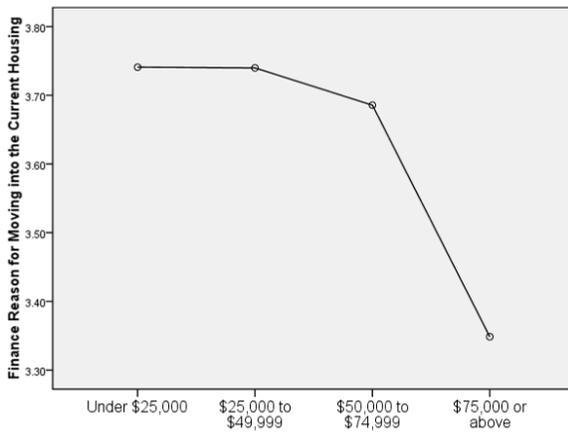
\*  $p < .05$ \*\*  $p < .01$



(a) Previous Health Status



(b) Previous Employment Status



(c) Previous Income

Figure 11. Mean Plots: Financial Reason for Moving into Current Housing by Previous Health Status, Employment Status, and Income

H<sub>1.3-2</sub>: Previous Housing Characteristics are significantly associated with the *financial reason* for moving into current housing.

As Table 38 shows, ANOVA test revealed that there is no significant difference in the *financial reason* by Previous Housing Characteristics.

Table 38.

*Mean Comparisons: Financial Reason for Moving into Current Housing by Previous Housing Characteristics*

Previous Housing Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Finance	
				<i>F</i>	<i>P</i>
<i>Housing type</i>				2.031	.132
Single-family detached or attached housing	166	3.74	.778		
Multifamily housing	234	3.63	.749		
Townhouse or other	31	3.47	.952		
<i>Tenure type</i>				t-value = -1.876	.061
Own	202	3.59	.810		
Rent	227	3.73	.748		
<i>Length in previous dwelling</i>				1.370	.251
Less than 2 years	68	3.77	.837		
3-5 years	78	3.70	.797		
6-15 years	146	3.70	.796		
More than 16 years	139	3.56	.711		
<i>Number of bedrooms</i>				.327	.722
1	86	3.60	.810		
2	150	3.69	.685		
More than 3	195	3.67	.831		

**Hypothesis 2**

H<sub>2</sub>: Current Socio-economic Characteristics and Current Housing Characteristics are significantly associated with Residential Satisfaction.

For Current Socio-economic Characteristics, *age, gender, marital status, household size, health status, employment status, education level, and income* were used. For Current Housing Characteristics, *tenure type, monthly housing costs, geographical location, length in current dwelling, presence of an elevator, year of construction, and number of bedrooms* were included. For Residential Satisfaction, mean scores of satisfaction with the *unit design* ( $M = 3.65$ ,  $SD = .745$ ), the *multifamily community* ( $M = 3.79$ ,  $SD = .710$ ), and the *location* ( $M = 3.69$ ,  $SD = .702$ ) were used.

For the first two sub-hypotheses (H<sub>2-1-1</sub> and H<sub>2-1-2</sub>), satisfaction with the *unit design* was used as a dependent variable which included the items of satisfaction with layout/floor plan, size

and the number of bathrooms, size and the number of bedrooms, universal design features, amount of storage, kitchen and/or laundry appliances, and finishing materials.

Satisfaction with the *multifamily community* was a dependent variable of sub-hypotheses H<sub>2-1-1</sub> and H<sub>2-1-2</sub>. In this variable, the items of satisfaction with professionalism of property management, maintenance services, relationships with neighbors, exterior design, safety and security, and living with people of different ages were included.

For the last two sub-hypotheses (H<sub>3-1-1</sub> and H<sub>3-1-2</sub>), satisfaction with the *location* was a dependent variable which included the items of satisfaction with access to colleges and universities, access to cultural attractions, access to outdoor recreation, access to restaurants, access to shopping areas, access to medical centers, access to natural areas, access to public transportation, and access to work places.

H<sub>2-1-1</sub>: Current Socio-economic Characteristics are significantly associated with residential satisfaction with the *unit design*.

ANOVA test revealed significant differences in residential satisfaction with the *unit design* by *age* ( $F(2,428) = 14.408, p < .01$ ), *health status* ( $F(2,428) = 3.097, p < .05$ ), and *employment status* ( $F(4,426) = 3.085, p < .05$ ) (Table 39).

Post-hoc comparisons indicated that the mean score for people age 55 to 64 years ( $M = 3.47, SD = .795$ ) was significantly different from the mean of those aged 65 to 74 years ( $M = 3.66, SD = .685$ ), and the mean of those aged 75 years or older ( $M = 3.93, SD = .632$ ), indicating that older respondents are more likely to be satisfied with their *unit design* than younger respondents.

For current *health status*, despite reaching statistical significance, the actual difference in mean scores between the groups was quite small. It is likely that respondents who had better health status ( $M = 3.71, SD = .700$ ) are more likely to be satisfied with their *unit design* than those who had poorer health status ( $M = 3.39, SD = .762$ ). Means plots, showing significant mean differences among groups of each variable are provided in Figure 12.

In terms of *employment status*, there was a significant difference between the mean scores of the employed full-time group ( $M = 3.50, SD = .700$ ) and the retired and not working

group ( $M = 3.72$ ,  $SD = .680$ ), indicating that older adults who were retired and not working were more likely to be satisfied with their *unit design*.

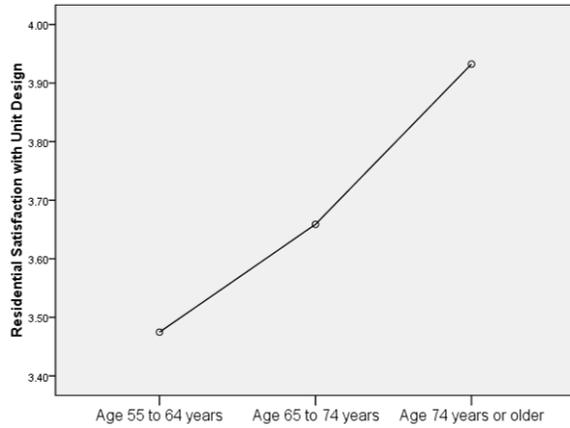
Table 39.

*Mean Comparisons: Satisfaction with the Unit Design by Current Socio-economic Characteristics*

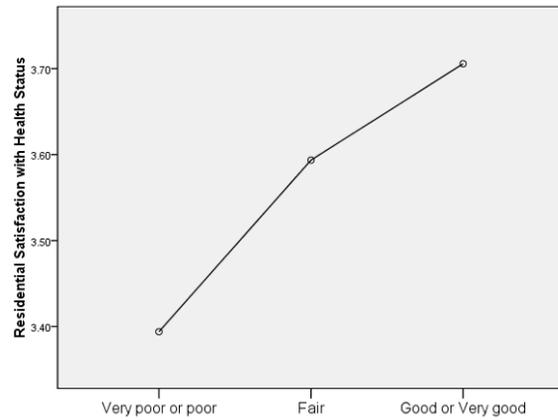
Current Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Unit Design	
				<i>F</i>	<i>P</i>
<b><i>Age**</i></b>				14.408	.000
55 to 64 years	189	3.47	.795		
65 to 74 years	126	3.66	.685		
75 years or older	116	3.93	.632		
<b><i>Gender</i></b>				t-value = -.179	.858
Male	215	3.65			
Female	216	3.66			
<b><i>Marital Status</i></b>				1.985	.116
Married	163	3.70	.688		
Widowed	64	3.78	.841		
Divorced or separated	128	3.62	.754		
Never married or others	64	3.49	.737		
<b><i>Household Size</i></b>				1.026	.359
1	210	3.70	.740		
2	198	3.62	.735		
More than 3	23	3.52	.868		
<b><i>Health Status*</i></b>				3.097	.046
Very poor or poor	33	3.39	.762		
Fair	116	3.59	.827		
Good or very good	282	3.71	.700		
<b><i>Employment Status*</i></b>				3.085	.016
Employed or self-employed full-time	86	3.50	.700		
Employed or self-employed part-time	38	3.56	.789		
Retired and employed (or self-employed) part-time	26	3.76	.766		
Retired and not working	262	3.72	.680		
Unemployed	19	3.31	.780		
<b><i>Education Level</i></b>				.309	.819
High school diploma or less	74	3.65	.805		
Technical school /Some college	141	3.70	.692		
College degree	137	3.61	.747		
Graduate degree or higher	79	3.65	.782		
<b><i>Income</i></b>				1.926	.125
Under \$ 25,000	99	3.50	.915		
\$ 25,000 to \$ 49,999	147	3.70	.703		
\$ 50,000 to \$ 74,999	101	3.72	.633		
\$ 75,000 or above	84	3.67	.701		

\*  $p < .05$

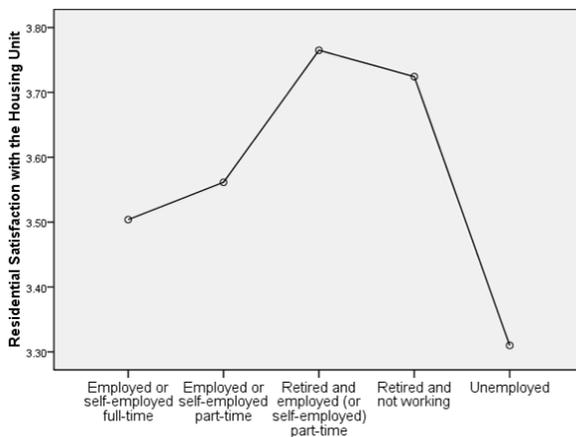
\*\*  $p < .01$



(a) Current Age



(b) Current Health Status



(c) Current Employment Status

Figure 12. Mean Plots: Satisfaction with the Housing Unit by Current Age, Health Status, and Employment Status

H<sub>2-1-2</sub>: Current Housing Characteristics are significantly associated with residential satisfaction with the *unit design*.

As shown in Table 40, an independent-samples t-test revealed that owners ( $M = 3.76$ ,  $SD = .633$ ) are more likely to be satisfied with their *unit design* ( $M = 3.60$ ,  $SD = .791$ ) compared to renters;  $t(429) = 2.131$ ,  $p = .034$  (two-tailed).

In terms of *year of construction*, there was a significant difference in scores for residents who lived in a multifamily housing building which was built before 1991 ( $M = 3.63$ ,  $SD = .699$ ) and after 1991 ( $M = 3.83$ ,  $SD = .670$ );  $t(373) = -2.406$ ,  $p = .017$  (two-tailed), indicating that

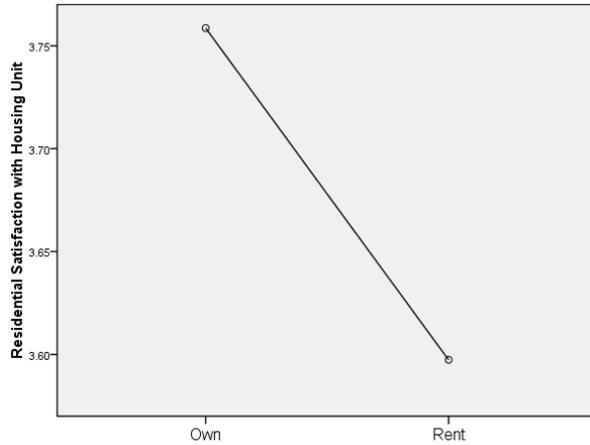
residents living in multifamily buildings built after the Fair Housing Accessibility Guidelines went into effect were more likely to be satisfied with their *unit design*. There was a significant difference in residential satisfaction with the *unit design* by *number of bedrooms* ( $F(2,428) = 8.990, p < .01$ ). From the post-hoc test, the mean of those who had one bedroom ( $M = 3.44, SD = .786$ ) was significantly different from the mean of those who had two bedrooms ( $M = 3.74, SD = .689$ ) and more than three bedrooms ( $M = 3.80, SD = .746$ ), indicating that people who had more bedrooms are more likely to be satisfied with their *unit design*. Means plots, showing significant mean differences among groups of number of bedroom variable is provided in Figure 13.

Table 40.

*Mean Comparisons: Satisfaction with the Unit Design by Current Housing Characteristics*

Current Housing Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Unit Design	
				<i>F</i>	<i>P</i>
<b><i>Tenure type*</i></b>				t-value = 2.131	.034
Own	145	3.76	.633		
Rent	286	3.60	.791		
<b><i>Monthly Housing Cost</i></b>				2.323	.074
Less than \$500	53	3.71	.850		
\$500 to \$999	199	3.65	.789		
\$1,000 to \$1,499	96	3.50	.661		
\$1,500 or over	83	3.79	.629		
<b><i>Geographical location</i></b>				.695	.500
Rural area or small town	107	3.72	.75376		
City suburb	239	3.64	.74344		
City	85	3.59	.74158		
<b><i>Length in current dwelling</i></b>				2.426	.065
Less than 2 years	100	3.59	.908		
3-5 years	69	3.79	.638		
6-15 years	153	3.71	.641		
More than 16 years	109	3.53	.762		
<b><i>Presence of an elevator</i></b>				t-value = .034	.973
Yes	124	2.27	.860		
No	307	2.28	.854		
<b><i>Year of construction*</i></b>				t-value = -2.406	.017
Before 1991	287	3.63	.740		
After 1991	88	3.83	.681		
<b><i>Number of bedrooms**</i></b>				8.990	.000
1	143	3.44	.786		
2	223	3.74	.689		
More than 3	65	3.80	.746		

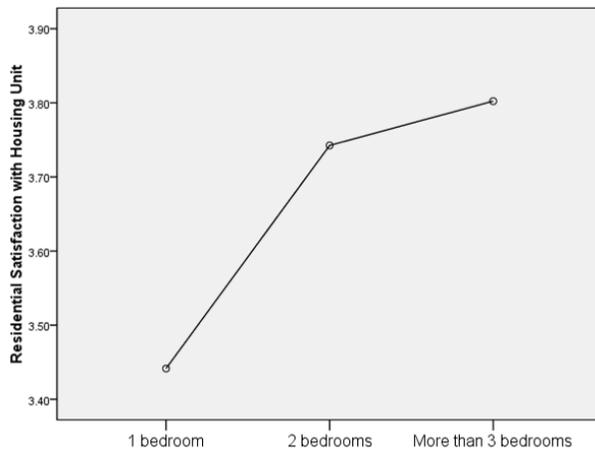
\*\*  $p < .01$



(a) Current Tenure Type



(b) Year of Construction



(c) Current Number of Bedrooms

Figure 13. Mean Plot: Satisfaction with the Housing Unit by Current Tenure Type, Year of Construction, and Current Number of Bedrooms

H<sub>2-2-1</sub>: Current Socio-economic Characteristics are significantly associated with older adults' residential satisfaction with the *multifamily community*.

There were significant differences in satisfaction with the *multifamily community* by current *age* ( $F(2,428) = 12.270, p < .01$ ), *marital status* ( $F(5,425) = 4.425, p < .01$ ), *health status* ( $F(2,428) = 5.196, p < .01$ ), *employment status* ( $F(4,426) = 3.276, p < .05$ ), and *income* ( $F(3,427) = 4.558, p < .01$ ) (see Table 41).

Post-hoc comparisons indicated that the mean score for people aged 55 to 64 years ( $M = 3.60$ ,  $SD = .738$ ) was significantly different from the mean of those aged 65 to 74 years ( $M = 3.82$ ,  $SD = .676$ ), and aged 75 years or older group ( $M = 4.07$ ,  $SD = .597$ ), indicating that younger respondents are less likely to be satisfied with their *multifamily community*.

For current *marital status*, the mean for the married group ( $M = 3.88$ ,  $SD = .671$ ) was significantly different from the divorced or separated group ( $M = 3.68$ ,  $SD = .702$ ) and never married group ( $M = 3.57$ ,  $SD = .658$ ), and the mean of the widowed group ( $M = 3.96$ ,  $SD = .789$ ) was also significantly different from the divorced or separated group ( $M = 3.68$ ,  $SD = .702$ ) and the never married group ( $M = 3.57$ ,  $SD = .658$ ). Divorced or separated, or never married people are less likely to be satisfied with their *multifamily community* compared to respondents who are widowed or married.

For current *health status*, respondents who had better health status ( $M = 3.87$ ,  $SD = .641$ ) are more likely to be satisfied with their *multifamily community* than those who had poorer health status ( $M = 3.63$ ,  $SD = .923$ ).

In terms of *employment status*, there was a significant difference between the mean scores of the employed group ( $M = 3.64$ ,  $SD = .660$ ) and the retired and not working group ( $M = 3.88$ ,  $SD = .678$ ), indicating that older adults who were retired and not working were more likely to be satisfied with their *multifamily community*.

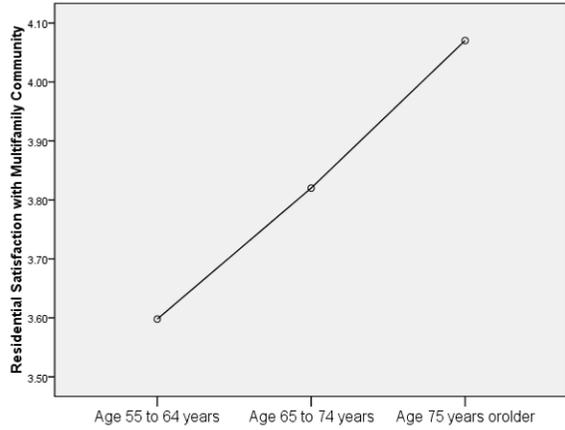
For *income*, the mean of the respondents who made under \$25,000 per year ( $M = 3.58$ ,  $SD = .797$ ) was significantly different from the mean of those who earned \$25,000 to \$49,999 ( $M = 3.81$ ,  $SD = .652$ ), \$50,000 to \$74,999 ( $M = 3.92$ ,  $SD = .660$ ), and \$75,000 or above ( $M = 3.86$ ,  $SD = .714$ ), indicating that people who made more money are more likely to be satisfied with their *multifamily community*. Means plots, showing significant mean differences among groups of each variable are provided in Figure 14.

Table 41.

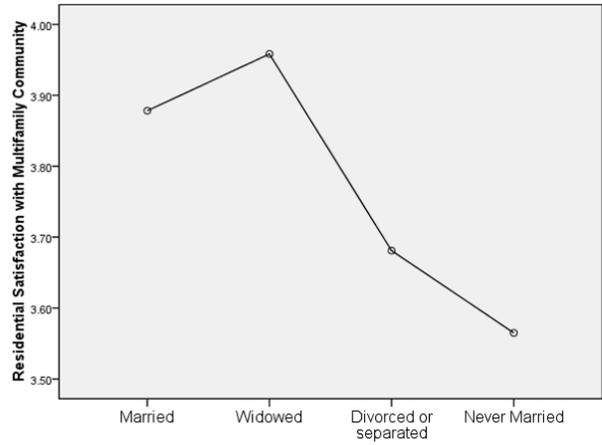
*Mean Comparisons: Satisfaction with the Multifamily Community by Current Socio-economic Characteristics*

Current Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Multifamily Community	
				<i>F</i>	<i>P</i>
<b>Age**</b>				17.270	.000
55 to 64 years	189	3.60	.738		
65 to 74 years	126	3.82	.676		
75 years or older	116	4.07	.597		
<b>Gender</b>				t-value = -1.133	.258
Male	215	3.75	.709		
Female	216	3.83	.710		
<b>Marital Status**</b>				5.349	.001
Married	163	3.88	.671		
Widowed	64	3.96	.789		
Divorced or separated	128	3.68	.702		
Never married	64	3.34	.658		
<b>Household Size</b>				.810	.445
1	210	3.76	.706		
2	198	3.83	.719		
More than 3	23	3.69	.672		
<b>Health Status**</b>				5.196	.006
Very poor or poor	33	3.63	.923		
Fair	116	3.64	.774		
Good or very good	282	3.87	.641		
<b>Employment Status*</b>				3.276	.012
Employed or self-employed full-time	86	3.64	.660		
Employed or self-employed part-time	38	3.64	.806		
Retired and employed (or self-employed) part-time	26	3.88	.707		
Retired and not working	262	3.88	.678		
Unemployed	19	3.53	.742		
<b>Education Level</b>				.446	.720
High school diploma or less	72	3.70	.747		
Technical school /Some college	141	3.80	.751		
College degree	137	3.79	.655		
Graduate degree or higher	79	3.83	.698		
<b>Income**</b>				4.558	.004
Under \$ 25,000	99	3.58	.797		
\$ 25,000 to \$ 49,999	147	3.81	.652		
\$ 50,000 to \$ 74,999	101	3.92	.660		
\$ 75,000 or above	84	3.86	.714		

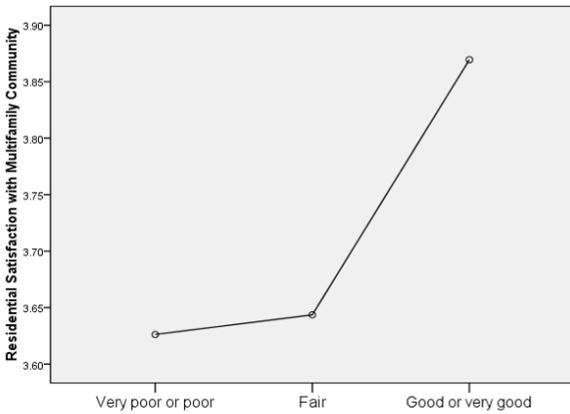
\*  $p < .05$ \*\*  $p < .01$



(a) Current Age



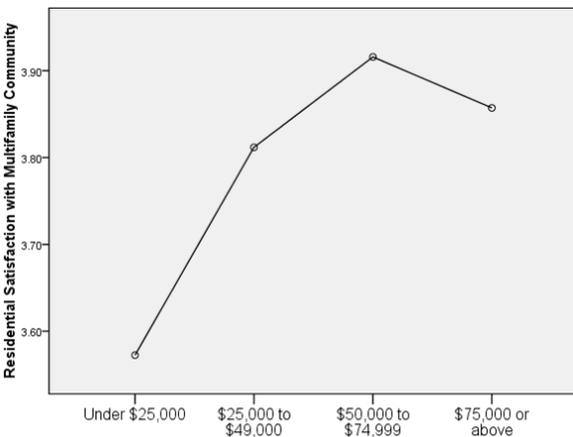
(b) Current Marital Status



(c) Current Health Status



(d) Current Employment Status



(e) Current Income

Figure 14. Mean Plots: Satisfaction with the Multifamily Community by Current Age, Marital Status, Health Status, Employment Status, and Income

H<sub>2-2-2</sub>: Current Housing Characteristics are significantly associated with older adults' residential satisfaction with the *multifamily community*.

An independent-samples t-test showed that there was a significant difference in the mean scores for the owner group ( $M = 3.99, SD = .622$ ) and the renter group ( $M = 3.69, SD = .731$ );  $t(429) = 4.285, p = .000$  (two-tailed), indicating that owners were more likely to be satisfied with their *multifamily community* than renters.

In terms of *presence of an elevator*, respondents who had an elevator in their multifamily housing building ( $M = 3.92, SD = .695$ ) were more likely to be satisfied with their *multifamily community* than those who did not have an elevator ( $M = 3.74, SD = .711$ );  $t(429) = 2.339, p = .020$  (two-tailed).

For *year of building construction*, an independent-samples t-test revealed that there was a significant difference in scores for residents who lived in a multifamily housing building built before 1991 ( $M = 3.78, SD = .727$ ) and after 1991 ( $M = 3.96, SD = .654$ );  $t(373) = -2.091, p = .037$  (two-tailed), indicating that residents living in multifamily housing buildings built after the Fair Housing Accessibility Guidelines went into effect were more likely satisfied with their *multifamily community*.

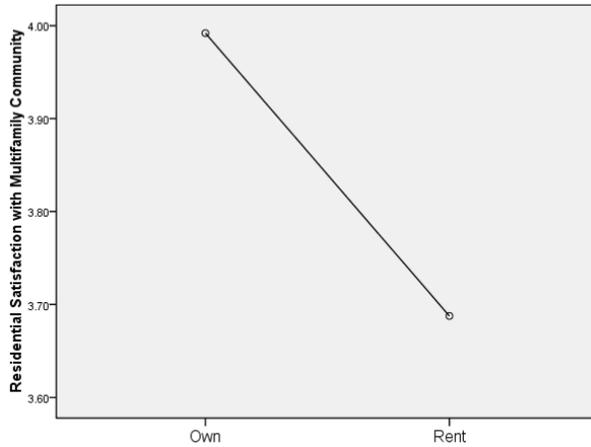
Table 42 shows the mean comparisons of residential satisfaction with *multifamily community* according to Current Housing Characteristics. Figure 15 presents mean plots of significant differences among groups.

Table 42.

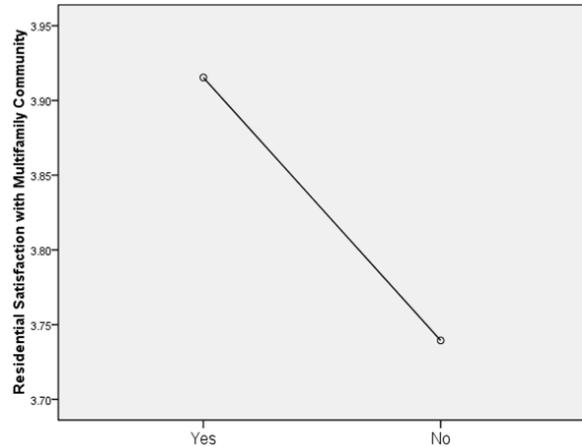
*Mean Comparisons: Satisfaction with the Multifamily Community by Current Housing Characteristics*

Current Housing Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Unit Design	
				<i>F</i>	<i>P</i>
<b><i>Tenure type**</i></b>				t-value = 4.285	.000
Own	145	3.99	.622		
Rent	286	3.69	.731		
<b><i>Monthly Housing Cost</i></b>				2.209	.086
Less than \$500	53	3.83	.843		
\$500 to \$999	199	3.77	.687		
\$1,000 to \$1,499	96	3.68	.674		
\$1,500 or over	83	3.94	.698		
<b><i>Location</i></b>				.136	.873
Rural area or small town	107	3.82	.675		
City suburb	239	3.78	.709		
City	85	3.78	.762		
<b><i>Length in current dwelling</i></b>				.643	.587
Less than 2 years	100	3.77	.745		
3-5 years	69	3.75	.730		
6-15 years	153	3.85	.664		
More than 16 years	109	3.74	.731		
<b><i>Presence of an elevator*</i></b>				t-value = 2.339	.020
Yes	124	3.92	.695		
No	307	3.74	.711		
<b><i>Year of construction*</i></b>				t-value = -2.091	.037
Before 1991	287	3.78	.727		
After 1991	88	3.96	.654		
<b><i>Number of bedrooms</i></b>				1.224	.295
1	143	3.72	.737		
2	223	3.82	.713		
More than 3	65	3.85	.633		

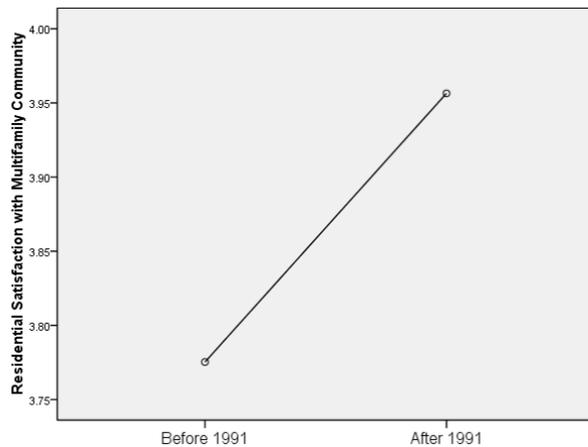
\*  $p < .05$ \*\*  $p < .01$



(a) Current Tenure Type



(b) Presence of an Elevator



(c) Year of Construction

Figure 15. Mean Plots: Satisfaction with the Multifamily Community by Current Tenure Type, Presence of an Elevator, and Year of Construction

H<sub>2.3-1</sub>: Current Socio-economic Characteristics are significantly associated with older adults' residential satisfaction with the *location*.

ANOVA test showed significant differences in satisfaction with the *location* variable by *health status* ( $F(2,428) = 11.464, p < .01$ ), *employment status* ( $F(4,426) = 2.560, p < .05$ ), and *income* ( $F(3,427) = 9.167, p < .01$ ) (Table 43).

Post-hoc comparisons indicated that the mean of those who had very poor or poor health status ( $M = 3.40, SD = .796$ ) was significantly different from those who had good or very good

health status ( $M = 3.80$ ,  $SD = .632$ ), indicating that people with better health are more likely to be satisfied with their *location*.

In terms of *employment status*, there was a significant difference between the mean scores of the unemployed group ( $M = 3.31$ ,  $SD = .992$ ) and the retired and not working group ( $M = 3.76$ ,  $SD = .562$ ), indicating that older adults who were retired and not working were more likely to be satisfied with their *location*.

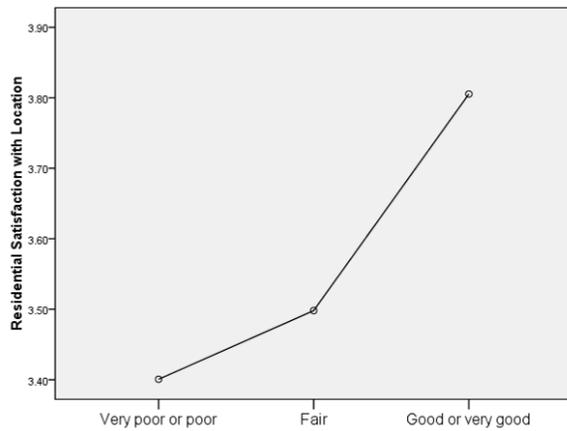
Regarding *income*, the mean of the respondents who made under \$25,000 per year ( $M = 3.39$ ,  $SD = .802$ ) was significantly different from the mean of those who earned \$25,000 to \$49,999 ( $M = 3.73$ ,  $SD = .607$ ), \$50,000 to \$74,999 ( $M = 3.86$ ,  $SD = .657$ ), and \$75,000 or above ( $M = 3.78$ ,  $SD = .686$ ), indicating that people who made less money are likely to be less satisfied with their *location*. Means plots, showing significant mean differences among groups of each variable are provided in Figure 16.

Table 43.

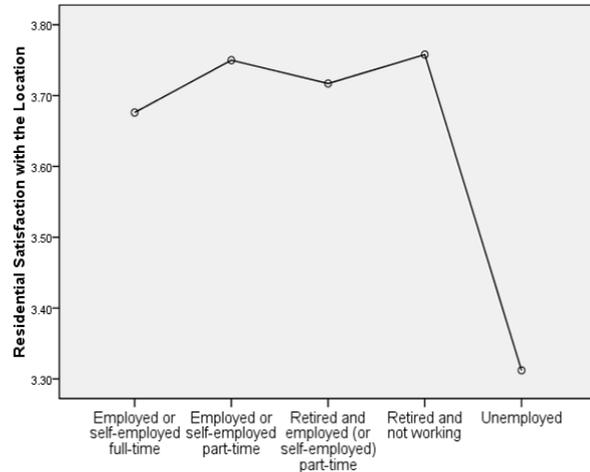
*Mean Comparisons: Satisfaction with the Location and Current Socio-economic Characteristics*

Current Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Location	
				<i>F</i>	<i>P</i>
<i>Age</i>				1.581	.207
55 to 64 years	189	3.62	.752		
65 to 74 years	126	3.75	.640		
75 years or older	116	3.74	.678		
<i>Gender</i>				t-value = -.905	.366
Male	215	3.66	.675		
Female	216	3.72	.728		
<i>Marital Status</i>				1.101	.349
Married	163	3.75	.698		
Widowed	64	3.68	.668		
Divorced or separated	128	3.61	.727		
Never married	64	3.63	.710		
<i>Household Size</i>				1.851	.158
1	210	3.63	.672		
2	198	3.76	.726		
More than 3	23	3.62	.731		
<i>Health Status**</i>				11.464	.000
Very poor or poor	33	3.40	.796		
Fair	116	3.50	.771		
Good or very good	282	3.80	.632		
<i>Employment Status*</i>				2.560	.038
Employed or self-employed full-time	86	3.68	.561		
Employed or self-employed part-time	38	3.75	.611		
Retired and employed (or self-employed) part-time	26	3.72	.766		
Retired and not working	262	3.76	.562		
Unemployed	19	3.31	.992		
<i>Education Level</i>				1.073	.360
High school diploma or less	74	3.62	.644		
Technical school /Some college	141	3.65	.754		
College degree	137	3.71	.687		
Graduate degree or higher	79	3.80	.682		
<i>Income**</i>				9.167	.000
Under \$ 25,000	99	3.39	.802		
\$ 25,000 to \$ 49,999	147	3.73	.607		
\$ 50,000 to \$ 74,999	101	3.86	.657		
\$ 75,000 or above	84	3.78	.686		

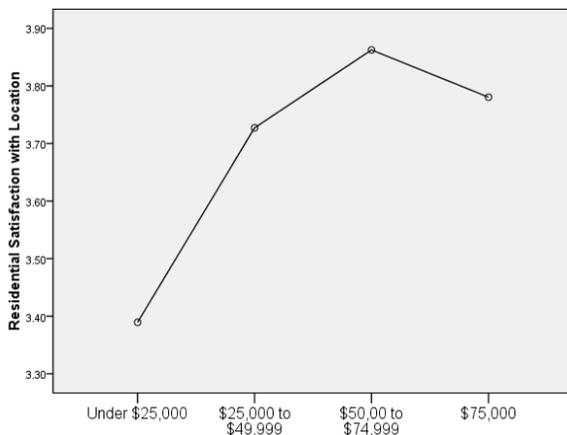
\*  $p < .05$ \*\*  $p < .01$



(a) Current Health Status



(b) Current Employment Status



(c) Current Income

Figure 16. Mean Plots: Satisfaction with the Location by Current Health Status, Employment Status, and Income

H<sub>2-3-2</sub>: Current Housing Characteristics are significantly associated with older adults' residential satisfaction with the *location*.

An independent-samples t-test revealed that there was a significant difference in the mean scores for own ( $M = 3.79, SD = .646$ ) and rent ( $M = 3.64, SD = .724$ );  $t(429) = 2.062, p = .040$  (two-tailed), indicating that owners were more likely satisfied with their *location* than renters.

ANOVA test revealed significant differences in residential satisfaction with the *location* by *monthly housing cost* ( $F(3,427) = 3.565, p < .05$ ), *location* ( $F(2,428) = 3.656, p < .05$ ), and *length in current dwelling* ( $F(3,427) = 2.736, p < .05$ ).

Post-hoc comparisons indicated that the mean of those who spent \$500 to \$999 per month on their housing ( $M = 3.62$ ,  $SD = .724$ ) was significantly different from those who spent \$1,500 or over ( $M = 3.86$ ,  $SD = .718$ ), indicating that people who spent more money on their housing are more likely to be satisfied with their *location*.

For *geographical location*, the mean score of those living in a rural area or small town ( $M = 3.61$ ,  $SD = .800$ ) was significantly different from the mean of those living in a city ( $M = 3.87$ ,  $SD = .669$ ). It is likely that older adults living in a city are more likely to be satisfied with their *location* than respondents living in a rural area or small town.

In terms of *length in current dwelling*, the mean score of satisfaction with the *location* of respondents living in their current housing more than 16 years ( $M = 3.77$ ,  $SD = .644$ ) was significantly higher than the mean of those living in their current housing less than 2 years ( $M = 3.52$ ,  $SD = .805$ ) in their current housing.

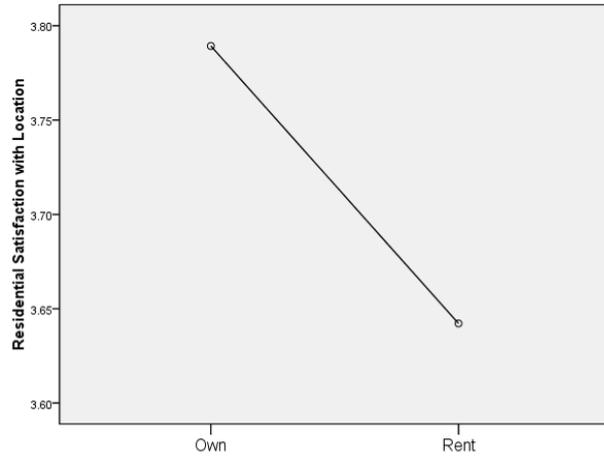
Table 44 shows the mean comparisons of residential satisfaction with the *location* according to Current Housing Characteristics. Figure 17 presents mean plots of significant differences among groups.

Table 44.

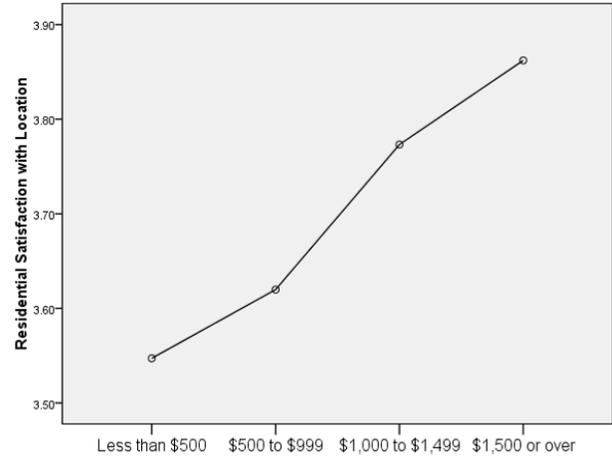
*Mean Comparisons: Residential Satisfaction with the Location by Current Housing Characteristics*

Current Housing Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Unit Design	
				<i>F</i>	<i>P</i>
<b><i>Tenure type*</i></b>				t-value = 2.062	.040
Own	145	3.79	.646		
Rent	286	3.64	.724		
<b><i>Monthly Housing Cost*</i></b>				3.565	.014
Less than \$500	53	3.55	.765		
\$500 to \$999	199	3.62	.724		
\$1,000 to \$1,499	96	3.77	.564		
\$1,500 or over	83	3.86	.718		
<b><i>Geographical location *</i></b>				3.656	.027
Rural area or small town	107	3.61	.800		
City suburb	239	3.67	.657		
City	85	3.87	.669		
<b><i>Length in current dwelling*</i></b>				2.736	.043
Less than 2 years	100	3.52	.805		
3-5 years	69	3.74	.659		
6-15 years	153	3.72	.676		
More than 16 years	109	3.77	.644		
<b><i>Presence of an elevator</i></b>				t-value = 1.417	.157
Yes	124	3.77	.645		
No	307	3.66	.722		
<b><i>Year of construction</i></b>				t-value = 1.029	.304
Before 1991	287	3.74	.685		
After 1991	88	3.65	.710		
<b><i>Number of bedrooms</i></b>				.821	.441
1	143	3.63	.683		
2	223	3.72	.679		
More than 3	65	3.72	.813		

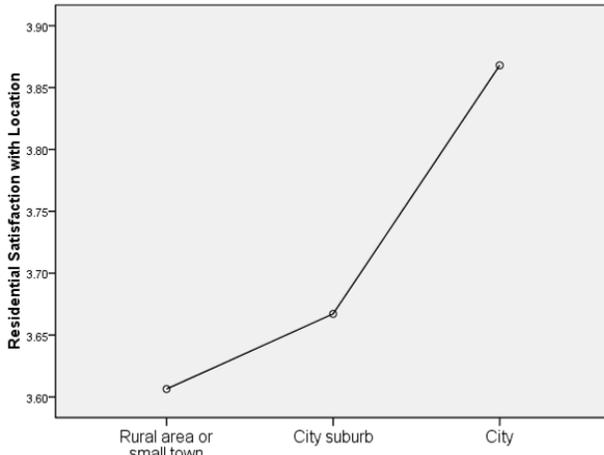
\*  $p < .05$ \*\*  $p < .01$



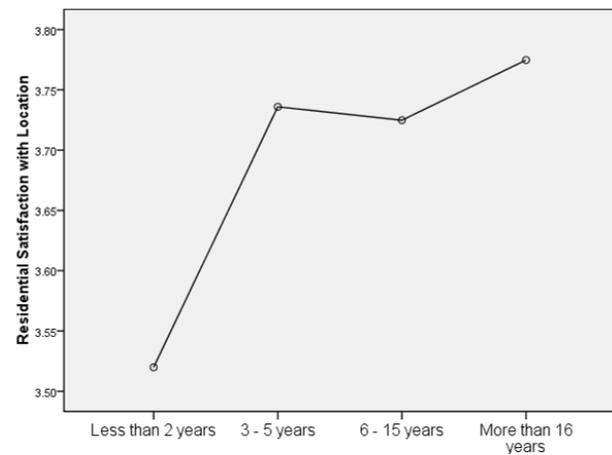
(a) Current Tenure Status



(b) Monthly Housing Cost



(c) Current Location



(d) Length in Current Dwelling

Figure 17. Mean Plots: Residential Satisfaction with Location by Current Tenure, Monthly Housing Cost, Location, and Length in Current Dwelling

### Hypothesis 3

H<sub>3</sub>: Current Socio-economic Characteristics and Current Housing Characteristics are significantly associated with Intention to Move in the Future.

For Current Socio-economic Characteristics, *age, gender, marital status, household size, health status, employment status, education level, and income* were used. For Current Housing

Characteristics, *tenure type, monthly housing cost, geographical location, length in current dwelling, presence of an elevator, year of construction, and number of bedrooms* were included. Mean score of the *intention to move* ( $M = 3.08, SD = 1.124$ ) was used as a dependent variable which included reversed coded “I would not consider moving” item and “I might consider moving” item.

H<sub>3-1</sub>: Current Socio-economic Characteristics are significantly associated with the *intention to move*.

ANOVA and *t*-test revealed that, there were significant differences in the *intention to move* by *age* ( $F(2,428) = 8.938, p < .01$ ), and *marital status* ( $F(3,415) = 5.145, p < .01$ ).

Post-hoc comparisons revealed that the mean of respondents age 75 and older group ( $M = 2.71, SD = 1.069$ ) was significantly different from the mean of those who were age 55 to 64 ( $M = 3.26, SD = 1.095$ ) and age 65 to 74 ( $M = 3.16, SD = 1.146$ ), indicating younger residents were more likely to intend to move in the future.

In terms of the current *marital status*, the mean score for the widowed group ( $M = 2.64, SD = 1.137$ ) was significantly different from the mean of those who were divorced or separated ( $M = 3.29, SD = 1.107$ ) and those who never married ( $M = 3.20, SD = .990$ ). This indicates that people who were widowed were less likely to move than those with other marital status.

Table 45 shows the mean comparisons of the *intention to move* according to Current Socio-economic Characteristics. Figure 18 presents mean plots of significant differences among groups.

Table 45.

*Mean Comparisons: Intention to Move in the Future by Current Socio-economic Characteristics*

Current Socio-economic Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Intention to Move	
				<i>F</i>	<i>P</i>
<b><i>Age**</i></b>				8.938	.000
55 to 64 years	189	3.26	1.095		
65 to 74 years	126	3.16	1.146		
75 years or older	116	2.71	1.069		
<b><i>Gender</i></b>				t-value = -1.003	.316
Male	215	3.65	.692		
Female	216	3.66	.795		
<b><i>Marital Status**</i></b>				5.145	.002
Married	163	3.04	1.130		
Widowed	64	2.64	1.173		
Divorced or separated	128	3.29	1.107		
Never married	64	3.20	.990		
<b><i>Household Size</i></b>				1.848	.159
1	210	3.03	1.074		
2	198	3.10	1.184		
More than 3	23	3.50	.988		
<b><i>Health Status</i></b>				.256	.775
Very poor and poor	33	3.12	1.237		
Fair	116	3.14	1.128		
Good and very good	282	3.06	1.112		
<b><i>Employment Status</i></b>				1.628	1.66
Employed or self-employed full-time	86	3.23	1.002		
Employed or self-employed part-time	38	3.22	1.223		
Retired and employed (or self-employed) part-time	26	3.25	1.266		
Retired and not working	262	2.98	1.120		
Unemployed	19	3.39	1.219		
<b><i>Education Level</i></b>				.701	.552
High school diploma or less	74	3.11	1.172		
Technical school /Some college	141	2.98	1.153		
College degree	137	3.12	1.050		
Graduate degree or higher	79	3.19	1.155		
<b><i>Income</i></b>				.669	.571
Under \$ 25,000	99	3.22	1.158		
\$ 25,000 to \$ 49,999	147	3.05	1.095		
\$ 50,000 to \$ 74,999	101	3.05	1.034		
\$ 75,000 or above	84	3.01	1.239		

\*  $p < .05$ \*\*  $p < .01$

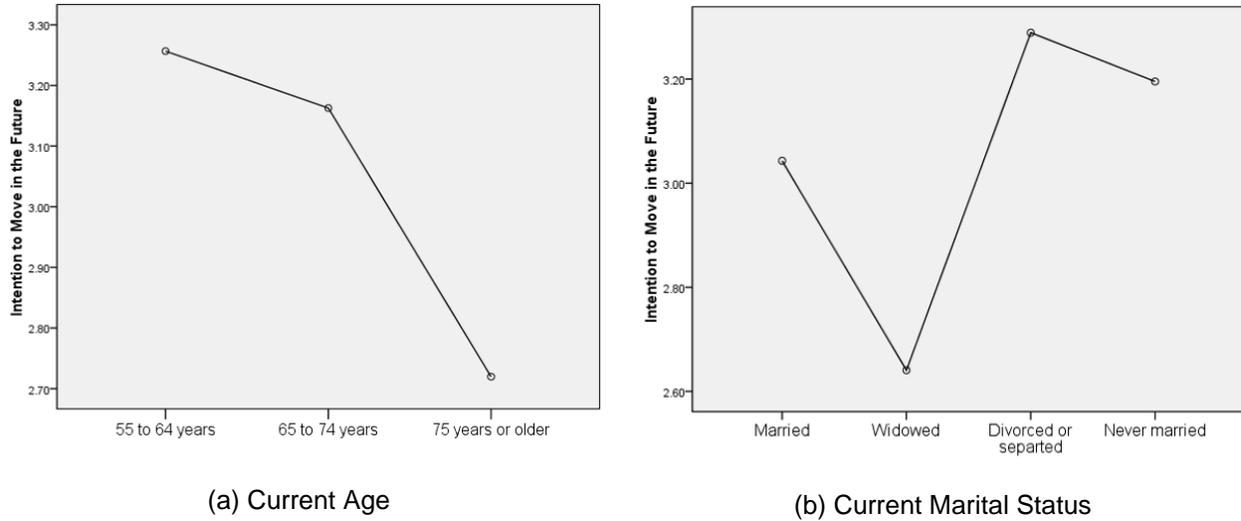


Figure 18. Mean Plots: Intention to Move in the Future by Current Age, and Marital Status

H<sub>3-2</sub>: Current Housing Characteristics are significantly associated with the *intention to move*.

As shown in Table 46, an independent-samples t-test revealed that there was a significant difference in the mean scores for the owner group ( $M = 2.77$ ,  $SD = 1.032$ ) and the renter group ( $M = 3.24$ ,  $SD = 1.136$ );  $t(429) = -4.231$ ,  $p = .000$  (two-tailed), indicating that owners were less likely to intend to move in the future.

For *presence of an elevator*, residents who do not have an elevator ( $M = 3.20$ ,  $SD = 1.126$ ) in their building are more likely to move in the future compared to those who have an elevator ( $M = 2.79$ ,  $SD = 1.070$ );  $t(429) = -3.450$ ,  $p = .001$  (Figure 19).

Table 46.

*Mean Comparisons: Intention to Move in the Future by Current Housing Characteristics*

Current Housing Characteristics	<i>n</i>	<i>M</i>	<i>SD</i>	Unit Design	
				<i>F</i>	<i>P</i>
<b><i>Tenure type**</i></b>				<i>t</i> -value = -4.231	.000
Own	145	2.77	1.032		
Rent	286	3.24	1.136		
<b><i>Monthly Housing Cost</i></b>				2.210	.086
Less than \$500	53	2.77	1.187		
\$500 to \$999	199	3.12	1.087		
\$1,000 to \$1,499	96	3.25	.105		
\$1,500 or over	83	3.02	1.167		
<b><i>Location</i></b>				.410	.664
Rural area or small town	107	3.05	1.067		
City suburb	239	3.07	1.156		
City	85	3.18	1.109		
<b><i>Length in current dwelling</i></b>				2.113	.098
Less than 2 years	100	3.31	1.224		
3-5 years	69	3.14	1.134		
6-15 years	153	3.01	1.053		
More than 16 years	109	2.95	1.101		
<b><i>Presence of an elevator**</i></b>				<i>t</i> -value = -3.450	.001
Yes	124	2.79	1.070		
No	307	3.20	1.126		
<b><i>Year of construction</i></b>				<i>t</i> -value = .997	.320
Before 1991	287	3.09	1.136		
After 1991	88	2.95	1.082		
<b><i>Number of bedrooms</i></b>				2.417	.090
1	143	3.22	1.069		
2	223	2.97	1.152		
More than 3	65	3.18	1.119		

\*\*  $p < .01$

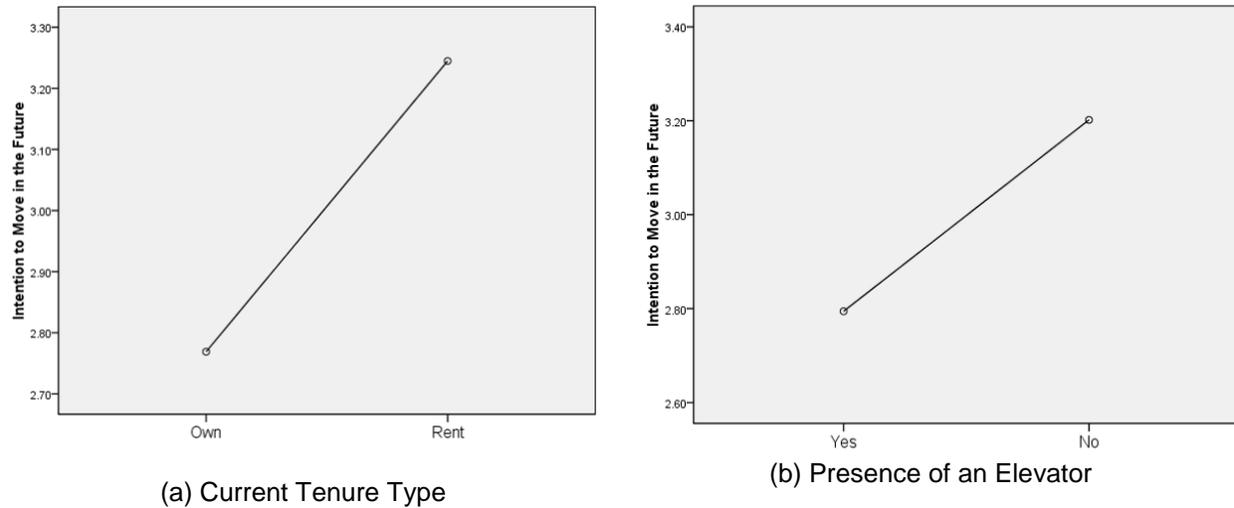


Figure 19. Mean Plots: Intention to Move in the Future by Current Tenure Type, and Presence of an Elevator

### Testing the Model

In this section, the last two hypotheses were tested to analyze significant relationships between: (a) Reasons for Moving into Current Housing and Residential Satisfactions (hypothesis 4); and (b) Residential Satisfactions and Intention to Move in the Future (hypothesis 5). These two hypotheses were analyzed using structural equation modeling (SEM) consisting of measurement model analysis and structural model analysis (Anderson & Gerbing, 1988). Maximum Likelihood (ML) was employed to estimate measurement model and structural model fits utilizing LISREL (version 8.80).

#### Pearson's Correlations for Measured Variables

Pearson's correlation reports linear direction between the variables and strength of the relationships, close to absolute value of one means larger strength (Pallant, 2007). Mean score of the items included in the independent variables and dependent variables of hypothesis 4 and 5 were selected for analyzing Pearson's correlation.

The *multifamily living reason* was significantly correlated with satisfaction with the *unit design* ( $r = .350, p < .01$ ), the *multifamily community* ( $r = .355, p < .01$ ), and the *location* ( $r = .273, p < .01$ ). The *nearby activities reason* showed significant correlation with satisfaction with the *unit design* ( $r = .184, p < .01$ ), the *multifamily community* ( $r = .214, p < .01$ ), and the

location ( $r = .350, p < .01$ ). The *financial reason* also revealed significant association with satisfaction with the *unit design* ( $r = .190, p < .01$ ), the *multifamily community* ( $r = .126, p < .01$ ), and the *location* ( $r = .159, p < .01$ ). Satisfaction with the *unit design* ( $r = -.431, p < .01$ ), the *multifamily community* ( $r = -.430, p < .01$ ), and the *location* ( $r = -.272, p < .01$ ) were significantly negatively correlated with *intention to move* (see Table 47).

Table 47.

*Mean, Standard Deviations, and Correlations among Variables (N=431)*

Variables	M	SD	1	2	3	4	5	6	7
1 <i>Multifamily living reason</i>	3.36	.841	1						
2 <i>Nearby activities reason</i>	3.27	.794	.556**	1					
3 <i>Financial reason</i>	3.66	.778	.481**	.397**	1				
4 Satisfaction with the <i>unit design</i>	3.65	.711	.350**	.184**	.190**	1			
5 Satisfaction with the <i>multifamily community</i>	3.79	.698	.355**	.214**	.126**	.677**	1		
6 Satisfaction with the <i>location</i>	3.72	.608	.273**	.350**	.159**	.513**	.612**	1	
7 <i>Intention to move</i>	3.08	1.124	-.121*	-.069	.012	-.431**	-.430**	-.272**	1

\*  $p < .05$  (2-tailed)

\*\*  $p < .01$  (2-tailed)

### Overall Fit of the Measurement Model

Prior to investigating the relationships among variables, the measurement model was tested using confirmatory factor analysis to validate the research variables (Anderson & Gerbing, 1998). Measurement model examines reliability and discriminate validity of research variables considering measurement errors (Kline, 2010). Overall fit of the measurement model was evaluated by chi-square statistic by the degrees of freedom ratio ( $\chi^2/df$ ), root mean square error of approximation (RMSEA), normed-fit index (NFI), and comparative fit index (CFI) (Hu & Bentler, 1998).

The measurement model in this study demonstrated good fit to the data. A chi-square statistic by the degrees of freedom ratio less than 3.0 suggests a good fit model, even though there is no clear-cut value (Kline, 2010). For the measurement model, the  $\chi^2$ /degrees of freedom

ratio was 2.80 ( $\chi^2 = 2119$ ,  $df = 755$ ), indicating a fairly good model. The value of RMSEA (.067) showed good model fit which was within the reasonable range of .05 to .08, and both NFI (.92) and CFI (.95) values were close to the recommended level of .90 and over (Browne & Cudeck, 1989). As Table 48 shows, all measurement items were significantly loaded at the alpha level of .001. Overall, there is no reason to reject the measurement model in this study from the values of the goodness-of fit measurement (See Appendix D for covariance matrix of each items).

Table 48.

*Properties of the Measurement Model (N=431)*

Variables and items	Completely standardized loading	t-value
<i>Multifamily living reason</i>		
Type of management services in the community	.76	12.20
Quality of the kitchen and/or laundry appliances in my new home	.72	11.80
Quality of the materials and finishes in my new home	.71	11.68
Attractive exterior appearance of the community	.78	12.41
The management team at the community	.74	12.04
Convenient parking in the community	.52	9.19
Design of the floor plan	.60	-
<i>Nearby activities reason</i>		
Close to places for outdoor recreation	.67	10.87
Close to parks and natural areas	.60	-
Close to entertainment and cultural attractions	.73	11.57
Close to public transportation	.46	8.14
Close to shopping areas	.74	11.66
Close to doctors' offices and hospitals	.72	11.42
<i>Financial reason</i>		
Reasonable cost of living in the area	.75	8.98
Low maintenance living	.65	8.51
Reasonable cost of my new home	.51	-
Change of my financial status	.41	6.36
<i>Satisfaction with the unit design</i>		
Satisfaction with layout/floor plan	.83	15.95
Satisfaction with size and the number of bathrooms	.74	14.21
Satisfaction with size and the number of bedrooms	.70	-
Satisfaction with universal design features	.69	13.29
Satisfaction with amount of storage	.56	10.89
Satisfaction with kitchen and/or laundry appliances	.75	14.48
Satisfaction with finishing materials	.75	14.55

Variables and items	Completely standardized loading	<i>t</i> -value
<i>Satisfaction with the multifamily community</i>		
Satisfaction with professionalism of property management	.69	11.93
Satisfaction with maintenance services	.69	12.00
Satisfaction with relationships with neighbors	.76	12.92
Satisfaction with exterior design	.64	11.27
Satisfaction with safety and security	.65	-
Satisfaction with living with people of different ages	.63	11.09
<i>Satisfaction with the location</i>		
Satisfaction with access to colleges and universities	.73	9.45
Satisfaction with access to cultural attractions	.81	9.87
Satisfaction with access to outdoor recreation	.73	9.48
Satisfaction with access to restaurants	.77	9.65
Satisfaction with access to shopping areas	.73	9.42
Satisfaction with access to medical centers	.68	9.15
Satisfaction with access to natural areas	.62	8.73
Satisfaction with access to public transportation	.57	8.34
Satisfaction with access to work places	.48	-
<i>Intention to move</i>		
I would not considering moving (reverse coded).	.67	-
I might consider moving.	.96	9.06

*Note.* Items with *t*-value of over 3.0 indicates significantly loaded at the alpha level of .001.

### Overall Fit of the Structural Equation Model

After testing the measurement model, the proposed model including the relationships among the variables were tested utilizing a structural equation model (SEM). The *multifamily living reason*, the *nearby activities reason*, the *financial reason*, satisfaction with the *unit design*, satisfaction with the *multifamily community*, satisfaction with the *location*, and the *intention to move* were used. The results of maximum likelihood estimation revealed a good fit to the data,  $\chi^2/df = 2.94$  ( $\chi^2 = 2335$ ,  $df = 761$ ), RMSEA = .070, NFI = .92 and CFI = .95 which are all acceptable scores (Browne & Cudeck, 1989).

### Hypothesis 4

H<sub>4</sub>: Reasons for Moving into Current Housing are significantly related to Residential Satisfaction.

For Reasons for Moving into Current Housing, the *multifamily living reason*, the *nearby activities reason*, and the *financial reason* were used. For Residential Satisfaction, satisfaction with the *unit design*, the *multifamily community*, and the *location* were used. Using these 6 variables, 9 paths were tested (Table 49).

Table 49.

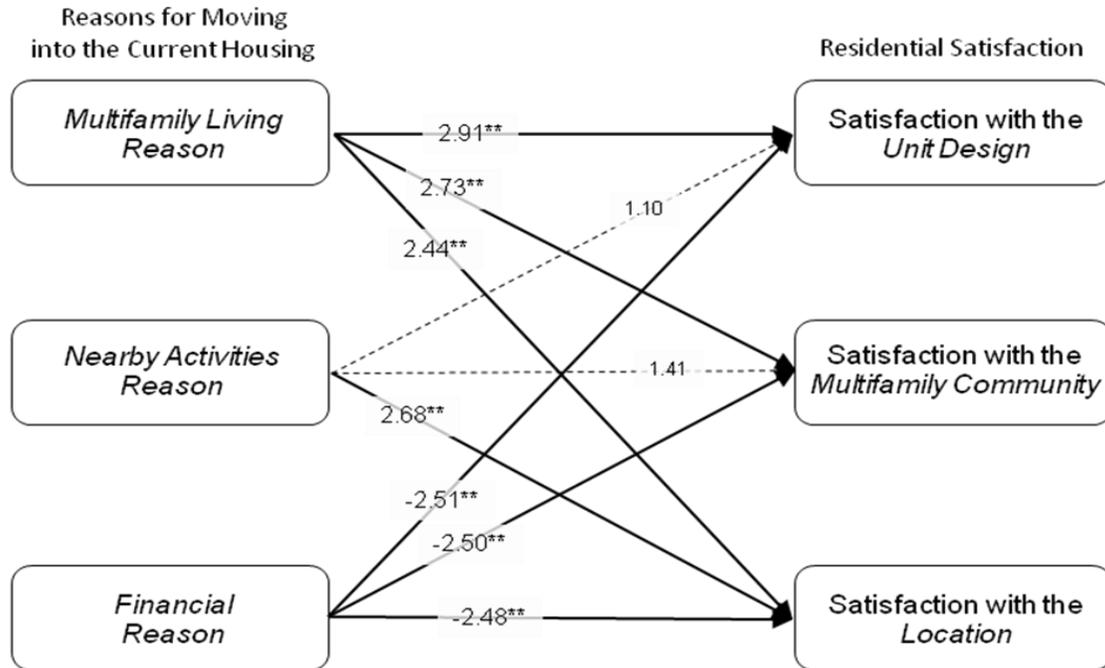
*Proposed Model for Hypothesis 4*

Hypothesis 4	Hypothesized Path
H <sub>4-1-1</sub>	<i>Multifamily living reason</i> → satisfaction with the <i>unit design</i>
H <sub>4-1-2</sub>	<i>Multifamily living reason</i> → satisfaction with the <i>multifamily community</i>
H <sub>4-1-3</sub>	<i>Multifamily living reason</i> → satisfaction with the <i>location</i>
H <sub>4-2-1</sub>	<i>Nearby activities reason</i> → satisfaction with the <i>unit design</i>
H <sub>4-2-2</sub>	<i>Nearby activities reason</i> → satisfaction with the <i>multifamily community</i>
H <sub>4-2-3</sub>	<i>Nearby activities reason</i> → satisfaction with the <i>location</i>
H <sub>4-3-1</sub>	<i>Financial reason</i> → satisfaction with the <i>unit design</i>
H <sub>4-3-2</sub>	<i>Financial reason</i> → satisfaction with the <i>multifamily community</i>
H <sub>4-3-3</sub>	<i>Financial reason</i> → satisfaction with the <i>location</i>

As Figure 20 shows, the SEM results revealed that the *multifamily living reason* for moving into the current housing was significantly positively related to satisfaction with the *unit design* ( $t = 2.91, p < .01$ ), the *multifamily community* ( $t = 2.73, p < .01$ ), and the *location* ( $t = 2.44, p < .01$ ).

For the *nearby activities reason* for moving into the current housing, only satisfaction with the *location* was positively related ( $t = 2.68, p < .01$ ), and there was no significant relationship with the *nearby activities reason* and satisfaction with the *unit design* and the *multifamily community*. Therefore, hypothesis 4-2 was partially supported.

The *financial reason* for moving into the current housing was significantly negatively related to satisfaction with the *unit design* ( $t = -2.51, p < .01$ ), the *multifamily community* ( $t = -2.50, p < .01$ ), and the *location* ( $t = -2.48, p < .01$ ). Hence, hypothesis 4-3 was supported.



\*\*  $p < .01$

Figure 20. Research Results for Hypothesis 4

### Hypothesis 5

H<sub>5</sub>: Residential Satisfaction is significantly related to the Intention to Move in the Future.

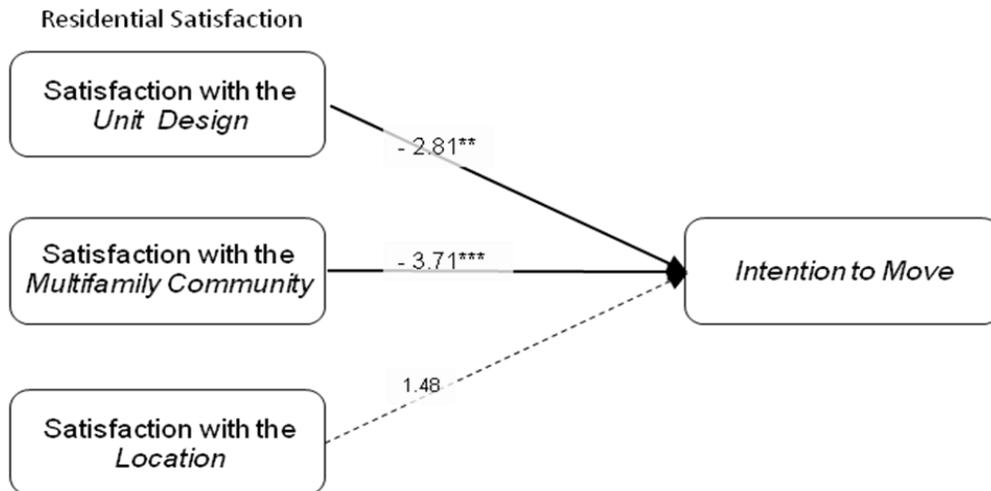
Lastly, influences of the Residential Satisfaction including satisfaction with the *unit design*, the *multifamily community* and the *location*, to *intention to move* were tested. Table 50 shows the hypothesized paths for hypothesis 5.

Table 50.

#### Proposed Model for Hypothesis 5

Hypothesis 5	Hypothesized Path
H <sub>5-1</sub>	Satisfaction with the <i>unit design</i> → <i>Intention to move</i>
H <sub>5-2</sub>	Satisfaction with the <i>multifamily community</i> → <i>Intention to move</i>
H <sub>5-3</sub>	Satisfaction with the <i>location</i> → <i>Intention to move</i>

The SEM results shows that satisfaction with the *unit design* ( $t = -2.81, p < .01$ ) and the *multifamily community* ( $t = -3.71, p < .001$ ) significantly negatively influenced *intention to move*. However, satisfaction with the *location* did not significantly influence *intention to move* (Figure 21). Therefore, hypothesis 5 was partially supported.



\*\*  $p < .01$   
 \*\*\*  $p < .001$

Figure 21. Research Results for Hypothesis 5

### Summary

This section includes an overview of respondents including demographic characteristics, Reasons for Moving into Current Housing, Residential Satisfaction with multifamily housing, Intention to Move in the Future, and the results of the hypotheses tests.

A total of 431 usable responses were collected through an online survey. It was found that 44% of the respondents were between the ages of 55 and 64, 29% were between 65 and 74, and 27% were age 75 and older. Fifty percent of the participants were male and 50% were female. The participants of this study were less likely to live with their spouses. Thirty-eight percent of the respondents were married, 28% divorced, 15% widowed, 15% never married, and 4% separated or other. In addition, almost 50% of respondents lived alone, 46% were in two person households, and only 5% had more than two household members. Sixty-five percent

evaluated their health status as very good or good, 27% said fair, and only 8% evaluated their health as poor or very poor. Thirty five percent of the participants were in the labor force. Half of the participants had college degrees or higher, 33% had a technical school degree or some college, and 17% had a high school diploma or less. Twenty-three percent of the respondents made under \$25,000 per year, 34% of the respondents had incomes of \$ 25,000 to \$49,999, 23% earned \$50,000 to \$74,999, and 19% made more than \$75,000 per year. The participants age 55 and older living in multifamily housing was more likely to rent their housing (66%). Almost half of the respondents paid \$500 to \$999 per month for their housing. More than half (52%) of the respondents lived in a two-bedroom multifamily housing unit. Almost 70% of their multifamily housing buildings were built before 1991, and did not have an elevator in their building (71%). The majority of the respondents lived in a city suburb (55%) for 6 to 15 years (36%).

In terms of respondents' Previous Demographic Characteristics, almost 65% of the respondents were age 55 and older when they moved into their current housing. A majority of the respondents were married (39%) and had more than two-person households (70%). Most of them had good (43%) or very good health status (37%), and more than half of the respondents were employed. Thirty-four percent of the respondents had incomes of \$ 25,000 to \$49,999, 26% made under \$25,000 per year, 23% earned \$50,000 to \$74,999, and 17% made more than \$75,000 per year. Almost 45% of the respondents lived in non-multifamily housing before they moved into their current multifamily housing. Half of the respondents owned their previous housing, 34% lived 6 to 15 years in their previous housing, and 80% had more than two bedrooms in their previous housing.

Among the 46 reasons for moving into current housing items, 24 items were grouped into three major reasons: the *multifamily living reason*, the *nearby activities reason*, and the *financial reason*. The *multifamily living reason* for moving into the current housing included items regarding multifamily housing management services and amenities, and quality of housing unit and building design which are more likely to relate to lifestyle choice. Respondents who moved into their current housing for the *nearby activities reason* seem to focus on local services such as places for outdoor recreation, parks and natural areas, public transportation, and shopping areas. The *financial reason* for moving into the current housing is more about affordable cost of living.

For Residential Satisfaction with multifamily housing, 29 items were grouped into three major areas of satisfaction: satisfaction with the *unit design*, the *multifamily community*, and the *location*. Each of the satisfaction factors had a relatively high score.

More than half of the respondents were considering moving in the future from their current housing. The major Reasons for Intending to Move in the Future were related to the “personal reasons,” the “housing unit,” the “multifamily housing community,” and the “location.” In terms of their Future Housing Preference, the majority of the respondents who intended to move preferred to own multifamily housing which is located in a housing community with people of all ages.

Associations between Previous Demographic Characteristics and Reasons for Moving into Current Housing indicated that respondents who were relatively older, married or widowed, non-working, made relatively more income, and had more than three bedrooms in their previous housing moved into their current housing for the *multifamily living reason*. People who retired and lived in multifamily housing before moved into their current multifamily housing for the *nearby activities reason*. Respondents who moved into their current housing for the *financial reason* were more likely to have poorer health status, lower incomes, and were less likely to work.

In terms of Current Demographic Characteristics and Residential Satisfaction, respondents who were relatively older, owned their housing, had better health status, lived in a post-1991 building with more bedrooms were more likely to be satisfied with their *unit design*. For satisfaction with the *multifamily community*, respondents who were older, widowed, had better health status, did not work, made relatively higher annual incomes, owned their housing, and lived in a post-1991 building with an elevator were more likely to be satisfied. Lastly, the respondents who had better health status, made relatively higher income and spent more money on their housing, owned their housing, and lived in a city for some time were more likely to be satisfied with their *location*.

For the relationships between Current Demographic Characteristics and Intention to Move in the Future, the respondents who were relatively younger, divorced or separated, and rented their multifamily housing that did not have an elevator in the building were more likely to intend to move in the future.

Regarding influences of Reasons for Moving into Current Housing to Residential Satisfaction, the respondents who moved into their current housing for the *multifamily living reason* were satisfied with the *unit design*, the *multifamily community*, and the *location*. *Nearby activities reason* positively influenced satisfaction with the *location*. However, the *financial reason* significantly negatively influenced satisfaction with the *unit design*, the *multifamily community* and the *location*, indicating that the respondents who moved into their current housing for the *financial reason* were less likely to be satisfied with their current *unit design*, *multifamily community*, and *location*.

Results of the tests about the influences of Residential Satisfaction on Intention to Move in the Future revealed that the respondents who were more likely to be satisfied with their current *unit design* and *multifamily community* were less likely to move, and those who were less likely to be satisfied with their current *unit design* and *multifamily community* were more likely to move. Table 51 shows the results of the hypotheses tests.

Table 51.

*Tests of Hypotheses*

Hypotheses	Statistical decision
<b>H<sub>1</sub>: Previous Socio-economic Characteristics and Previous Housing Characteristics are significantly associated with Reasons for Moving into Current Housing.</b>	
H <sub>1-1-1</sub> : Previous Socio-economic Characteristics are significantly associated with the <i>multifamily living reason</i> for moving into current housing.	Partially supported
H <sub>1-1-2</sub> : Previous Housing Characteristics are significantly associated with the <i>multifamily living reason</i> for moving into current housing.	Partially supported
H <sub>1-2-1</sub> : Previous Socio-economic Characteristics are significantly associated with the <i>nearby activities reason</i> for moving into current housing.	Not supported
H <sub>1-2-2</sub> : Previous Housing Characteristics are significantly associated with the <i>nearby activities reason</i> for moving into current housing.	Partially supported
H <sub>1-3-1</sub> : Previous Socio-economic Characteristics are significantly associated with the <i>financial reason</i> for moving into current housing.	Partially supported
H <sub>1-3-2</sub> : Previous Housing Characteristics are significantly associated with the <i>financial reason</i> for moving into current housing.	Not supported
<b>H<sub>2</sub>: Current Socio-economic Characteristics and Current Housing Characteristics are significantly associated with Residential Satisfaction.</b>	
H <sub>2-1-1</sub> : Current Socio-economic Characteristics are significantly associated with residential satisfaction with the <i>unit design</i> .	Partially supported
H <sub>2-1-2</sub> : Current Housing Characteristics are significantly associated with residential satisfaction with the <i>unit design</i> .	Partially supported
H <sub>2-2-1</sub> : Current Socio-economic characteristics are significantly associated with older adults' residential satisfaction with the <i>multifamily community</i> .	Partially supported
H <sub>2-2-2</sub> : Current Housing Characteristics are significantly associated with older adults' residential satisfaction with the <i>multifamily community</i> .	Partially supported
H <sub>2-3-1</sub> : Current Socio-economic characteristics are significantly associated with older adults' residential satisfaction with the <i>location</i> .	Partially supported
H <sub>2-3-2</sub> : Current Housing Characteristics are significantly associated with older adults' residential satisfaction with the <i>location</i> .	Partially supported
<b>H<sub>3</sub>: Current Socio-economic Characteristics and Current Housing Characteristics are significantly associated with Intention to Move in the Future.</b>	
H <sub>3-1</sub> : Current Socio-economic Characteristics are significantly associated with the <i>intention to move</i> .	Partially supported
H <sub>3-2</sub> : Current Housing Characteristics are significantly associated with the <i>intention to move</i> .	Partially supported

Hypotheses	Statistical decision
<b>H 4: Reasons for Moving into Current Housing are significantly related to Residential Satisfaction.</b>	
H <sub>4-1-1</sub> : <i>Multifamily living reason</i> for moving into current housing is significantly related to satisfaction with the <i>unit design</i> .	Supported
H <sub>4-1-2</sub> : <i>Multifamily living reason</i> for moving into current housing is significantly related to satisfaction with the <i>multifamily community</i> .	Supported
H <sub>4-1-3</sub> : <i>Multifamily living reason</i> for moving into current housing is significantly related to satisfaction with the <i>location</i> .	Supported
H <sub>4-2-1</sub> : <i>Nearby activities reason</i> for moving into current housing is significantly related to satisfaction with the <i>unit design</i> .	Not supported
H <sub>4-2-2</sub> : <i>Nearby activities reason</i> for moving into current housing is significantly related to satisfaction with the <i>multifamily community</i> .	Not supported
H <sub>4-2-3</sub> : <i>Nearby activities reason</i> for moving into current housing is significantly related to satisfaction with the <i>location</i> .	Supported
H <sub>4-3-1</sub> : <i>Financial reason</i> for moving into current housing is significantly related to satisfaction with the <i>unit design</i> .	Supported
H <sub>4-3-2</sub> : <i>Financial reason</i> for moving into current housing is significantly related to satisfaction with the <i>multifamily community</i> .	Supported
H <sub>4-3-3</sub> : <i>Financial reason</i> for moving into current housing is significantly related to satisfaction with the <i>location</i> .	Supported
<b>H 5: Residential Satisfaction are significantly related to Intention to Move in the Future.</b>	
H <sub>5-1</sub> : Satisfaction with the <i>unit design</i> is significantly related to the <i>intention to move</i> .	Supported
H <sub>5-2</sub> : Satisfaction with the <i>multifamily community</i> is significantly related to the <i>intention to move</i> .	Supported
H <sub>5-3</sub> : Satisfaction with the <i>location</i> is significantly related to the <i>intention to move</i> .	Not supported

## **CHAPTER 5**

### **SUMMARY, DISCUSSION, CONCLUSIONS, AND IMPLICATIONS**

This chapter provides a summary of the study, discussion for hypotheses tests, conclusions, implications, limitations, and recommendations for future study.

#### **Summary of the Study**

The purpose of this study was to investigate the past, current, and future housing behavior of residents 55 and older living in multifamily housing. To implement the study, a research framework was developed based on Morris and Winter's (1975, 1978) theory of housing adjustment and Wiseman's (1980) model of elderly migration. The research framework for this study was comprised of five major sections: (a) residents' Current Socio-economic Characteristics and Current Housing Characteristics, (b) residents' Previous Socio-economic Characteristics and Previous Housing Characteristics, (c) residents' Reasons for Moving into Current Housing, (d) residents' Residential Satisfaction, and (e) residents' Intention to Move in the Future. Five major hypotheses were tested.

Data for this study were collected using an online survey administered by a market research company between February 2, 2012 and February 4, 2012. Prior to conducting the survey, pretests were conducted to confirm the validity and reliability of the instrument. Four-thousand and ninety-six people age 55 and older initially tried to participate in the survey; however, 3,581 people were eliminated since they lived in a housing type that was non-multifamily, subsidized or age-restricted community, which resulted in 578 qualified participants (12.6%). The 12.6% who qualified seems reasonable when considering that 24% of the total U.S. population living in multifamily households includes residents in all ages, subsidized-housing residents, age-restricted community residents, and non-Internet users. A total of 431 usable questionnaires were collected.

Descriptive statistics (frequencies, percentages, means, and chi-square tests) were used to provide profiles of the participants' Current Demographic Characteristics and Previous

Demographic Characteristics, Reasons for Moving into Current Housing, Residential Satisfaction, Intention to Move in the Future, and Future Housing Preference. Content analysis was conducted to explain the Reasons for Intending to Move in the Future. Exploratory factor analysis (EFA) and Pearson's correlation were employed to condense the 24 eligible Reasons for Moving into Current Housing items into three major reasons (the *multifamily living reason*, the *nearby activities reason*, and the *financial reason*). Three residential satisfaction factors (satisfaction with the *unit design*, satisfaction with the *multifamily community*, and satisfaction with the *location*) were determined utilizing EFA and Pearson's correlation using 29 items which were conceptually divided into the three conceptual sub-dimensions of Residential Satisfaction (the "housing unit," the "multifamily housing community," and the "local area"). One-way ANOVA and *t*-test were employed to analyze associations between the participants' Previous Demographic Characteristics and Reasons for Moving into Current Housing (hypothesis 1), their Current Demographic Characteristics and Residential Satisfaction (hypothesis 2), and their Current Demographic Characteristics and Intention to Move in the Future (hypothesis 3). Structural equation model (SEM) was used to test influences of Reasons for Moving into Current Housing on Residential Satisfaction (hypothesis 4), and influences of Residential Satisfaction on Intention to Move in the Future (hypothesis 5).

Typical respondents can be described as people between 55 and 64 years of age or 65 years and older, unmarried, living alone or with one other household member, with good or very good health status, retired and not working, having a technical school or college degree, and earning between \$25,000 and \$49,000 per year. Most frequently cited respondents lived in a city suburb for 6 to 15 years, paid between \$500 and \$999 per month on their housing for a two-bedroom multifamily housing which was built before 1991.

### **Reasons for Moving into Current Housing**

Among the 46 reasons for moving into the current housing, the participants evaluated neighborhood, security, cost of home, low maintenance living, design of the housing unit and being close to shopping areas as important reasons for moving into their current home. Multifamily housing services and amenities that some multifamily housing communities may not

have, such as concierge services and club houses, and changes in lifecycle-related reasons, such as loss of a spouse or change of marital status, showed lower scores.

EFA generated three major reasons for moving into current housing using 24 items which had mean scores higher than 3.0 (neither unimportant, very unimportant, important, or very important). Items in the *multifamily living reason* were related to multifamily housing management services and amenities, and the quality of the housing unit and building design. Most of those were unique features of multifamily housing that single-family housing may not have. The *multifamily living reason* for moving into current housing seems more likely to be related to lifestyle choice. This supports previous researchers' arguments that an increasing number of people want multifamily housing living by choice, not by necessity, because of the unique advantages of multifamily housing living (Haughey, 2003; National Multi Housing Council, 2001).

The *nearby activities reason* included items related to easy access to services in a local area such as outdoor recreation, parks and natural areas, public transportation, shopping areas and medical centers. Previous studies also show that local amenities and services are important factors especially for senior residents (Clough, et al., 2004; McAuley & Nutty, 1982; NAHB, 2009; NAHB Research Center & The Joint Center for Housing Studies of Harvard University, 2005).

The last reason for moving into current housing was the *financial reason*. Older adults, especially people who have retired, may have limited income resources which could impact their housing choice. *Financial reason* was related to reasonable cost of housing and of living in the area, changing financial status and low maintenance living. Older people who choose their current multifamily housing for the *financial reason* seem more likely to choose their housing because of necessity.

## **Residential Satisfaction**

Residential Satisfaction consisted of three conceptual sub-dimensions with 40 items: satisfaction with the "housing unit," the "multifamily housing community," and the "local area." Descriptive statistics show that the mean scores of residential satisfaction with the three sub-

dimensions were greater than 3.0, indicating that the respondents were likely to be satisfied with their housing unit, the multifamily housing community, and the local area.

For residential satisfaction with the housing unit, the respondents were less likely to be satisfied with the amount of storage, universal design features, finishing materials, and cost of housing which seems to be related to quality of design issues, and health and financial issues experienced as part of the aging process. For the multifamily housing community sub-dimension, professionalism of property management showed relatively lower mean score which also has been mentioned as one of the most critical factors that can influence residential satisfaction (Paris & Kangari, 2005a). In terms of satisfaction with the local area, the participants were more likely to be satisfied with access to shopping areas, restaurants, medical centers, walkable streets, safety and security, and climate, which seem to be related to daily living activities and a safe and secure feeling in their local area.

Using 29 items, since 21 items with missing data were excluded, three factors of residential satisfaction were generated utilizing an EFA: satisfaction with the *unit design*, satisfaction with the *multifamily community*, and satisfaction with the *location*. These three factors were similar to the original three conceptual sub-dimensions and inter-item reliability of each sub-dimension was reasonable. Therefore, the instrument with the three dimensions that measures multifamily housing residential satisfaction seems an appropriate survey tool.

### **Intention to Move in the Future**

More than half of the respondents ( $n = 224, 52\%$ ) intended to move in the future and 42% of them were currently considering moving. These are higher percentages of people intending to move in the future than normally found in housing studies, even when compared to previous studies of pre-retirees and residents in retirement communities. In fact, 41% of pre-retirees age 40 and older reported they were very likely or somewhat likely to move at their retirement (Junk & Anderson, 1993), and 36% of the Boomers living in Del Webb communities were willing to move (Del Webb, 2010). The high percentage in this study may be related to the dominant tenure type of rental multifamily housing, compared to the fact that a significant number of senior residents in other studies own single-family houses (U.S. Census Bureau, 2011c).

**Reasons for intending to move in the future.** The respondents who intend to move in the future ( $n = 224$ ) described their reasons for intending to move. Among 210 valid answers, 308 key words were analyzed. From the content analysis, four major categories of reasons for intending to move in the future were grouped: the “personal reasons,” the “housing unit” related reasons, the “multifamily housing community” related reasons, and the “location” related reasons. The last three categories seemed similar to the three residential satisfaction factors (i.e., satisfaction with the *unit design*, the *multifamily community*, and the *location*).

Personal reasons were related to changes in health condition due to aging, proximity to family/friends, declining financial status, and retirement, which were also mentioned in previous research. For example, 50% of older adults aged 65 and older who had experienced falls were willing to move within the next two years (Stoeckel & Porell, 2010). An NAHB (2009) study reported that the most frequently cited reason for the relocation of people age 55 and older were family reasons. Older people who relocate at their retirement tend to move to areas with lower costs of living (Longino & Bradley, 2003), and older adults who have more income are more likely to move to a location with amenities and a different climate (Pope & Kang, 2010).

For the housing unit related reasons, the respondents were willing to move because of costs of housing, need for a larger or smaller home, desire for upgraded design, and utilities/heating. Lack of storage was an issue impacting the decision to move in the future.

Respondents who intended to move for the multifamily housing community reason most frequently mentioned neighborhood related reasons such as quality of neighbors, noise/privacy, or safety/security. Accessible building design was an important reason as well, which was described as a housing unit on a first floor or needing an elevator. Lastly, participants intended to move for multifamily housing amenities and services related reasons. They mentioned quality of management and maintenance services, quality of amenities including parking, and multifamily housing restrictions especially those regarding pets.

In terms of the location related reason, the participants were willing to move to an area with better climate and access to a natural area such as beaches or mountains. Numerous studies (Junk & Anderson, 1993; McAuley & Nutty, 1982; U.S. Census Bureau, 2000a; Werner, 2011) show that areas with good weather and natural features such as California, Florida, Arizona, and Texas have higher proportions of senior residents. Other reasons related to location were easy

access to jobs, shopping areas, doctors' offices and public transportation, and reasonable costs of living in the area.

**Future housing preferences.** Respondents who intend to move in the future were asked their future housing preferences regarding housing type, tenure type, age restriction, and service type in the community. They were more likely to prefer to live in multifamily housing again as owners and with neighbors of all age groups. However, they were less likely to move into a housing community that provides any services specifically targeting older adults, including assistance with daily activities. Moreover, the participants showed the lowest preference for a housing community offering 24-hour medical services. It would appear that the participants want independent living in a non-age restricted community.

## Discussion for Hypotheses Tests

### Discussion for Hypothesis 1

The first hypothesis was developed to investigate associations between Previous Demographic Characteristics and the three major reasons for moving into their current housing. As Table 52 shows, some significant associations were found.

**Multifamily living reason.** Respondents who moved into their current housing for the *multifamily living reason* were more likely to be older, retired and not working, living in a larger housing unit with their spouse and having sufficient income. According to Pope and Kang's (2010) study, these respondents could be defined as being a proactive group of elderly movers who had higher education and income, and were healthier. Moreover, considering that the multifamily living reason was more likely to be related to lifestyle choice, these people seemed to move into their current housing to enjoy living in multifamily housing.

**Nearby activities reason.** People who retired and were not working and lived in multifamily housing before they moved into their current housing were more likely to move into their current housing for the *nearby activities reason*. They considered easy access to outdoor recreation areas, parks and natural areas, entertainment and cultural attractions, shopping areas,

close to doctors' office, and public transportations as important reasons for moving into their current housing. This may support a previous study that suggests closeness to local services is a more important reason for multifamily housing residents than for single-family housing households (NAHB, 2009).

**Financial reason.** Older adults who moved into their current multifamily housing for the *financial reason* had relatively poorer health, were retired and not working and had less income. This may support other studies that older people who relocate at their retirement tend to seek a lower cost of living because of their limited financial resources (Longino & Bradley, 2003; Pope & Kang, 2010). People who moved into their current housing for the *financial reason* might downsize their house or move into housing with lower costs, compared to their previous housing. These people can be defined as a reactive group of elderly movers who moved for necessity (Pope & Kang, 2010).

Table 52.

*Summary: Higher Scores of Reasons for Moving into Current Housing by Previous Demographic Characteristics*

Previous Demographic Characteristics	Reasons for Moving into Current Housing		
	<i>Multifamily Living Reason</i>	<i>Nearby Activities Reason</i>	<i>Financial Reason</i>
Previous Socio-economic Characteristics			
<i>Age</i>	Older	-	-
<i>Marital status</i>	Married	-	-
<i>Health status</i>	-	-	Poorer health
<i>Employment status</i>	Retired and not working	Retired and not working	Retired and not working
<i>Income</i>	More income	-	Less income
Previous Housing Characteristics			
<i>Housing type</i>	-	Multifamily housing	-
<i>Number of bedrooms</i>	More bedrooms	-	-

## Discussion for Hypothesis 2

The second hypothesis tested the associations between Current Demographic Characteristics, and satisfaction with the *unit design*, the *multifamily community* and the *location*. The results showed that homeowners who were retired and not working were more likely to be satisfied with their *unit design*, *multifamily housing*, and *location* (see Table 53). In fact, homeownership has shown positive influences on residential satisfaction in many studies (Dillman, et al., 1979; Elsinga & Hoekstra, 2005; Grinstein-Weiss et al., 2011; Morris & Winter, 1975; O'Bryant & Wolf, 1983). Better health status was the other common feature that was significantly positively associated with all three residential satisfaction variables: satisfaction with the *unit design*, the *multifamily community*, and the *location*. It seems that good health is important to older adults' independent living and may impact overall satisfaction with their lives. However, more research is needed to determine if this is truly related to residential satisfaction or just reflects the impact of a better quality of life.

**Unit Design.** Respondents who were relatively older and retired, and had better health were more likely to be satisfied with their current *unit design*. They were homeowners living in larger housing units with more bedrooms. This may support previous studies that the design aspects of housing units such as enough floor space, number of rooms and visual appearance were significantly positively associated with residential satisfaction (Carswell, 2006; James III, 2007). Moreover, homeowners may have more opportunities to change their housing unit as their taste in design changes compared to renters. Residents living in multifamily housing buildings which were built after 1991 were more likely to be satisfied with their current *unit design*. The year 1991 was when the Fair Housing Accessibility Guidelines (FHAG) went into effect and is used in this study as a proxy for units that are adaptable for accessible design. If the buildings were covered by the FHAG they were more likely to have wider doors and accessible pathways throughout the unit. However, the variable could be reflecting other concepts, such as the relatively “newness” of the units which may include some other design and quality features that are more likely to have been included in buildings constructed over the last two decades.

Respondents who were relatively younger, employed full-time, and had poorer health status were less likely to be satisfied with their *unit design*. In terms of their Current Housing

Characteristics, renters living in an older multifamily housing building with smaller bedrooms were less likely to be satisfied with their *unit design*. Relatively younger respondents who were employed full-time may have more opportunities to choose their new home, and show more critical attitudes toward their housing unit. On the other hand, it is possible that pre-FHAG multifamily housing buildings may not provide the universal design features and support needed by older adults who had poorer health. This may support Memken and Earley's study (2007) that accessible housing design is an important component of older residents' ability to age in place.

**Multifamily community.** Respondents who were older and retired and not working, widowed, and had better health and more income were more likely to be satisfied with their *multifamily community*. For housing characteristics, people who owned their multifamily housing units and lived in post-1991 multifamily housing buildings with elevators were more likely to be satisfied with their *multifamily community*. The significant association between the post-1991 multifamily housing buildings and residential satisfaction may be related to the implementation of the Fair Housing Accessibility Guidelines in 1991 which may include accessible design feature in the multifamily housing communities such as elevators and ramps. Or this association may be that the respondents like the post-1991 multifamily housing communities because they are relatively newer and has more up-to date features. It appeared that older widowed owners with higher incomes lived in more up-scale multifamily housing with the latest housing design and various types of amenities. Widowed people might also appreciate management and maintenance services from their multifamily housing community. This result may support previous studies that multifamily housing is a more desirable housing type for single residents (Goodman, 1999; Joint Center for Housing Studies of Harvard University, 2011). As a follow-up test, gender and the number of households were compared and statistically significant differences were found. Female residents were more likely to be a single household: slightly over 40% of the male residents were single person households among the total male participants, while 54% of the female residents lived alone.

On the other hand, as similar to satisfaction with the *unit design*, people who were relatively younger, employed full-time, and in poorer health were less likely to be satisfied with their *multifamily community*. Respondents who earned less were also less likely to be satisfied with their *multifamily community*, which may be caused by their limited multifamily housing amenities and services compared to multifamily housing communities with residents with higher

income. In terms of housing characteristics, renters living in older buildings without elevators were less likely to be satisfied with their *multifamily community*.

**Location.** People who had better health, were retired and not working and had more income were more likely to be satisfied with their *location*. They were more likely to be owners, paid more money for their housing which was more likely to be located in a city, and they had lived in their current housing for a longer period of time. It seems that older adults who had better health and more income, and were retired and not working want to enjoy their life in the local area. If they live in a city which has a variety activities, and have lived in the area for a long time, they may be more satisfied with their *location*. Longer length of residency in an area has been shown as a positive predictor of residential satisfaction in previous studies (Amole, 2009; Peck & Stewart, 1985).

Respondents who had poorer health, were employed full-time, and earned less income were less likely to be satisfied with their *location*. In terms of housing characteristics, people who rent their housing units, and live in a small town for a shorter period of time were less likely to be satisfied with their current *location*. It appears that residents with lower incomes who lived in a smaller town in housing they had not lived in long, may not have enough local activities to enjoy or social bonds in the area, and are less likely to be satisfied with their *location*.

Table 53.

*Summary: Higher Scores of Residential Satisfaction by Current Demographic Characteristics*

Current Demographic Characteristics	Residential Satisfaction		
	<i>Unit Design</i>	<i>Multifamily Community</i>	<i>Location</i>
<b>Current Socio-economic Characteristics</b>			
<i>Age</i>	Older	Older	-
<i>Marital status</i>	-	Widowed	-
<i>Health status</i>	Better health	Better health	Better health
<i>Employment status</i>	Retired and not working	Retired and not working	Retired and not working
<i>Income</i>	-	More income	More income
<b>Current Housing Characteristics</b>			
<i>Tenure type</i>	Owner	Owner	Owner
<i>Monthly housing cost</i>	-	-	Higher cost
<i>Geographical location</i>	-	-	City
<i>Length in current housing</i>	-	-	Longer length
<i>Existence of an elevator</i>	-	Building with an elevator	-
<i>Year of construction</i>	After 1991	After 1991	-
<i>Number of bedrooms</i>	More bedrooms	-	-

### Discussion for Hypothesis 3

The third hypothesis was developed to investigate associations between Current Demographic Characteristics and Intention to Move in the Future. As Table 54 shows, people who were younger and did not have a spouse were more likely to intend to move in the future. Younger respondents may want to move to an area with new jobs and single people may have more freedom to move as compared to married couples. The result also revealed that renters were more likely to move in the future. It would be easier for renters to move compared to homeowners. Multifamily housing residents living in a multifamily housing building without an elevator were more likely to intend to move.

On the other hand, relatively older and widowed respondents were less likely to intend to move in the future. It seems that older respondents may want to maintain their independent living

in their housing as long as possible and think their next housing choice could be an assisted living facility or nursing home which are the housing types where they may not want to live. Respondents who own their housing units and live in multifamily housing buildings with elevators were also less likely to intend to move. Easy access to a housing unit using an elevator has been mentioned as an important feature for senior residents (Memken & Earley, 2007).

Table 54.

*Summary: Higher Scores of Intention to Move by Current Demographic Characteristics*

Current Demographic Characteristics	Intention to Move in the Future
<b>Current Socio-economic Characteristics</b>	
<i>Age</i>	Younger
<i>Marital Status</i>	Divorce or separated, and never married
<i>Health Status</i>	-
<i>Employment Status</i>	-
<i>Income</i>	-
<b>Current Housing Characteristics</b>	
<i>Tenure Type</i>	Renter
<i>Monthly Housing Cost</i>	-
<i>Geographical location</i>	-
<i>Length in Current Housing</i>	-
<i>Existence of an Elevator</i>	Building without an elevator
<i>Year of Construction</i>	-
<i>Number of Bedrooms</i>	-

#### **Discussion for Hypothesis 4**

The fourth hypothesis tested the influences of the three reasons for moving into their current housing (the *multifamily living reason*, the *nearby activities reason*, and the *financial reason*) on the three residential satisfactions (satisfaction with the *unit design*, *multifamily community*, and *location*).

First of all, there were significantly positive influences of the *multifamily living reason* on the residential satisfaction with the *unit design*, the *multifamily community*, and the *location*.

Older adults who moved into their current housing for the *multifamily living reason* which seemed to reflect a lifestyle choice, were satisfied with their *unit design*, *multifamily community*, and *location*. People who moved into their current multifamily housing for the *multifamily living reason* could be considered proactive movers (Pope & Kang, 2010), and were more likely to have higher income and to live in a housing unit with more bedrooms.

Secondly, the *nearby activities reason* showed a significantly positive relationship only with satisfaction with the *location*. People who moved into their current housing for the *nearby activities reason* seemed to concentrate on choosing a desirable local area.

Lastly, the *financial reason* was negatively related to residential satisfaction with the *unit design*, the *multifamily community*, and the *location*. Older adults who moved into their current housing for the *financial reason* seemed to be reactive movers based on Pope and Kang's study (Pope & Kang, 2010), moving into their current housing by necessity such as obtaining lower cost housing. Hypothesis 3 also revealed that older adults who moved into their housing for the *financial reason* were more likely to have poorer health status, be retired and not working, and make less income. Therefore, they may down-scale their residential environment when compared to their previous home, and were not satisfied with their current *unit design*, *multifamily community*, or *location*. This may support Morris and Winters' (1998) argument that residents' housing decisions do not always mean a positive reason. For example, people who moved into a less expensive housing because their income decreased may prefer to live there because it addresses their financial situation, but they may still perceive that it creates a deficit in quality, space, or neighborhood. In such cases, residents may not be satisfied with their current housing regardless their current housing conditions.

## **Discussion for Hypothesis 5**

The last hypothesis was developed to investigate relationships between Residential Satisfaction (satisfaction with the *unit design*, the *multifamily community*, and the *location*), and Intention to Move in the Future. The results show that there were significantly negative relationships between satisfaction with the *unit design* and the *intention to move*, and between satisfaction with the *multifamily community* and the *intention to move*. It is likely that older adults who were more likely to be satisfied with their unit design and multifamily community

were less likely to intend to move, and respondents who were less likely to be satisfied with their current unit design and multifamily community were more likely to intend to move in the future. These support Morris and Winter's (1975, 1978) theory of housing adjustment, and Wiseman's (1980) model of elderly migration that residential satisfaction influences propensity to move. However, satisfaction with the *location* was not significantly related to the intention to move in the future. It seems that location can be an important consideration for choosing a new house, but may not be so important that it influences the decision to move, or people may want to move into a new housing unit or a community within a same area.

### Conclusions

- Multifamily housing can be a viable housing option for older adults in later life. Almost half of the respondents moved into their current multifamily housing from non-multifamily housing such as a single-family home, townhouse, or mobile home. Respondents tend to be satisfied or very satisfied with their *unit design, multifamily community, and location*. Although more than half of the respondents intended to move in the future, they were fairly positive about moving into multifamily housing again.
- Suggestions for multifamily housing unit and community design, multifamily housing community amenities and services, and location characteristics that could appeal to senior residents can be made.
  - The respondents were more likely to downsize compared to their previous housing and needed storage. Therefore, it is important to plan effective use of limited storage space using shelves or closets based on research about amount and size of products that residents want to store.
  - Universal design features such as wide doorways or blocking walls for grab bars, as well as up-scale housing unit design would also appeal to senior housing consumers.

- The existence of an elevator was a strong indicator of satisfaction with the *multifamily community* and the *intention to move in the future*. Accessible design features throughout a multifamily housing community should be considered. Most of the respondents wanted non-age restricted multifamily housing communities. Therefore, it is important to develop aging-friendly multifamily housing communities for people within all age groups to satisfy both older and younger generations.
- In terms of amenities and services in a multifamily housing community, even though all of the respondents did not have every type of amenity and service such as concierge services, walking trails and elevators, people appreciated them once they had them in their multifamily housing communities.
- Locating multifamily housing in areas with easy access to shopping malls, restaurants, activities, public transportations as well as medical services would appeal to older adults.
- Morris and Winter's (1975, 1978) theory of housing adjustment and Wiseman's (1980) model of elderly migration were supported when applied to the multifamily housing industry. Even though the housing adjustment theory has been widely tested in single-family detached housing research, it was confirmed that ownership significantly positively influences high residential satisfaction in multifamily housing. In fact, ownership was the strongest indicator of satisfaction with the *unit design*, the *multifamily community*, and the *location*. Moreover, the proportion of owners in this study was three times higher than the total U.S. multifamily housing owner ratio (U.S. Census Bureau, 2011d). This study also supports the theory of housing adjustment and the model of elderly migration that there is a significant relationship between residential satisfaction and intention to move. Especially, satisfaction with the *unit design*, and satisfaction with the *multifamily community* were strong indicators of the *intention to move*.
- Aging-in-place may not mean living in the same housing unit as we grow older. Almost half of the respondents intended to move in the future. However, they were less likely to

prefer to move into a housing community that offers services such as assistance with daily activities, medical services, or a continuum of care services. To meet older adults' desire for aging-in-place, it is important to develop aging-friendly housing units and multifamily housing communities with appropriate services and amenities in livable local communities, but not to make them for older residents only.

- Senior housing consumers can be classified by their socio-economic characteristics such as financial status, health status, and size of household rather than age (i.e., younger old, older-old, and oldest older adults). The three major reasons for moving into the current housing (the *multifamily living reason*, the *nearby activities reason*, and the *financial reason*) from this study would provide more specific information for targeting senior groups based on the socio-economic characteristics.

## **Implications**

The results of this study have implications for researchers, older adults, multifamily housing designers and developers, and multifamily housing property managers.

### **Implications for Researchers**

Morris and Winter's (1975, 1978) theory of housing adjustment was applied to examine the relationships among the demographic characteristics, residential satisfaction, and intention to move of residents in multifamily housing. The research framework in this study can be useful when developing similar studies in the multifamily housing area. The survey instrument of this study included reasons for moving into the current housing of older adults based on the model of elderly migration, and three sub-dimensions of residential satisfaction based on the theory of housing adjustment to examine more specific residential satisfaction with multifamily housing. Criterion validities using Pearson's correlations, face validity by the four housing experts, and inter-item reliabilities utilizing Cronbach's Alpha reliability tests confirmed the survey instrument. Therefore, the instrument can be helpful when investigating similar studies.

### **Implications for Older Adults**

This study provided Previous and Current Demographic Characteristics of older adults currently living in multifamily housing. The findings about the respondents would be useful for older adults who are looking for housing for their later life. Results can provide information for older adults on decided features and shortcomings within multifamily housing units and communities.

### **Implications for Multifamily Housing Designers and Developers**

This study investigated three major reasons for moving into the multifamily housing and associations of demographic characteristics with each reason for moving. The results can be used for defining target senior consumer groups. The results of this study also provided satisfaction with the *unit design*, the *multifamily community* and the *location*, Reasons for Intending to Move in the Future, and Future Housing Preferences. The findings of this study can be used as information for multifamily housing designers and developers in planning housing units and multifamily housing communities, and selecting good locations that target older adults. From the findings, about one-third of the respondents were owners, indicating that multifamily housing developers may need to consider the proportion of condominiums to apartments when they segment multifamily housing markets.

### **Implications for Multifamily Housing Property Managers**

The results of this study provided information on satisfaction with the *unit design* and the *multifamily community* and their significant influences on the *intention to move*. The profiles of demographic characteristics, satisfaction with their *multifamily housing community*, and Reasons for Intending to Move in the Future can provide useful information to property managers who have senior residents and work for multifamily rental housing management as well as homeowner associations.

### **Implications for Urban Planners**

Local areas with sufficient local services and amenities could be a good location for developing multifamily housing communities. Alternatively, a local area with multifamily housing communities could provide optimum conditions for establishing businesses. This study provided profiles of the *nearby activities reason* for moving into the current housing and

residential satisfaction with the *location* of the respondents. The results can be used as information for urban planners to design a local area that would attract residents to the community.

## **Limitations and Recommendations**

### **Limitations of the Study**

Since an online survey company was employed for this study, two limitations can be found:

1. All respondents were people who are affiliated with an online survey company. The respondents received some compensation for responding to the survey. Therefore, the results of this study might not be generalized to the total population.
2. All respondents were Internet users, since the online survey company distributed survey questionnaires and collected data through an online survey. These people may have certain socio-economic characteristics and housing needs compared to non-Internet users. Therefore, the results of this study cannot be extended to the general population.

### **Recommendations for Future Research**

Based on the findings and implications of this study, the following recommendations for future research are presented.

1. An online survey was employed to collect data in this study. The result of socio-economic profile of this study showed that the respondents had higher education and income level, and the same ratio in gender. Future research can be conducted using a traditional mail survey.
2. This study included both owners and renters in multifamily housing. The result of this study showed a higher proportion of owners which was three times higher than the total U.S. multifamily housing owners ratio. It was also found that ownership was a strong

indicator of residential satisfaction and intention to move. Thus, future research can compare residents who own to those who rent in multifamily housing in terms of their residential satisfaction and intention to move.

3. Almost half of the respondents were single person households and 60% of those were female residents. Interaction between demographic characteristics (e.g., gender and number of households) and their housing behavior (e.g., residential satisfaction and intention to move) could provide helpful information.
4. This study included people age 55 and over and forty-four percent of the respondents were between 55 and 64 years of age (Baby Boomers). Future study can compare housing behavior and needs in multifamily housing of the Baby Boom generation and the older silent generation.
5. When describing satisfaction with the multifamily housing community, there were some items regarding multifamily housing services and amenities (e.g., elevator, concierge services and a business center) which were not available for all of the respondents. The result showed that respondents who had these items in their multifamily housing community tended to be satisfied with the services and amenities. These items may be found in recently built multifamily housing communities and could be investigated by focusing on respondents in newer housing. Further, the year the multifamily building was constructed was included in this study using pre 1991 and post1991 to correspond with the year the Fair Housing Accessibility Guidelines went into effect. Further investigation to determine availability and satisfaction with specific universal and accessibility features could provide a better measure of the impact of these features on older adults housing choices.
6. More than half of the respondents were considering moving in the future, and they wanted to live in a housing community for people of all ages. To satisfy both younger and older generations, it will be important to identify the housing needs and preferences of both groups. Therefore, further research can examine housing needs and desires of younger people and older adults in multifamily housing to determine how these two groups differ in terms of housing units, multifamily housing communities, and locations.

7. More than half of the respondents answered an open-ended question about Reasons for Intending to Move in the Future. A qualitative study using a focus group interview can investigate more specific reasons for intending to move in the future.

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APPENDIX A: SURVEY QUESTIONNAIRE AND COVER LETTER

## Residents of Multifamily Housing

Hello!

Planning housing after retirement can be a big concern for many people. Consumers, communities, and the housing industry would like to know more about what people like you think about their housing situation. This study will help designers and housing professionals understand what multifamily housing residents like and dislike about their housing and predict the housing preferences for these residents in their later life. This survey is composed of questions that ask why you moved into multifamily housing, how satisfied you are living in your current housing, and if you plan to move in the future.

Let me assure you of complete confidentiality. Your identity will not be shared with anyone else. The information gathered from this survey will be used only for research purposes and your personal information will never be distributed to anyone for any other purpose.

**If you are NOT IN BOTH CATEGORIES BELOW, PLEASE DO NOT BEGIN this survey.** Just ignore this e-mail. Thank you for your assistance!

**If YOU ARE:**

**1. 55 or OVER and**

**2. living in non-subsidized and non-age-restricted MULTIFAMILY HOUSING**

**then please respond to this survey.**

The questionnaire will take approximately 10 to 15 minutes to complete. If you have any questions about the survey, please contact me by e-mail at [jjoooyu@vt.edu](mailto:jjoooyu@vt.edu).

I appreciate your time and assistance. It is only with the help of people like you that this research can be successful. Thank you!

**Hyunjoo Kwon**

Ph.D. Candidate in Housing  
Apparel, Housing & Resource Management  
Virginia Tech

**Dr. Julia Beamish**

Professor of Housing and Ph. D. Advisor  
Apparel, Housing & Resource Management  
Virginia Tech

Page 1 - Question 1 - Choice - One Answer (Bullets)

[Mandatory]

What is your age?

- 55 or over
- Below 55 [Screen Out]

Page 2 - Question 2 - Choice - One Answer (Bullets)

[Mandatory]

Are you living in a single-family detached/attached housing?

- Yes [Screen Out]
- No

Page 3 - Question 3 - Choice - One Answer (Bullets)

[Mandatory]

Are you living in a townhouse?

- Yes [Screen Out]
- No

Page 4 - Question 4 - Choice - One Answer (Bullets)

[Mandatory]

Are you living in a mobile home?

- Yes [Screen Out]
- No

Page 5 - Question 5 - Choice - One Answer (Bullets)

[Mandatory]

Are you living in multifamily housing such as an apartment, condominium or cooperative?

- Yes
- No [Screen Out]

Page 6 - Question 6 - Choice - One Answer (Bullets)

[Mandatory]

Do you receive any reduced rent because of where you live?

- Yes [Screen Out]
- No

Page 7 - Question 7 - Choice - One Answer (Bullets)

[Mandatory]

Are you living in age-restricted multifamily housing such as a senior retirement community, an assisted living facility or a nursing home?

- Yes [Screen Out]
- No

**[Previous Housing Characteristics]**

The following questions are about your housing situation before you moved into your current home.

Page 8 - Question 8 - Choice - One Answer (Bullets)

[Mandatory]

What type of housing did you live in before you moved into your current housing?

- Single-detached housing
  - Townhouse
  - Multifamily housing, such as an apartment, condominium or cooperative
  - Other, please specify
- 

Page 8 - Question 9 - Choice - One Answer (Bullets)

[Mandatory]

Did you own or rent your previous home?

- Own
  - Rent
  - Other, please specify
- 

Page 8 - Question 10 - Choice - One Answer (Bullets)

[Mandatory]

How long did you live in your previous home?

- Less than 2 years
- 3-5 years
- 6-15 years
- 16-25 years
- More than 26 years

Page 8 - Question 11 - Choice - One Answer (Bullets)

[Mandatory]

How many bedrooms were in your previous home?

- 1
- 2
- 3
- 4
- 5
- More than 6

**[Previous Demographic Characteristics]**

The following questions are about your personal situation when you moved into your current housing.

Page 9 - Question 12 - Open Ended - Comments Box

[Mandatory]

How old were you at the time you moved into your current housing?

---

Page 9 - Question 13 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes your marital status at the time you moved into your current housing?

- Married
  - Widowed
  - Divorced
  - Separated
  - Never married
  - Other, please specify
- 

Page 9 - Question 14 - Choice - One Answer (Bullets)

[Mandatory]

How many people lived in your previous home, including you?

- 1
- 2
- 3
- 4
- 5
- 6
- More than 7

Page 9 - Question 15 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes your health at the time you moved into your current housing?

- Very poor
- Poor
- Fair
- Good
- Very Good

Page 9 - Question 16 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes your employment status at the time you moved into your current housing?

- Employed or self-employed full-time
- Employed or self-employed part-time
- Retired and employed (or self-employed) part-time
- Retired and not working
- Unemployed

Page 9 - Question 17 - Choice - One Answer (Bullets)

[Mandatory]

How much was your total household income, including pension, retirement benefits, social security or investments, per year at the time you moved into your current housing?

- Under \$25,000
- \$ 25,000 to \$49,999
- \$ 50,000 to \$74,999
- \$ 75,000 to \$99,999
- \$ 100,000 to \$124,999
- \$ 125,000 to \$149,999
- \$150,000 or above

### [Reasons of Moving into your Current Housing]

The following questions are about your reasons for moving into your current housing.

*How important were the following reasons in your decision to move into your current apartment, condominium or cooperative?*

#### Page 10 - Question 18 - Rating Scale - Matrix

	Very Unimportant	Unimportant	Neither Unimportant nor Important	Important	Very Important
1. Healthy environment (clean air, water, etc)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
2. Design of the floor plan	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
3. Close to parks and natural areas	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
4. Close to grandchildren	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
5. Reasonable cost of my new home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
6. Owning my own home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
7. People of different ages live in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
8. My family can assist me when needed	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
9. Good weather in the area	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
10. Renting a home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
11. Size of my new home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
12. Close to restaurants	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
13. Low maintenance living	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
14. Close to public transportation	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
15. Amount of storage in my new home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

#### Page 11 - Question 19 - Rating Scale – Matrix (Continued)

16. Security in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
17. Living downtown	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
18. Outdoor activities in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
19. Living in a small town	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
20. Quality of the materials and finishes in my new home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
21. Socializing with family and friends	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
22. Good neighborhood	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
23. Close to places for outdoor recreation	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
24. Close to shopping areas	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
25. Close to doctors' offices and hospitals	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
26. The management team at the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
27. Elevator in my building	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
28. Loss of my spouse/partner	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
29. Attractive exterior appearance of the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
30. Close to entertainment and cultural attractions	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

#### Page 12 - Question 20 - Rating Scale – Matrix (Continued)

31. Change of my financial status	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
32. Business center in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

33. Becoming an empty nester	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
34. Concierge service in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
35. Convenient parking in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
36. My/ or my spouse/partner's retirement	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
37. Living in a larger town	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
38. Reasonable cost of living in the area	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
39. Close to work	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
40. Change of my marital status	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
41. Distance to an airport	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
42. Club house in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
43. Close to my place of worship	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
44. Quality of the kitchen and/or laundry appliances in my new home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
45. Type of management services in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
46. Fitness center in the community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

### [Current Housing Characteristics]

Now tell me about your CURRENT housing situation.

Page 13 - Question 21 - Choice - One Answer (Bullets)

[Mandatory]

Are you \_\_\_\_\_?

- An Owner
- A Renter
- Other, please specify

Page 13 - Question 22 - Choice - One Answer (Bullets)

[Mandatory]

How much do you spend on your housing each month? This would include: utilities (gas, power, heat, water/sewer/trash, cable/ satellite TV), rent or mortgage payment, renters' insurance, homeowners' insurance, and homeowners' association fees.

- less than \$500
- \$500 to \$999
- \$1,000 to \$1,499
- \$1,500 to \$1,999
- \$2,000 to \$2,499
- \$2,500 to \$2,999
- \$3,000 or over

Page 13 - Question 23 - Choice - One Answer (Bullets)

[Mandatory]

Is this your primary residence?

- Yes. This is my primary residence.
- No. This is my secondary residence.
- Other, please specify

Page 13 - Question 24 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes the location of your home?

- Rural area
- Small town
- City suburb
- City downtown

Page 13 - Question 25 - Choice - One Answer (Bullets)

[Mandatory]

How long have you lived in your current home?

- Less than a year
- 1-2 years
- 3-5 years
- 6-15 years
- More than 16 years

Page 13 - Question 26 - Choice - One Answer (Bullets)

[Mandatory]

Is there an elevator for residents to use in your multifamily housing building?

- Yes
- No

Page 13 - Question 27 - Choice - One Answer (Bullets)

[Mandatory]

When was the construction of your multifamily housing community completed?

- Before 1991
- After 1991
- Don't know

Page 13 - Question 28 - Choice - One Answer (Bullets)

[Mandatory]

How many bedrooms are in your current home?

- 1
- 2
- 3
- More than 4

**[Satisfaction with Current Housing]**

The following questions are about your satisfaction with (1) your current housing unit, (2) your multifamily housing community, and (3) the local area where you currently live.

Page 14 - Question 29 - Rating Scale - Matrix

[Mandatory]

The following questions are about your satisfaction with your current housing unit.  
*To what extent are you satisfied or dissatisfied with the following aspects of your current housing unit?*

	Very Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Very Satisfied
Monthly costs of your housing unit	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Feeling of privacy (e.g., noise)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Size and the number of bedrooms	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Size and the number of bathrooms	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Amount of storage space	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Universal design features (e.g., wide doors and lever door handle)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Layout/floor plan	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Finishing materials	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Kitchen and/or laundry appliances	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 14 - Question 30 - Choice - One Answer (Bullets)

[Mandatory]

Do you have balcony or patio?

- Yes [Skip to Page 15]
- No [Skip to Page 16]

Page 15 - Question 31 - Rating Scale - Matrix

[Mandatory]

To what extent are you satisfied or dissatisfied with your balcony or patio?

Very Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 16 - Question 32 - Rating Scale - Matrix

What is your overall satisfaction with your housing unit?

Very Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

**[Satisfaction with Multifamily Housing Community Amenities and Services]**

Page 17 - Question 33 - Rating Scale - Matrix

[Mandatory]

The following questions are about your satisfaction with your current multifamily housing community amenities and services.

*To what extent are you satisfied or dissatisfied with the following aspects of your current multifamily housing community amenities and services?*

	Very Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very Satisfied
Safety and security of your multifamily housing community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Relationships with your neighbors	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Living with people of different ages	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Professionalism of your property manager	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Maintenance services of your multifamily housing community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Exterior design of your multifamily housing community	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Parking	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 17 - Question 34 - Choice - One Answer (Bullets)

[Mandatory]

Do you have an elevator in your current multifamily housing community?

- Yes [Skip to Page 18]
- No [Skip to Page 19]

Page 18 - Question 35 - Rating Scale - Matrix

[Mandatory]

To what extent are you satisfied or dissatisfied with the elevator?

Very Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 19 - Question 36 - Choice - One Answer (Bullets)

[Mandatory]

Do you have a clubhouse or community center in your current multifamily housing community?

- Yes [Skip to Page 20]
- No [Skip to Page 21]

Page 20 - Question 37 - Rating Scale - Matrix

[Mandatory]

To what extent are you satisfied or dissatisfied with the clubhouse or community center?

Very Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 21 - Question 38 - Choice - One Answer (Bullets) [Mandatory]

Do you have a fitness center in your current multifamily housing community?

- Yes [Skip to Page 22]
- No [Skip to Page 23]

Page 22 - Question 39 - Rating Scale - Matrix

To what extent are you satisfied or dissatisfied with the fitness center?

Very Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 23 - Question 40 - Choice - One Answer (Bullets) [Mandatory]

Do you have a business center / library in your current multifamily housing community?

- Yes [Skip to Page 24]
- No [Skip to Page 25]

Page 24 - Question 41 - Rating Scale - Matrix [Mandatory]

To what extent are you satisfied or dissatisfied with the business center / library?

Very Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 25 - Question 42 - Choice - One Answer (Bullets) [Mandatory]

Do you have concierge services in your current multifamily housing community?

- Yes [Skip to Page 26]
- No [Skip to Page 27]

Page 26 - Question 43 - Rating Scale - Matrix

To what extent are you satisfied or dissatisfied with the concierge services?

Very Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 27 - Question 44 - Choice - One Answer (Bullets) [Mandatory]

Do you have pool in your current multifamily housing community?

- Yes [Skip to Page 28]
- No [Skip to Page 29]

Page 28 - Question 45 - Rating Scale - Matrix

To what extent are you satisfied or dissatisfied with the pool?

Very Dissatisfied

Dissatisfied

Neither Dissatisfied  
nor Satisfied

Satisfied

Very Satisfied

1

2

3

4

5

Page 29 - Question 46 - Choice - One Answer (Bullets)

[Mandatory]

Do you have outdoor activity areas (e.g., picnic area, tennis court) in your current multifamily housing community?

- Yes [Skip to Page 30]
- No [Skip to Page 31]

Page 30 - Question 47 - Rating Scale - Matrix

[Mandatory]

To what extent are you satisfied or dissatisfied with the outdoor activity areas?

Very dissatisfied

Dissatisfied

Neither dissatisfied  
nor satisfied

Satisfied

Very satisfied

1

2

3

4

5

Page 31 - Question 48 - Choice - One Answer (Bullets)

[Mandatory]

Do you have walking trail in your current multifamily housing community?

- Yes [Skip to Page 32]
- No [Skip to Page 33]

Page 32 - Question 49 - Rating Scale - Matrix

[Mandatory]

To what extent are you satisfied or dissatisfied with the walking trail?

Very dissatisfied

Dissatisfied

Neither dissatisfied  
nor satisfied

Satisfied

Very satisfied

1

2

3

4

5

Page 33 - Question 50 - Choice - One Answer (Bullets)

[Mandatory]

Do you have activity and social programs of your multifamily housing community?

- Yes [Skip to Page 34]
- No [Skip to Page 35]

Page 34 - Question 51 - Rating Scale - Matrix

To what extent are you satisfied or dissatisfied with the activity and social programs?

Very dissatisfied

Dissatisfied

Neither dissatisfied  
nor satisfied

Satisfied

Very satisfied

1

2

3

4

5

What is your overall satisfaction with your multifamily housing community?

Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

### [Satisfaction with Local Area]

The following 14 questions are about your satisfaction with the local area where you currently live. To what extent are you satisfied or dissatisfied with the following aspects of the local area where you currently live?

	Very Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very Satisfied
Safety and security of the local area	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Walkable streets	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Climate in your local area	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Cost of living in your local area	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to family and friends	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to work places	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to restaurants	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to shopping areas	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to cultural attractions	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to public transportation	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to colleges and universities	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to medical centers	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to outdoor recreation	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Close to natural areas	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

What is your overall satisfaction with your local area?

Very Dissatisfied	Dissatisfied	Neither Dissatisfied nor Satisfied	Satisfied	Very Satisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

### [Future Housing Plans]

The following questions are about your preferences and plans for housing in the future.

Do you agree or disagree with the following statements? I would not consider moving from my current home in the future.

Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 39 - Question 56 - Rating Scale - Matrix

[Mandatory]

Do you agree or disagree with the following statements? I might consider moving from my current home in the future.

Strongly disagree [Skip to Page 43]	Disagree [Skip to Page 43]	Neither Disagree nor Agree [Skip to Page 43]	Agree [Skip to Page 40]	Strongly Agree [Skip to Page 40]
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 40 - Question 57 - Rating Scale - Matrix

[Mandatory]

Do you agree or disagree with the following statements? I am currently considering moving from my current home.

Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Page 41 - Question 58 - Open Ended - Comments Box

[Mandatory]

If you agreed or strongly agreed with "I might consider moving" or "I am currently considering moving," what would be your main reasons for deciding to move? Please specify.

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Page 42 - Question 59 - Rating Scale - Matrix

[Mandatory]

If you agreed or strongly agreed with "I might consider moving" or "I am currently considering moving," to what extent do you agree or disagree with the stated housing preferences below?

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
I would like to live in a single-family, detached house	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to live in a townhouse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to live in multifamily housing	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to rent my next home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to own my next home	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to move into a housing community with people of all ages	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to move into a housing community marketed to people age 55 and over	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to move into a housing community that only allows people age 55 and over to live there	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to move into a housing community with services that will help me with some of my daily activities, like housekeeping	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
I would like to move into a housing community that will help me with some of my daily activities and supervise my medications	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

- |   |                         |                         |                         |                         |                         |
|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| I would like to move into a housing community with medical services provided by nursing staff 24 hours a day                      | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 |
| I would like to move into a housing community that provides a continuum of care services, from independent living to nursing care | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 |

**[Current Demographic Characteristics]**

In order to understand your situation and preferences, information about you is needed. The following questions are your current situation.

Page 43 - Question 60 - Open Ended - Comments Box [Mandatory]

How old are you?

Page 43 - Question 61 - Choice - One Answer (Bullets) [Mandatory]

Are you:

- Male
- Female

Page 43 - Question 62 - Choice - One Answer (Bullets) [Mandatory]

Which best describes your marital status?

- Married
- Widowed
- Divorced
- Separated
- Never married
- Other, please specify

Page 43 - Question 63 - Choice - One Answer (Bullets) [Mandatory]

How many people live in your home including you?

- 1
- 2
- 3
- 4
- 5
- 6
- More than 7

Page 43 - Question 64 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes your health?

- Very Poor
- Poor
- Fair
- Good
- Very Good

Page 43 - Question 65 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes your employment status?

- Employed or self-employed full-time
- Employed or self-employed part-time
- Retired and employed (or self-employed) part-time
- Retired and not working
- Unemployed

Page 43 - Question 66 - Choice - One Answer (Bullets)

[Mandatory]

Which best describes your level of education?

- Less than high school education
- High school diploma
- Technical school / Some college
- College degree
- Graduate degree or higher

Page 43 - Question 67 - Choice - One Answer (Bullets)

[Mandatory]

How much is your total household income per year including pension, retirement benefits, social security or investments per year currently?

- Under \$25,000
- \$ 25,000 to \$49,999
- \$ 50,000 to \$74,999
- \$ 75,000 to \$99,999
- \$ 100,000 to \$124,999
- \$ 125,000 to \$149,999
- \$150,000 or above

**Thank you for participating in this survey.**

APPENDIX B: HUMAN SUBJECT APPROVAL LETTER



**MEMORANDUM**

**DATE:** January 30, 2012

**TO:** Julia O. Beamish, Hyun Joo Kwon

**FROM:** Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)

**PROTOCOL TITLE:** Housing Behavior of Older Adults in Multifamily Housing

**IRB NUMBER:** 11-1025

Effective January 27, 2012, the Virginia Tech IRB Chair, Dr. David M. Moore, approved the amendment request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at <http://www.irb.vt.edu/pages/responsibilities.htm> (please review before the commencement of your research).

**PROTOCOL INFORMATION:**

Approved as: **Exempt, under 45 CFR 46.101(b) category(ies) 2**

Protocol Approval Date: **11/29/2011**

Protocol Expiration Date: **NA**

Continuing Review Due Date\*: **NA**

\*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

**FEDERALLY FUNDED RESEARCH REQUIREMENTS:**

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals / work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

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## APPENDIX C: DESCRIPTIVE STATISTICS

Table C1.

*Descriptive Statistics: Reasons for Moving into Current Housing (n = 431)*

Reasons for Moving into the Current Housing Items	<i>M</i>	<i>SD</i>
RM-22. Good neighborhood	4.09	.889
RM-5. Reasonable cost of my new home	3.91	1.123
RM-16. Security in the community	3.90	.922
RM-13. Low maintenance living	3.83	1.078
RM-24. Close to shopping areas	3.73	.978
RM-2. Design of the floor plan	3.73	1.029
RM-38. Reasonable cost of living in the area	3.64	1.058
RM-25. Close to doctors' offices and hospitals	3.55	1.062
RM-1. Healthy environment (clean air, water, etc)	3.55	1.109
RM-11. Size of my new home	3.54	1.035
RM-44. Quality of the kitchen and/or laundry appliances in my new home	3.51	1.118
RM-29. Attractive exterior appearance of the community	3.46	1.077
RM-35. Convenient parking in the community	3.40	1.279
RM-21. Socializing with family and friends	3.31	1.207
RM-15. Amount of storage in my new home	3.28	1.109
RM-31. Change in my financial status	3.27	1.146
RM-20. Quality of the materials and finishes in my new home	3.17	1.095
RM-26. The management team at the community	3.16	1.169
RM-9. Good weather in the area	3.13	1.182
RM-45. Type of management services in the community	3.13	1.190
RM-30. Close to entertainment and cultural attractions	3.10	1.129
RM-14. Close to public transportation	3.10	1.342
RM-3. Close to parks and natural areas	3.09	1.002
RM-23. Close to places for outdoor recreation	3.05	1.095
RM-12. Close to restaurants	2.95	1.129
RM-7. People of different ages live in the community	2.93	1.165
RM-18. Outdoor activities in the community	2.71	1.067
RM-10. Renting a home	2.71	1.392
RM-39. Close to work	2.61	1.434
RM-19. Living in a small town	2.57	1.201
RM-43. Close to my place of worship	2.57	1.305
RM-8. My family can assist me when needed	2.56	1.340
RM-6. Owning my own home	2.54	1.490
RM-32. Business center in the community	2.53	1.049
RM-4. Close to grandchildren	2.44	1.431
RM-36. My/ or my spouse/partner's retirement	2.44	1.364

Reasons for Moving into the Current Housing Items	<i>M</i>	<i>SD</i>
RM-27. Elevator in my building	2.42	1.492
RM-46. Fitness center in the community	2.40	1.233
RM-17. Living downtown	2.37	1.148
RM-33. Becoming an empty nester	2.29	1.169
RM-37. Living in a larger town	2.27	1.148
RM-41. Distance to an airport	2.17	1.153
RM-40. Change in my marital status	2.16	1.368
RM-42. Club house in the community	2.13	1.164
RM-28. Loss of my spouse/partner	2.09	1.371
RM-34. Concierge service in the community	2.00	1.054

Table C2.

*Current Socio-economic Profile of the Respondents who Intent to Move in the Future (N=224)*

Current Socio-economic Characteristics	Frequency (n)	Percent (%)
<b>Age</b>		
55 to 64 years	115	51
65 to 74 years	64	29
75 years or older	45	20
<b>Gender</b>		
Male	109	49
Female	115	51
<b>Marital Status</b>		
Married	81	36
Widowed	21	9
Divorced	77	34
Separated	3	1
Never married	35	16
Other (please specify)	7	3
<b>Household Size</b>		
1	107	48
2	102	46
More than 3	15	6
<b>Health Status</b>		
Very poor	2	1
Poor	18	8
Fair	60	27
Good	100	45
Very Good	44	20
<b>Employment Status</b>		
Employed or self-employed full-time	48	21
Employed or self-employed part-time	22	10
Retired and employed (or self-employed) part-time	16	7
Retired and not working	127	57
Unemployed	11	5
<b>Education Level</b>		
Less than high school diploma	4	2
High school diploma	33	15
Technical school /Some college	68	30
College degree	71	32
Graduate degree or higher	48	21
<b>Income</b>		
Under \$ 25,000	56	25
\$ 25,000 to \$ 49,999	72	32
\$ 50,000 to \$ 74,999	53	24
\$ 75,000 or above	44	19

Table C3.

*Current Housing Profile of the Respondents who Intent to Move in the Future (N=224)*

Current Housing Characteristics	Frequency (n)	Percent (%)
Tenure type		
Own	31	27
Rent	162	73
Other	1	0
Monthly Housing Cost		
Less than \$500	24	11
\$500 to \$999	110	49
\$1,000 to \$1,499	52	23
\$1,500 to \$1,999	21	9
\$2,000 to \$2,499	12	5
\$2,500 or over	5	2
Primary residence		
Yes	220	98
No, secondary residence	4	2
Location		
Rural area	6	3
Small town	54	24
City suburb	114	51
City	50	22
Length in current dwelling		
Less than a year	29	13
1-2 years	33	15
3-5 years	38	17
6-15 years	74	33
More than 16 years	50	22
Presence of an elevator		
Yes	51	23
No	173	77
Year of construction		
Before 1991	154	69
After 1991	41	18
Don' know	29	13
Number of bedrooms		
1	78	35
2	108	48
More than 3	38	17

## APPENDIX D: COVARIANCE MATIRIX OF MEASUREMENT MODEL

	RM2	RM3	RM5	RM13	RM14	RM20	RM23	RM24	RM25	RM26	RM29	RM30	RM31	RM35	RM38	RM44	RM45	H3rm	H4brm	H5strg
RM2	1.06																			
RM3	0.51	1.00																		
RM5	0.29	0.13	1.26																	
RM13	0.33	0.19	0.43	1.16																
RM14	0.23	0.44	0.26	0.33	1.80															
RM20	0.53	0.37	0.25	0.30	0.14	1.20														
RM23	0.35	0.68	0.20	0.25	0.45	0.43	1.20													
RM24	0.37	0.35	0.29	0.42	0.46	0.37	0.44	0.96												
RM25	0.38	0.38	0.25	0.45	0.42	0.49	0.52	0.68	1.13											
RM26	0.50	0.35	0.29	0.40	0.36	0.66	0.39	0.40	0.51	1.37										
RM29	0.55	0.35	0.30	0.39	0.29	0.63	0.42	0.50	0.54	0.69	1.16									
RM30	0.35	0.46	0.22	0.29	0.61	0.45	0.64	0.60	0.54	0.47	0.65	1.28								
RM31	0.14	0.11	0.26	0.32	0.25	0.18	0.16	0.15	0.21	0.25	0.20	0.13	1.31							
RM35	0.44	0.19	0.15	0.31	0.03	0.54	0.25	0.36	0.43	0.52	0.56	0.45	0.20	1.64						
RM38	0.39	0.17	0.46	0.54	0.26	0.41	0.27	0.33	0.34	0.48	0.45	0.24	0.41	0.34	1.12					
RM44	0.44	0.24	0.28	0.40	0.14	0.69	0.28	0.40	0.52	0.63	0.70	0.43	0.18	0.54	0.48	1.25				
RM45	0.44	0.30	0.33	0.48	0.17	0.66	0.37	0.38	0.52	0.97	0.71	0.46	0.20	0.61	0.43	0.76	1.42			
H3rm	0.21	0.06	0.14	0.15	0.05	0.17	0.09	0.15	0.12	0.20	0.19	0.10	-0.03	0.18	0.15	0.24	0.23	0.89		
H4brm	0.26	0.07	0.13	0.16	0.08	0.24	0.10	0.21	0.12	0.21	0.21	0.17	0.01	0.22	0.15	0.24	0.22	0.63	0.89	
H5strg	0.18	0.05	0.11	0.05	0.04	0.15	0.08	0.14	0.06	0.09	0.08	0.07	-0.05	0.08	0.06	0.07	0.06	0.55	0.51	1.22
H6ud	0.20	0.13	0.12	0.16	0.01	0.28	0.16	0.19	0.17	0.27	0.22	0.09	0.05	0.20	0.13	0.20	0.24	0.36	0.44	0.44
H7flo	0.32	0.14	0.16	0.17	-0.02	0.28	0.12	0.19	0.14	0.24	0.27	0.13	0.01	0.24	0.20	0.27	0.24	0.48	0.50	0.49
H8fnsh	0.29	0.16	0.12	0.20	0.00	0.32	0.13	0.17	0.19	0.29	0.30	0.13	-0.02	0.20	0.22	0.30	0.31	0.39	0.42	0.36
H9appl	0.28	0.15	0.10	0.20	-0.01	0.32	0.14	0.17	0.21	0.30	0.29	0.10	-0.03	0.26	0.22	0.38	0.33	0.46	0.50	0.35
A1cost	0.17	0.11	0.11	0.22	0.06	0.20	0.18	0.18	0.18	0.21	0.27	0.22	-0.04	0.14	0.09	0.19	0.22	0.28	0.28	0.24
A2nei	0.13	0.08	0.01	0.10	0.08	0.15	0.12	0.05	0.16	0.15	0.14	0.11	-0.08	0.09	0.09	0.12	0.07	0.23	0.19	0.22
A3gen	0.18	0.12	0.07	0.14	0.24	0.17	0.17	0.16	0.22	0.18	0.18	0.22	-0.02	0.15	0.13	0.19	0.13	0.22	0.22	0.23
A4mng	0.21	0.06	0.12	0.15	0.03	0.19	0.10	0.12	0.18	0.32	0.27	0.13	0.00	0.17	0.09	0.24	0.35	0.33	0.33	0.23
A5mnt	0.19	0.06	0.03	0.21	0.01	0.15	0.06	0.17	0.19	0.26	0.26	0.14	-0.06	0.22	0.05	0.23	0.35	0.36	0.38	0.24
A6ext	0.24	0.10	0.05	0.16	-0.05	0.29	0.10	0.17	0.18	0.25	0.34	0.19	-0.06	0.28	0.09	0.27	0.25	0.33	0.40	0.27
L6wrk	0.03	0.09	0.02	0.00	0.07	0.00	0.11	0.02	-0.04	0.02	0.04	0.09	0.00	0.02	0.05	0.00	-0.08	0.10	0.11	0.17
L7rst	0.19	0.19	0.08	0.11	0.08	0.17	0.16	0.27	0.18	0.14	0.23	0.31	0.00	0.21	0.13	0.15	0.10	0.20	0.21	0.19
L8shp	0.21	0.15	0.10	0.16	0.11	0.17	0.14	0.34	0.23	0.20	0.23	0.29	0.00	0.17	0.15	0.21	0.15	0.22	0.26	0.22
L9cu1	0.24	0.30	0.08	0.09	0.19	0.19	0.27	0.25	0.19	0.16	0.21	0.44	-0.05	0.19	0.09	0.11	0.09	0.17	0.23	0.22
L10ptrn	0.09	0.15	0.07	0.08	0.63	0.02	0.18	0.18	0.16	0.09	0.10	0.32	-0.05	-0.05	0.04	0.01	-0.01	0.18	0.16	0.23
L11univ	0.17	0.17	0.13	0.14	0.18	0.13	0.16	0.17	0.12	0.11	0.19	0.33	-0.05	0.14	0.11	0.11	0.03	0.13	0.14	0.10
L12med	0.20	0.19	0.09	0.16	0.14	0.20	0.18	0.25	0.35	0.15	0.24	0.30	-0.05	0.21	0.10	0.22	0.16	0.21	0.16	0.11
L13out	0.25	0.37	0.14	0.15	0.11	0.25	0.46	0.20	0.22	0.19	0.23	0.30	-0.07	0.15	0.14	0.16	0.13	0.21	0.17	0.19
L14nat	0.26	0.38	0.15	0.10	0.02	0.24	0.41	0.15	0.18	0.18	0.21	0.23	-0.01	0.19	0.08	0.16	0.15	0.22	0.19	0.17
InMV2	-0.05	-0.02	0.10	0.06	-0.03	-0.02	-0.02	0.04	0.15	-0.07	-0.09	-0.08	0.13	-0.05	0.04	-0.03	-0.13	-0.28	-0.22	-0.22
R_MV1	-0.18	-0.10	-0.03	-0.13	-0.13	-0.15	-0.16	-0.17	-0.05	-0.20	-0.17	-0.17	0.09	-0.10	-0.17	-0.18	-0.17	-0.45	-0.36	-0.42

(figure continues)

Figure D. Covariance Matrix of Measurement Model

	H6ud	H7f1o	H8fnsh	H9appl	A1cost	A2nei	A3gen	A4mng	A5mnt	A6ext	L6wrk	L7rst	L8shp	L9cul	L10ptrn	L11univ	L12med	L13out	L14nat	InMV2	R_MV1	
RM2																						
RM3																						
RM5																						
RM13																						
RM14																						
RM20																						
RM23																						
RM24																						
RM25																						
RM26																						
RM29																						
RM30																						
RM31																						
RM35																						
RM38																						
RM44																						
RM45																						
H3rm																						
H4brm																						
H5strg																						
H6ud	0.97																					
H7f1o	0.53	0.78																				
H8fnsh	0.54	0.58	0.98																			
H9appl	0.52	0.52	0.67	1.01																		
A1cost	0.27	0.29	0.36	0.37	0.79																	
A2nei	0.23	0.24	0.33	0.29	0.36	0.84																
A3gen	0.21	0.23	0.25	0.25	0.30	0.47	0.67															
A4mng	0.30	0.29	0.42	0.45	0.42	0.41	0.33	1.07														
A5mnt	0.32	0.33	0.44	0.49	0.41	0.40	0.32	0.81	1.12													
A6ext	0.39	0.40	0.49	0.49	0.39	0.33	0.30	0.54	0.61	0.86												
L6wrk	0.11	0.12	0.17	0.16	0.10	0.15	0.18	0.19	0.14	0.14	1.04											
L7rst	0.20	0.25	0.24	0.27	0.25	0.25	0.29	0.28	0.27	0.33	0.35	0.70										
L8shp	0.21	0.24	0.25	0.25	0.24	0.23	0.29	0.27	0.29	0.34	0.28	0.58	0.74									
L9cul	0.22	0.28	0.29	0.28	0.25	0.28	0.30	0.28	0.30	0.31	0.36	0.54	0.52	0.94								
L10ptrn	0.08	0.18	0.12	0.14	0.20	0.21	0.27	0.22	0.20	0.18	0.31	0.33	0.33	0.46	1.12							
L11univ	0.10	0.17	0.23	0.23	0.22	0.23	0.24	0.20	0.19	0.26	0.48	0.45	0.41	0.62	0.55	1.12						
L12med	0.11	0.18	0.22	0.18	0.25	0.27	0.29	0.25	0.26	0.22	0.22	0.38	0.41	0.43	0.40	0.53	0.82					
L13out	0.17	0.24	0.30	0.31	0.28	0.32	0.27	0.30	0.28	0.34	0.42	0.46	0.44	0.55	0.41	0.57	0.45	0.99				
L14nat	0.16	0.24	0.30	0.31	0.25	0.30	0.25	0.34	0.30	0.33	0.29	0.37	0.35	0.48	0.34	0.48	0.39	0.80	0.99			
InMV2	-0.20	-0.22	-0.32	-0.27	-0.24	-0.30	-0.17	-0.31	-0.30	-0.31	-0.06	-0.18	-0.13	-0.11	-0.09	-0.08	-0.08	-0.07	-0.08	1.43		
R_MV1	-0.31	-0.42	-0.48	-0.43	-0.33	-0.42	-0.26	-0.47	-0.45	-0.43	-0.14	-0.19	-0.18	-0.22	-0.21	-0.22	-0.14	-0.24	-0.25	0.98	1.66	

Figure D. Covariance Matrix of Measurement Model (continued)