

Housing Challenges of Asian and Pacific Island Elders  
in the United States from 1995 to 2007

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ABSTRACT

Limited government supports under the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 could cause low-income immigrants to struggle with housing affordability. Thus, this study examined housing challenges of Asian and Pacific Island elders, focusing on government assistance, and demographic, housing, and neighborhood characteristics. The research framework was based on the theory of housing adjustment (Morris & Winter, 1975, 1978). When investigating housing challenges, housing satisfaction was considered a representative term, as the dependent variable. The sample was Asian and Pacific Island households with a head 65+ who responded to the American Housing Survey (AHS) from 1995 through 2007 ( $N = 1,039$ ). Asian and Pacific Island elders included those who lived in the U.S. for a long time as well as recent immigrants. Several statistical methods were employed: descriptive statistics, one-way ANOVA, Pearson correlation, crosstabs, multiple regression, and simple regression.

Overall housing satisfaction level of the sample tended to be high from 1995 to 2007. However, there was no statistically significant impact of the PRWORA of 1996 on housing satisfaction and on the government assistance, and demographic, housing, and neighborhood characteristics of Asian and Pacific Island elders since 1996. Variables influencing satisfaction levels, and thus housing challenges, included qualifying for Food Stamps, education, family income, Census region, household size, housing quality, structure size, and neighborhood rating. Other significant findings included the impact of government assistance, geographical location and household size by year.

An additional value of this study are the profiles of demographic, housing, and neighborhood characteristics and government assistance of Asian and Pacific Island elders from 1995 to 2007. Data analyses with the secondary datasets can assist housing researchers, educators, nonprofit organizations, or policymakers in their future studies or policies.

*To My Parents,  
Il-ho Lee & Jung-jong Kim*

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## CHAPTER 1

### INTRODUCTION

Most immigrants to the United States (US) for family reunification emigrate primarily for economic reasons, rather than for the assumed goal of rejoining family members (Matloff, 1996). Immigration from their countries of origin to the U.S. brings financial, medical, and psychological issues. Elderly immigrants are likely to regard immigration as a more stressful life event than young people, because of multiple barriers (e.g., age, cultural and language skills). Elderly immigrants in the United States may be dependent on their families due to their ineligibility for government healthcare funds and supplementary social benefits. They also may have less savings and insurance from previous employment in their countries of origin (Gorospe, 2006).

The enactment of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 contributes to immigrants' ineligibility for government assistance, because the Act was developed in part to ensure that possible public benefits do not provide an incentive for immigration and to encourage immigrants entering the United States to be self-reliant. In particular, Title IV of PRWORA makes immigrants ineligible for primary federal welfare benefits (U.S. Government Accountability Office, 1998). Therefore, elderly immigrants, who may experience income barriers resulting from their inability to work and are ineligible for government assistance under the PRWORA of 1996, are likely to have housing affordability issues at the same time. The influence of the PRWORA on the housing environment of elderly immigrants has not been studied. Therefore, exploring their demographic and housing characteristics and the implications of the government's policy are very important in providing initial attention regarding the relationship of income and housing challenges for minority group members.

Hispanics and African Americans in the U.S. have been investigated frequently in relation to the gerontology and geriatric fields. However, Asians and Pacific Islanders are relatively less explored (Markides, 2001). Therefore, this study focuses on Asian and Pacific Island elders' housing challenges in the United States. Currently, Asian and Pacific Islanders face significant levels of housing discrimination when they search for housing in large metropolitan areas (Turner, Ross, Bednarz, Herbig, & Lee, 2003) and their homeownership rates

are lower than those of the total U.S. population (Harris & Jones, 2005). This is likely related to their typical demographic characteristics, such as limited ability to understand and speak English and limited success with conventional housing (Schoenholtz & Stanton, 2001). Also, elderly Asian immigrants in the United States experience more financial and housing challenges than younger counterparts (Yoo & Sung, 1997).

To examine the connection between demographic characteristics of Asian and Pacific Island elders and their housing situation, the American Housing National Survey (called AHS in this study) is employed in this study. The AHS is sponsored by the U.S. Department of Housing and Urban Development (USDHUD) and conducted by the U.S. Census Bureau. The AHS is the largest regularly administered national survey that describes people and their homes in the United States. It is conducted biennially (every odd-numbered year) in housing units selected from the 1980 Census of Housing and from housing units added since that census (Montfort, 1998).

#### Statement of the Problem

When exploring housing needs and environments of Asian and Pacific Island elders in the United States, Title IV of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193) can be of particular concern. The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) limits immigrants' eligibility for key federal programs, such as Temporary Assistance for Needy Families (TANF), Medicaid, Supplemental Security Income (SSI), and the Food Stamp Program. New immigrants are not allowed to receive TANF and Medicaid benefits during their first five years in the United States, and have no benefits for SSI and the Food Stamp Program until they acquire citizenship. Also, this law permits states the option of denying TANF and Medicaid eligibility to most pre-PRWORA immigrants as well as to new immigrants during their first five years of U.S. residency. In addition, the law requires that an immigrant sponsored by a relative must have the sponsor sign an affidavit of support which agrees to help the new immigrant financially (USGAO, 1998).

According to the *Center for Immigration Studies Analysis of March 2007 Current Population Survey*, 10.7% of immigrant households with a head aged 65 and over use subsidized housing, compared with 4.8% of native households with a head aged 65 and over. The poverty

rate and near poverty rates for all immigrants are 15.2% and 40.1% respectively, compared with 11.4% and 28.0% for all natives (Camarota, 2007). Therefore, such limited government support could cause many low-income immigrants to struggle with their finances to afford housing. The welfare and housing assistance systems are designed and administered separately from each other, but their recipients overlap to a substantial degree. The intersection means challenges for welfare recipients, housing and welfare advocates, administrators of both welfare and housing programs, and potential risks for the housing programs, especially in the wake of welfare reform (Sard & Daskal, 1998). For such reasons, it is important to examine Asian and Pacific Island elders' housing challenges before and after PRWORA of 1996 and to consider their housing environments in the United States. To track housing challenges, this study focuses on AHS data from 1995 through 2007. Although it has been over 10 years since the enactment of PRWORA, there has been little research on how and whether housing options for older members of these minority groups in the United States have changed during the period.

Housing satisfaction can be defined as “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). From this definition, housing satisfaction is considered as a representative term when investigating each householder's housing challenges in the United States. Therefore, this study focuses on measuring housing satisfaction which is closely related to the various housing challenges of Asian and Pacific Island elders.

### Purpose of the Study

The purpose of the study is to investigate housing challenges of Asian and Pacific Island elders, focusing on government assistance and demographic, housing, and neighborhood characteristics.

To implement the study purpose, I developed a research framework based on the housing adjustment theory (Morris & Winter, 1978) and related previous research. Independent variables in the framework consist of: (a) Government assistance variables [Food Stamps and welfare such as SSI (Supplemental Security Income), TANF (Temporary Assistance for Needy Families), AFDC (Aid to Families with Dependent Children), and others]; (b) Demographic variables [age

of head of household, education level of head of household, family income, geographic location (central city/suburban and census region), household size (number of persons in household), marital status of head of household, and sex of head of household], (c) Housing variables (housing quality, structure size, structure type, and tenure status), and (d) Neighborhood variable (neighborhood rating). The dependent variable is a housing satisfaction score. The relationships among these variables are depicted in Figure 1.

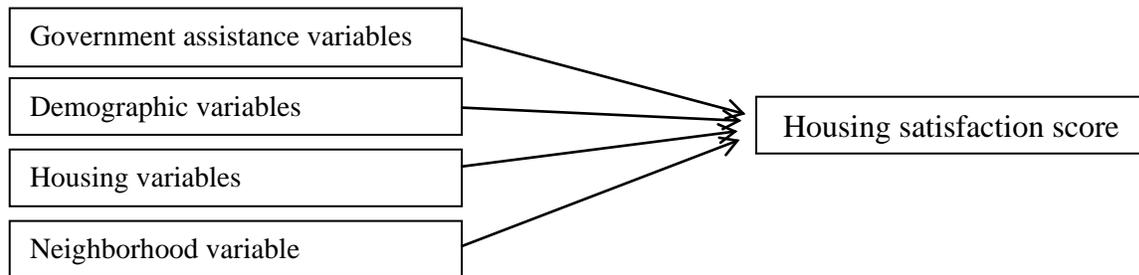


Figure 1. A simplified research framework of this study.

### Theoretical Perspective

This study is based on the theory of housing adjustment (Morris & Winter, 1975, 1978) in order to examine housing satisfaction of Asian and Pacific Island elders in the United States. The theory has been largely employed in housing research when investigating housing satisfaction, housing preferences, residential mobility, and housing decisions (Steggell, Binder, Davidson, Vega, Hutton, & Rodecap, 2003). Mainly, the theory encompasses the complex processes of American families making decisions about their housing and reveals the relationships among individual characteristics, housing, and neighborhoods within the social context (Morris & Winter, 1978). Housing norms (related to tenure status, structure type, housing space, and neighborhood) and constraints (e.g., economic resources) are important influential forces when members of a household need to decide about housing conditions and satisfaction. The constraints and values of households lead to either housing adjustment, adaptation to reduce housing deficits and problems, or continued dissatisfaction. Asian and Pacific Island elders may express different cultural norms or reveal unique demographic

characteristics which closely relate to their resources and constraints in the United States.

Government assistance under PRWORA can be regarded as a major factor which influences this group's income. These factors can influence their housing environment, which closely relates to housing challenges as measured by housing satisfaction.

### Delimitations of the Study

1. Definitions of elderly groups are various. Based on supportive housing programs for elderly people provided by the Department of Housing and Urban Development, elderly groups who are eligible for the U.S. housing programs (e.g., Section 202) refer to those who are at least 62 years old. In this study, I define elderly groups as those who are a chronological age of 65 years and over, based on the definition from World Health Organization (2009).
2. The sample of this study is limited to Asian and Pacific Island elders (with household heads aged 65 and over) who responded to the AHS from 1995 through 2007 in the United States.

### Limitations of the Study

Since the American Housing National Survey used in this study is an existing data set, four limitations can be found:

1. The variables selected for this study are limited to what is available within the AHS items.
2. The results of this study can be only generalized to the group of Asian and Pacific Island elders, not an entire population in the United States.
3. In this study, Asian and Pacific Island elders include those who have lived in the U.S. for a long time as well as recent immigrants. That means that not all such groups are immigrants. With AHS data, I had difficulty separating immigrants, naturalized citizens, and natives. AHS data has included a variable regarding U.S. citizenship only since 2001 AHS. Before 2001, there was no information related to U.S. citizenship.
4. Due to the different coding schemes in 1995 AHS and 1997 AHS and later, there was a restriction when comparing a variable in 1995 and 1997 and later. In this study, providing

related analyses for housing subsidy of Asian and Pacific Island elders would be beneficial. However, housing subsidy questions in 1995 AHS were changed in 1997 AHS and later because of significant overcounting of data (ICF Consulting, 2001). Therefore, the data related to housing subsidy cannot be directly compared from year to year because different questions led to changes in the data. If comparing different years of data, the meaning of results can be slightly different (ICF Consulting, 2001). Therefore, only descriptive statistics of housing subsidies were provided in this study.

5. The sample includes Pacific Islanders even though a large percentage of Pacific Islanders are not immigrants, rather natives (80% of this population) (Harris & Jones, 2005). From AHS 1995 through 2001, Pacific Islanders were categorized as part of a group of *Asian or Pacific Islander*. Therefore, to keep consistency of race categorization (refer to Selection of Sample in Chapter 3), the sample of this study also includes Pacific Islanders from AHS 2003 to 2007.

### Significance of the Study

The purpose of this study is to investigate housing challenges of Asian and Pacific Island elders by exploring the AHS datasets. There are several important impacts to be considered from this study.

1. This study employs seven sets of the AHS data from 1995 to 2007. However, this study is not a longitudinal study because of interview objects (i.e., when conducting the AHS, an interview is performed by tracking housing units, not persons). Rather, it can be said that the AHS uses a similar form of longitudinal interviewing in that the interviewers go back to the same housing units (i.e., by tracking *housing units*) in each interview period to record changes in the characteristics of the units and occupants. This approach allows researchers to investigate how the homes and households change over time (Montfort, 1998). The AHS is conducted biennially, which means the AHS provides more updated, time-sensitive, and accurate information than the decennial census about housing and demographic characteristics.
2. The AHS is the largest regular national sample that describes housing units and occupants in the United States (Montfort, 1998). The Asian and Pacific Island elderly

groups selected from the AHS can be regarded as a representative population of Asian and Pacific Island elderly groups in the United States and the results can be generalized to this group in the United States.

3. This study explores major federal programs under PRWORA which are closely related to constraints and resources of immigrants. Therefore, the results of this study could suggest a significant relationship between public welfare programs and housing challenges of immigrants; and a recommendation that housing programs should be co-administered with the public income-oriented programs.

### Definitions of Terms

**Asian and Pacific Islander:** A person who lives in the U.S. and whose origin is in the Asian or Pacific region: (a) Asians (Chinese, Filipino, Japanese, Asian Indian, Korean, Vietnamese, Cambodian, Hmong, Laotian, Thai, and other Asian) or (b) Pacific Islanders (Polynesian, Hawaiian, Samoan, Tongan, other Polynesian, Micronesian, Guamanian, other Micronesian, Pacific Islander, not specified) (U.S. Census Bureau, 2008).

**Elderly:** Most developed countries have regarded the chronological age of 65 years as an *elderly* or older person (World Health Organization, 2009).

**Federal program:** (a) TANF/AFDC: TANF means Temporary Assistance for Needy Families with dependent children who meet state eligibility criteria, which was previously referred to as AFDC (Aid to Families with Dependent Children). In this study, a term of TANF/AFDC was used because American Housing Survey data have included a variable using the term AFDC, instead of TANF; (b) Medicaid: Medical assistance to needy individuals who meet federal and state eligibility criteria; (c) SSI: Supplemental Security Income. Cash assistance to needy blind, disabled, or aged individuals who meet federal eligibility criteria; and (d) Food Stamps: Food assistance to needy individuals who meet federal eligibility criteria (USGAO, 1998).

**Foreign born:** Anyone who was not a U.S. citizen or a U.S. national at birth. This group includes a U.S. citizen by naturalization or not U.S. citizen (U.S. Census Bureau, n.d.)

**Housing norms:** Those which are regarded as social phenomena and social pressures on individuals and household members to live in housing with prescribed characteristics. The

prescribed characteristics include housing space, tenure, structure type, quality and neighborhood (Morris & Winter, 1998).

**Housing challenges:** Housing conditions or situations of Asian and Pacific Island elders in this study. Housing challenges were measured by housing satisfaction in this study.

**Housing 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, one item measure rating from 1 to 10 (1 is worst and 10 is best) was employed from American Housing Survey, and was addressed as *rating of unit as a place to live*.

**Immigrant:** An alien who is admitted to the U.S. as a lawful permanent resident. Immigrants are also commonly referred to permanent residents. However, the Immigration and Nationality Act (INA) generally defines an immigrant as any alien in the United States, except one who is legally admitted under specific nonimmigrant categories [INA section 101(a)(15)]. For example, an illegal alien entering the U.S. without inspection would be considered as an immigrant under the INA, but is not a permanent resident alien (U.S. Citizenship and Immigration Services, n.d.).

**Member of a minority group:** In the United States, minority groups are numerical minority group members, composed of people who share a sense of common identity and are aware of their subordinate status. Minority groups are those who suffer subordination and discrimination within society or whose subordination is based on race, ethnicity and national origin. These days, the term, *minority*, applies to various groups such as African American, Hispanics, Native Americans, and Asians (Markides, 2001).

**Not a U.S. Citizen (noncitizen):** People who do not have U.S. citizenship at the time of the survey. This category includes lawful permanent residents, temporary migrants, humanitarian migrants, or unauthorized migrants (U.S. Census Bureau, n.d.)

**U.S. Citizen:** people who were born in the U.S., Puerto Rico, or a U.S. Island Area (e.g., Guam); those having American (U.S. citizen) parent or parents at birth abroad; and foreign-born people who are U.S. citizens through naturalization (U.S. Census Bureau, n.d.).

**Value:** “General guidelines for evaluation of goals (norms). Values are *not* the norms themselves; they are much more general, and serve to organize norms which in turn govern specific behaviors and conditions” (Morris & Winter, 1978, p.41).

## CHAPTER 2

### LITERATURE REVIEW

When exploring housing challenges of Asian and Pacific Island elders in the United States, different approaches from those of other elderly groups are needed because of possible cultural barriers and financial difficulties (i.e., limited access to government programs and lower homeownership rates). Compared to younger Asian and Pacific Island groups who are more easily Americanized, aging groups who recently arrived in the United States may struggle with American culture, keeping their old culture and certain expectations of their children (e.g., filial piety in Confucianism). Elderly Asian immigrants in the United States may experience financial and housing problems because of weakened filial obligation. Traditionally, the eldest son lives together with his older parents. For example, Korean elderly people typically live with their adult children, generally with their eldest son and his family, and their daughter-in-law provides care for her husband's parents (Hurh, 1998). These elderly immigrants may have less savings and insurance from previous employment in their countries of origin (Gorospe, 2006) and be ineligible for U.S. government healthcare funds and supplementary social benefits.

This literature review provides background information of Asian and Pacific Islanders in the United States, current possible housing assistance programs for elders in the United States, and the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, theoretical background of this study, and conceptual definitions.

#### Background of Asian and Pacific Islanders in the United States

This section provides Asian and Pacific Islanders' background information including demographic profiles of Asian and Pacific Islanders in the U.S., naturalization, immigration history, cultural diversity, and housing overview. Members of the Asian and Pacific Islanders speak different languages and have different cultures and lengths of residence in the United States. In general, *Asian* means those who have origins in Far East, Southeast Asia, or the India subcontinent (Reeves & Bennett, 2003). In Census 2000, 4.2% (11.9 million people) of the U.S. total belonged to this ethnic category. Asians presented similar poverty rates (12.6%) with those of the total population (12.4%) although median incomes of Asians were higher than those of the

total population. Their homeownership rates were relatively lower at 55%, compared to the total U.S. population with 66.2%. In terms of older adults' distribution, Asians aged 65 and over composed about 8% of the Asian population in the United States while all persons aged 65 and over composed about 12% of the total U.S. population (Reeves & Bennett, 2004).

*Pacific Islanders* refer to those who have origins in Hawaii, Guam, Samoa, or other Pacific Islands (Reeves & Bennett, 2003). In Census 2000, 0.3% (861,000) of the total population belonged to this race category. Native Hawaiians, Samoans, and Guamanians accounted for 74% of the Pacific Islanders; 5% of the Pacific Islanders were 65 and older. The poverty rate of this group was 17.7%, which was much higher than 12.4% of the U.S. population. The homeownership rate of the Pacific Islanders was relatively lower with 46% in the 2000 Census, compared with 66.2% of the U.S. population (Harris & Jones, 2005). Table 1 presents the distribution of the Asian and Pacific Islanders populations in the United States.

#### *Demographic Profile*

Asian and Pacific Islanders is one of the minority groups in the United States. From this point of view, this section compares demographic profiles of persons in this group with those of non-Hispanic Whites to clarify their overall characteristics in the United States and to provide information on why and how they may eventually struggle as immigrants in the United States. As of March 2002, Asian and Pacific Islanders totaled 12.5 million persons, which represented 4.4% of the civilian noninstitutionalized population in the United States. Table 2 presents demographic profiles of Asian and Pacific Islanders in the United States. Briefly, when compared with profiles of non-Hispanic Whites, many Asian and Pacific Islanders are likely to live in the west and metropolitan areas, to comprise family-based households with larger family sizes, to have high education, and to be poor. In this section, I addressed a brief profile of Asian and Pacific Islanders, focusing on geographic distribution, age distribution, marital status, family type and size, educational levels, labor force participation, family income, and poverty status.

Half of the Asian and Pacific Islanders lived in the western United States, and the majority (95%) lived in metropolitan areas. The Asian and Pacific Islanders population was younger than non-Hispanic Whites in that 26% of the Asian and Pacific Island population was

Table 1

*Asian and Pacific Islander Populations by Detailed Group: 2000*

<sup>a</sup> Asian population by regional group: 2000		<sup>b</sup> Native Hawaiian and other Pacific Islander population by regional group: 2000	
Group	%	Group	%
Chinese	23.8	Native Hawaiian	36.8
Filipino	18.3	Samoaan	22.5
Asian Indian	16.2	Guamanian	14.6
Vietnamese	10.9	Tongan	7.3
Korean	10.5	Fijian	2.7
Japanese	7.8	Marshallese	1.5
Cambodian	1.8	Other Pacific Islander	14.6
Hmong	1.7		
Laotian	1.6		
Pakistani	1.5		
Thai	1.1		
Other Asian	4.7		

<sup>a</sup>From Reeves, T. J., & Bennett, C. E., (2004). *We the people: Asians in the United States: Census 2000 special reports*. Retrieved April 11, 2010, from <http://www.census.gov/prod/2004pubs/censr-17.pdf>.

<sup>b</sup>From Harris, P. M., & Jones, N. A. (2005). *We the people: Pacific Islanders in the United States: Census 2000 special report*. Retrieved April 11, 2010, from <http://www.census.gov/prod/2005pubs/censr-26.pdf>.

less than 18 years old, compared with 23% of non-Hispanic Whites. Only 7% of the Asian and Pacific Island population was 65 and older, compared with 14% of non-Hispanic Whites (Reeves & Bennett, 2003).

Regarding marital status and sex, divorce rates of Asian and Pacific Islanders (5%) were half of those for non-Hispanic Whites (10%); never married rates of Asian and Pacific Islanders (33%) were much higher than for non-Hispanic Whites (25%). When marital status was intersected with sex, Asian and Pacific Islander females were more likely than males to be married, widowed, separated, or divorced (Reeves & Bennett, 2003).

When considering family type and size, Asian and Pacific Islander households were more likely to be family households (73%) than non-Hispanic Whites (66%). Their family size was

Table 2

*Demographic Profile of Asian and Pacific Islanders in the United States<sup>a</sup>*

Asian and Pacific Islanders					Non-Hispanic Whites							
Geographic distribution					%					%		
	West				51.1	West				19.2		
	South				18.9	South				33.3		
	Northeast				18.6	Northeast				20.5		
	Midwest				11.5	Midwest				27.0		
Metropolitan areas				95	Metropolitan areas				78			
Age distribution	Under 18 years old				26	Under 18 years old				23		
	65 +				7	65 +				14		
Marital status by sex			Total	Male	Female			Total	Male	Female		
			%	%	%			%	%	%		
	Married		56.5	54.7	58.3	Married		57.1	59.3	55.1		
	Widowed		4.2	1.5	6.8	Widowed		6.9	2.7	10.9		
	Divorced		5.0	3.6	6.2	Divorced		10.0	8.8	11.1		
	Separated		1.4	0.9	1.8	Separated		1.5	1.3	1.6		
Never married		32.9	39.3	26.9	Never married		24.5	28.0	21.3			
Family type by size					%					%		
	Family households				73	Family households				66		
	Nonfamily households				23	Nonfamily households				34		
			2 members	3	4	5 or more			2 members	3	4	5 or more
			%	%	%	%			%	%	%	%
	Married couple		28.0	24.6	27.5	19.9	Married couple		47.0	19.7	21.2	12.1
Female householder, no spouse present		42.9	28.9	15.4	12.7	Female householder, no spouse present		54.9	29.6	10.7	4.8	
Male householder, no spouse present		56.2	24.2	11.4	8.1	Male householder, no spouse present		61.2	26.0	8.5	4.3	
Educational attainment by sex			Men			Women			Men			Women
			%			%			%			%
	Less than high school		10.5			14.5	Less than high school		11.5			11.1
	High school graduate		20.5			23.2	High school graduate		31.5			34.3
	Some college or associate degree		18.1			18.5	Some college or associate degree		25.2			27.3
Bachelor's degree or more		50.9			43.8	Bachelor's degree or more		31.7			27.3	

*(table continues)*

Table 2 (Continued)

		Asian and Pacific Islanders			Non-Hispanic Whites			
Labor force participation (by sex)		%			%			
	Labor force participation	67			66			
	Unemployment rate	6			5			
		Male		Female		Male		Female
		%		%	%		%	
	Labor force participation	75.0		59.0	Labor force participation	73.0		60.0
Managerial and professional occupation	41.0		37.2	Managerial and professional occupation	33.4		36.9	
Technical sales and administrative support occupation	22.9		33.5	Technical sales and administrative support occupation	20.2		40.2	
Precision production, craft, and repair	9.4		3.4	Precision production, craft, and repair	18.6		1.8	
Family income by family type		Married Couple	Male householder, no spouse present	Female householder, no spouse present		Married Couple	Male householder, no spouse present	Female householder, no spouse present
		%	%	%		%	%	%
	75,000 and over	44.2	31.0	17.1	\$75,000 and over	40.1	19.1	10.5
	\$50,000-\$74,999	20.6	20.5	14.0	\$50,000-\$74,999	23.5	19.5	13.5
	\$35,000-49,999	13.5	10.5	16.5	\$35,000-49,999	15.0	20.1	17.6
	\$25,000-34,999	7.4	13.2	20.4	\$25,000-34,999	9.6	16.8	17.2
	Less than \$25,000	14.3	24.8	32.0	Less than \$25,000	11.8	24.5	41.1
Poverty status by family type and by age		Married Couple	Male householder, no spouse present	Female householder, no spouse present		Married Couple	Male householder, no spouse present	Female householder, no spouse present
		%	%	%		%	%	%
	Poverty rate	6.6	9.1	14.6	Poverty rate	3.3	10.3	19.0
		Total	Male	Female		Total	Male	Female
		%	%	%		%	%	%
	Total	10.2	10.1	10.4	Total	7.8	6.9	8.8
	Under 18 years	11.5	11.5	11.4	Under 18 years	9.5	9.6	9.5
18-64	9.7	9.1	10.4	18-64	7.2	6.2	8.2	
65 +	10.2	13.8	7.4	65 +	8.1	5.2	10.2	

<sup>a</sup>From Reeves, T., & Bennett, C. (2003). *The Asian and Pacific Islander population in the United States March 2002: Population characteristics*. Retrieved April 11, 2010, from <http://www.census.gov/prod/2003pubs/p20-540.pdf>.

larger than that of non-Hispanic Whites in that 18% of Asian and Pacific Island families had five or more members, compared with 11% of non-Hispanic Whites. Thirty percent of Asian and Pacific Islanders lived in two-member families, compared with 47% of non-Hispanic Whites (Reeves & Bennett, 2003).

In educational attainment, Asian and Pacific Islanders (51% of males and 44% of females) were more likely than non-Hispanic Whites (32% of males and 27% of females) to have at least a bachelor's degree. However, at lower educational levels, the Asian and Pacific Islanders males (5%) and females (10%) were more likely than the non-Hispanic Whites males (4%) and females (4%) to have less than a ninth grade education (Reeves & Bennett, 2003).

The proportions of labor force participation and unemployment of Asian and Pacific Islanders and non-Hispanic Whites were similar (67% and 66% respectively in labor force participation; 6% and 5% unemployment rate in 2002). Asian and Pacific Island males (75%) were more likely engaged in labor force than females (59%). Asian and Pacific Islanders were more likely than non-Hispanic Whites to engage in managerial and professional specialty occupations, including managers, executives, administrators, physicians, nurses, lawyers, architects, engineers, scientists, and teachers (Reeves & Bennett, 2003).

As of 2001, Asian and Pacific Islanders were more likely to have incomes of \$75,000 or more compared to non-White Hispanics, but were also more likely to have incomes of less than \$25,000. A higher proportion of families having a male householder with no spouse present (31% of Asian and Pacific Islanders of this type) had income of \$75,000 or more per year than families with a female householder with no spouse present (17% of Asian and Pacific Islanders of this type). Thirty-two percent of Asian and Pacific Islander families with a female householder with no spouse present had incomes below \$25,000, compared with 24.8% of families with a male householder with no spouse present (Reeves & Bennett, 2003).

In terms of poverty status, Asian and Pacific Islanders (10%) were more likely than non-Hispanic Whites (8%) to be poor in the United States. Asian and Pacific Island families with a female householder with no spouse present (14.6%) were more likely to live in poverty than married couple families (6.6%) and families having a male householder (9.1%). Asian and Pacific Island elders aged 65 and older (10.2%) were more likely to be poor than non-Hispanic Whites aged 65 and older (8.1%). Asian and Pacific Island males aged 65 and older (13.8%) were more likely to live in poverty than the Asian and Pacific Island females aged 65 and older

(7.4%), and non-Hispanic Whites aged 65 and older (5.2% of males and 10.2% of females) (Reeves & Bennett, 2003).

### *Naturalization (citizenship)*

To apply for naturalization in the U.S., a foreign national must be at least 18 years of age, have been a lawful permanent residence (LPR), and have lived in the U.S. continuously for at least 5 years. Additional requirements include: (a) the ability to speak, read and write the English language, (b) knowledge of the U.S. government and history, and (c) good moral character. Spouses and children of U.S. citizens and military classes have special provisions for naturalization with law exemptions (Lee & Rytina, 2009).

To be a permanent resident (i.e., to apply for a green card), a person should meet the requirements for LPR in the U.S.: (a) be eligible for one of the immigrant categories (family, job offer or employment, refugee or asylum status, or a number of other special provisions) under the Immigration and Nationality Act (INA); (b) have a qualifying immigrant petition which is filed and approved; (c) have an immigrant visa immediately available; and (d) be admissible to the U.S. Immediate relatives of a U.S. citizen (e.g., parents of a U.S. citizen, spouses of a U.S. citizen, and unmarried children under the age of 21 of a U.S. citizen) are given the highest immigration priority. However, Congress has set a limited numbers of visas which can be used every year for other immigration categories, except immediate relatives of a U.S. citizen and other exceptions (U.S. Citizenship and Immigration Services, 2009).

When exploring relationships between the Asian and Pacific Islanders and the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), a key criterion in relation to immigrants' eligibility of public assistance is naturalization (i.e., obtaining citizenship). The three main provisions of the PRWORA of 1996 were: (a) pre-PRWORA immigrants who arrived in the United States before August 22, 1996, were ineligible for some benefits (e.g., Food Stamps) until they had citizenship, (b) new immigrants entering after August 22, 1996 are prohibited from receiving most types of public benefits until they become the U.S. citizens, and (c) those entering after the Law are subject to stricter deeming regulations, which implies that the income and assets of the immigrant's sponsor will be considered a part of the immigrant's application for public supports (the deeming period can last up to 10 years) (USGAO, 1998; Borjas, 2002). Borjas (2002) claimed that immigrants became citizens merely

because naturalization is a requirement to receive welfare benefits. From a report, *Naturalization in the United States: 2008*, during the mid-1990s, U.S. naturalization rates rose sharply (i.e., numbers of persons naturalized in the U.S. in 1996 surpassed those in other years) because of: (a) the 2.7 million undocumented immigrants legalized under the Immigration Reform and Control Act (IRCA) of 1986 to be eligible for citizenship, (b) legislative efforts to restrict public benefits for noncitizens (i.e., PRWORA of 1996), and (c) implementation of a mandatory program requiring replacement of permanent resident cards (Lee & Rytina, 2009; U.S. Department of Homeland Security, 2006).

Historically, Asia was the leading region of origin of new citizens in every year from 1976 through 2006, except 1996 to 2000 when IRCA legalized immigrants (i.e., 90% of whom were from North American countries) naturalized in large numbers in the U.S. Since 2007, naturalization rates of North American-born immigrants again have exceeded those of Asian-born immigrants. Table 3 presents persons naturalized by Asia as a region of birth from 1995 to 2008. From 1995 to 1996, the percentage of persons naturalized by Asia as a region of birth had dropped almost 10%; from 1996 to 2003, the percentage had gradually increased from 29.4% to 41.5%; from 2003 to 2008, the percentage had decreased continuously from 41.5% to 30.9% (U.S. Department of Homeland Security, 2006, 2009).

Based on a study of naturalization in 2008 (Lee & Rytina, 2009), persons who were naturalized in 2008 spent a median of nine years in legal permanent resident (LPR) status before naturalizing. Asians spent a median of seven years in LPR status before naturalizing. Also, 14% of the 12,600,000 LPRs in 2008 gained LPRs before 1980, and 10% became LPRs between 1980 and 1999. Almost 76% of the 12,600,000 LPRs in 2008 obtained permanent residence in 1990 or later (26% in 1990 to 1999, 24.7% in 2000 to 2004, and 24.8% in 2005 to 2007) (Rytina, 2009).

Table 3

*Persons Naturalized by Asia as a Region of Birth and Median Years in Legal Permanent Resident Status from 1995 to 2008*

Year	Persons naturalized per year by Asia as a region of birth <sup>a,b</sup>		Persons naturalized per year in the United States <sup>a,b</sup>	Median years in legal permanent resident status <sup>c</sup> (Asia as a region of birth)
	n	%		
1995	190,205	39.0	488,088	7
1996	307,451	29.4	1,044,689	
1997	193,591	32.4	598,225	
1998	153,951	33.2	463,060	
1999	273,163	32.6	837,418	
2000	330,176	37.3	886,026	8
2001	246,516	40.7	606,259	8
2002	231,990	40.5	572,646	8
2003	191,761	41.5	462,435	8
2004	218,974	40.8	537,151	8
2005	237,724	39.3	604,280	7
2006	257,125	36.6	702,589	6
2007	238,797	36.2	660,477	6
2008	323,792	30.9	1,046,539	7

<sup>a</sup> From U.S. Department of Homeland Security. (2006). *2004 yearbook of immigration statistics*. Retrieved April 11, 2010, from <http://www.dhs.gov/xlibrary/assets/statistics/yearbook/2004/Yearbook2004.pdf>.

<sup>b</sup> From U.S. Department of Homeland Security. (2009). *2008 yearbook of immigration statistics*. Retrieved April 11, 2010, from [http://www.dhs.gov/xlibrary/assets/statistics/yearbook/2008/ois\\_yb\\_2008.pdf](http://www.dhs.gov/xlibrary/assets/statistics/yearbook/2008/ois_yb_2008.pdf).

<sup>c</sup> From Lee, J., & Rytina, N. (2009). *Naturalization in the United States: 2008*. Retrieved April 11, 2010, from [http://www.dhs.gov/xlibrary/assets/statistics/publications/natz\\_fr\\_2008.pdf](http://www.dhs.gov/xlibrary/assets/statistics/publications/natz_fr_2008.pdf).

### *Immigration History*

This section comprises a brief history of U.S. policies related to immigration and immigration history of Asian and Pacific Islanders in the U.S.

#### *A Brief History of U.S. Immigration Policies*

According to the studies of U.S. Citizenship and Immigration Services, Harvard University Library, University of San Diego, Kristina M. Perreira, U.S. Library of Congress, and the Columbia Encyclopedia (as cited in Ewing, 2008), a brief history of U.S. immigration policies can be categorized into six time periods:

(a) 1492 to 1874, a period for unrestricted immigration.

- Under the Naturalization Act of 1790, the U.S. government attempted to shape uniformity among the states in the rules which controlled who could become a U.S. citizen.
- The Alien and Sedition Acts of 1798 was the first federal law which was directly related to immigration. It included provisions which authorized the President to expel any foreigner deemed dangerous to the U.S.
- The Steerage Act of 1819 was the first federal law devoted explicitly and exclusively to immigration. It established continual reporting of immigration to the U.S. Congress.
- Under the Homestead Act of 1862, free plots of land in the West were given to settlers including immigrants and native-born, if they agreed to live on and develop the land for at least five years.

(b) 1875 to 1920, a period having the first “exclusion” laws and centralized control of immigration.

- The Chinese Exclusion Act of 1882 barred Chinese immigrants from becoming U.S. citizens for 10 years, provided for the deportation of Chinese immigrants illegally living in the U.S., was renewed for another 10 years in 1892, and again renewed in 1902 with no ending date (In 1943, this Act was repealed).
- The Immigration Act of 1891 was the first comprehensive national immigration law and created a Bureau of Immigration within the Treasury Department. The law allowed for the deportation of immigrants entering the U.S. illegally.
- Under the Naturalization Act of 1906, immigration and naturalization functions were combined within a Bureau of Immigration and Naturalization in the Commerce Department; knowledge of English was a requirement for naturalization; and standardized procedures, forms, and fees were made for naturalization.
- Under the Immigration Act of 1917, a barred zone of nations in the Asia-Pacific triangle was defined to prohibit immigration. The barred zone of nations were the East Indies, Western China, French Indochina, Siam, Burma, India, Bhutan, Nepal, Eastern Afghanistan, Turkestan, and the Kirghis Steppe and southeastern portion of the Arabian Peninsula (from the unpublished INS training lecture as cited in Smith, 2002).

(c) 1921 to 1964, a period developing the national-origins quota system and ending anti-Asian exclusion.

- The Quota Law of 1921 was the first immigration law imposing numerical limits on immigration (i.e., restriction of overall immigration to about 350,000 per year and of immigration from any particular country to 3% of the people of that ancestry living in the U.S. in 1910). Immigrants from western countries (Canada, Latin America, and the Caribbean) were exempt.
- Under the National Origins Act of 1924, the overall cap on immigration was reduced to about 165,000 per year and the country cap to 2% of those of that ancestry living in the U.S. as of 1890. Immigrants from western countries (Canada, Latin America, and the Caribbean) were again exempt.
- Under the Alien Registration Act of 1940, all foreigners over 14 years of age were required to be registered and fingerprinted. The Act set past membership in prohibited political groups grounds for deportation and exclusion, and authorized *suspension of deportation* and *voluntary departure* instead of deportation, in *meritorious cases*.
- In 1942, the federal government rounded up about 120,000 persons of Japanese descent present on the West Coast and relocated them in camps until 1945.
- Under the Displaced Persons Act of 1948, admission was given to 205,000 refugees, who were from the parts of Europe occupied by Soviet Union, such as the Baltics and Ukraine.
- The federal government in 1954 started *Operation Wetback*, which rounded up and deported about one million Mexican immigrants, including some legal immigrants and U.S. citizens of Mexican descent.
- The Immigration and Nationality Act of 1952 (the McCarran-Walter Act) combined the multiple immigration laws of previous years into a comprehensive statute and created a quota preference for skilled immigrants. However, the Act kept the racial prejudice of the national-origins quota system. The yearly quota for each nation outside the western hemisphere was fixed at one-sixth of 1% of people of that ancestry present in the U.S. as of 1920, which implied that most immigration slots were kept for immigrants from the United Kingdom, Ireland, and Germany.

- (d) 1965 to 1985, a period of ending national-origins quotas and creating refugee resettlement.
- The Immigration Act of 1965 ended the prejudiced national origins quota system, but numerical limits on immigration were retained. The law set numerical immigration restriction at 170,000 per year for the Eastern Hemisphere (with a 20,000 per country limit) and at 120,000 for the Western Hemisphere (without a per country limit). The Act established the seven-category immigration preference system for relatives of U.S. citizens and legal permanent residents (LPRs).
  - Under the Indochina Migration and Refugee Assistance Act of 1975, a domestic resettlement program for Vietnamese and Cambodian refugees was made. In 1976, Laotians were eligible for the program.
  - Under the Refugee Act of 1980, a domestic resettlement program was made for all refugees; refugees were removed from the preference immigration system.
- (e) 1986 to 2000, a period of rising immigration control and limiting of immigrants' rights.
- Under the Immigration Reform and Control Act of 1986 (IRCA), which attempted to address rising levels of undocumented immigration, most undocumented immigrants living in the U.S. were allowed to apply for legal status. Also, the IRCA made sanctions against employers hiring undocumented immigrants and raised funding for border enforcement. However, the IRCA did not increase limits on legal immigration to meet the growing demand for immigration labor in the U.S., except creating the H-2A visa category for temporary, seasonal agricultural workers.
  - Under the Immigration Act of 1990, the annual cap on immigration was raised to 700,000 per year from FY 1992 to 1994, and 675,000 per year thereafter (i.e., 480,000 for family-sponsored immigrants, 140,000 for employment-based, and 55,000 for diversity immigrants). The Act made the H-1B visa category for highly skilled temporary workers capped at 65,000 per year; the H-2B for seasonal non-agricultural workers capped at 66,000 per year.
  - Under the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), new grounds for inadmissibility to, and removal from, the U.S. were established. The IIRIRA expanded the definition regarding *aggravated felony* for immigration purposes; applied this new definition retroactively to comprise even non-violent offenses committed long before passing of the IIRIRA, required the

compulsory detention of non-U.S. citizens who were newly defined as *aggravated felons*, made an *expedited removal* process to speed the immigrants' deportation without a formal hearing, created three-year and ten-year bars to re-entry for immigrants who were illegally present in the U.S., and ramped up border enforcement.

- Under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), most LPRs were ineligible for means-tested public assistance for five years after receiving green cards and for Medicare and Social Security for ten years after obtaining green cards. Also, undocumented immigrants are excluded from any public benefit programs.
- Under the Antiterrorism and Effective Death Penalty Act of 1996 (AEDPA), procedures for the removal of suspected foreign terrorists from the U.S. were expedited. The Act permitted the detention and deportation of non-U.S. citizens based on *secret evidence*.

(f) 2001 to Present, a period of linking immigration control to national security.

- Under the Enhanced Border Security and Visa Entry Reform Act of 2002, new procedures for the review of visa applicants were implemented. The Act required that documents for travel and entry be machine-readable and tamper-resistant, including biometric identifiers.
- Under the REAL ID Act of 2005, states were required to demand proof of citizenship or LPR status before issuing a driver's license and to make driver's licenses fraud or tamper resistant.

### *Immigration History of Asian and Pacific Islanders in the U.S.*

In terms of residence length, some members of Asian nations such as the Chinese and Japanese have been in the United States for several generations, and others including the Hmong, Vietnamese, and Cambodian residents have a relatively shorter immigration history. Few Pacific Islanders are foreign born (Reeves & Bennett, 2003). In Census 2000, 31% of Asians were natives, and 69% were foreign born. Among foreign born Asians, 34.4% were naturalized citizens and 34.5% were noncitizens. Among foreign born Asians, 76% came to the United States within the past two decades from 1980 to 2000 while 24% came before 1980 (Reeves &

Bennett, 2004). In terms of citizenship rates of Pacific Islanders, 80% were natives; 8% were naturalized citizens; 12% were noncitizens. Forty-four percent of the foreign-born Pacific Islanders migrated in 1990-2000; 30% and 18% arrived in 1980-1989 and 1970-1979 respectively (Harris & Jones, 2005). Even if a large percentage of Pacific Islanders are not immigrants, but rather natives or naturalized, the group is included in this study to keep consistency of race categorization from AHS 1995 through 2007 (see the section of “Selection of Sample,” in Chapter 3).

### *Chinese.*

Chinese American elders are the largest group of Asian and Pacific Island elders and are very diverse within themselves. The first recognized immigrants from China were males in the 1850s, came to California since the Gold Rush of 1849, and totaled more than 30,000 by 1860. The Chinese Exclusion Act of 1882 resulted in making the immigration of laborers illegal until 1943. Many families lived separately for decades until the laws changed, which then allowed more than 9,000 wives to immigrate to the U.S. after World War II (Kitano & Daniels, 1988; Yeo & Hikoyeda, 2001). Large numbers of Chinese elders continue to immigrate to the United States, and in particular, elders from Taiwan and Hong Kong can be followers of children. Many Chinese elders are ineligible for pension income, and some are not eligible for Medicare (Yeo & Hikoyeda, 2001).

### *Japanese.*

The time lines of Japanese immigration can be categorized into four periods: (a) 1880-1924: immigration of young Japanese male laborers and females; (b) 1924-1941: a period of rising hostility and anti-Japanese discrimination; as factory workers of World War I lost their jobs and the soldiers came back home, antagonism against those of Japanese descent rose; (c) 1941-1945: wartime evacuation and internment of all of Japanese descent from the West Coast to inland relocation centers; (d) 1945-present: postwar period when many families relocated to the East and Midwest found jobs and returned to the West Coast. Between 1945 and 1947, almost 45,000 war brides who married American servicemen were admitted to the U.S. In 1965, over 48,000 Japanese immigrants became naturalized citizens in the U.S. Since 1980, Japanese immigrants including skilled workers, students, relatives of permanent residents, and

businessman and their families have entered the U.S. (Kitano & Daniels, 1988; Yeo, Hikoyeda, McBride, Chin, Edmonds, & Hendrix, 1998; Yeo & Hikoyeda, 2001).

The current Japanese older cohort includes (a) *Issei* (the early immigrant pioneers from Japan), (b) *Nisei* (the American-born children of the *Issei*), (c) older *Sansei* (the *Niseis*' offspring), (d) *Kibei* (young *Niseis*, usually sons, who went overseas for a Japanese education), (e) *Shin-Issei* (the post-1965 Japanese immigrants), and (f) Post-war brides (*Senso Hanayome*) of American servicemen (Kitano & Daniels, 1988; Yeo et al., 1998; Yeo & Hikoyeda, 2001).

#### *Korean.*

The history of Korean immigration started in 1903 when 102 Korean immigrants arrived in Hawaii (Kim & Patterson, 1974). Since then, most Koreans have immigrated by invitation of family members who already live in the United States. Specifically, Korean immigration to the United States can be categorized into the four time lines: (a) 1902-1905: recruited migration of farmworkers and families to Hawaii; (b) 1905-1924: restricted migration of picture brides, students and political exiles; (c) 1952-1964: dependent immigration of war brides and war orphans; (d) 1965-present: new waves of settlers, who are well-educated, urban professionals and their extended families (Chin, 1993). Many Korean immigrants work for businesses unrelated to their professional training due to cultural and language barriers (Yeo & Hikoyeda, 2001).

#### *Filipinos.*

The history of Philippine immigrants started from recruiting male labors in California and Hawaii from 1910 through 1930. However, the worsened U.S. economy in 1930s and the Tydings-McDuffie Act of 1934 (which set a quota of 50 immigrants per year) resulted in decreases in immigration rates. During World War II, the Philippine residents were recruited by the U.S. Navy with promises of U.S. citizenship, and after the war, large numbers of veterans and families of U.S. residents immigrated to the United States. After 1965 through the 1990s when the quotas were relaxed, elderly immigrants following adult children coming as health care professionals dramatically increased. In 1990, Filipino veterans of World War II who had not been given U.S. citizenship were allowed to be naturalized under the U.S. Immigration Act amendments; by 1994, more than 2,000 older veterans had been resettled in California, which

increased the numbers of single older Filipino men living alone or in male rooming houses (Yeo et al., 1998; Yeo & Hikoyeda, 2001).

#### *Asian Indian.*

The history of Asian Indians' immigration may be divided into two parts: (a) around 10,000 persons came to the United States at the time when India was a colony of Great Britain; and (b) much larger numbers of persons have come since India and Pakistan became independent in 1947. As of 1985, more than half a million persons in the United States are of Indian birth or ancestry, and a few thousand are from Pakistan and Bangladesh (Kitano & Daniels, 1988).

#### *Southeast Asians.*

Southeast Asians who have entered the United States as refugees consist of Vietnamese, Laotians, Cambodians (Kampuchians), Hmong, and ethnic Chinese persons. A refugee is a person who flees his or her native country for safety in a time of distress, and therefore, refugees are a special kind of immigrants. The U.S. intervention in Vietnam in the 1960s' War and the following fall of South Vietnam to the Communist forces from Hanoi resulted in their refugee status (Kitano & Daniels, 1988). Since 1975, almost two million refugees have fled Vietnam, Cambodia and Laos, and half have settled in the United States (Yamato, Chin, Ng, & Franks, 1993; Yeo & Hikoyeda, 2001). There were two waves of Southeast Asian refugees. The first wave (1975-1977) of refugees came from the more advantaged groups of Vietnamese and Cambodians, who were military personnel, civil servants, teachers, farmers, fishermen, and employees of Americans. Forty-nine percent were under 36 years of age, family size averaged four, 41% were Catholic (40% Buddhist), and 48.8% had completed over four years of college. The second wave (post 1979) of Vietnamese, Cambodian, Hmong, and Laotian refugees were likely to be poor, rural, and illiterate (Kitano & Daniels, 1988; Yeo & Hikoyeda, 2001). Fifty-eight percent were under 36 years old, the family size averaged four to five, 29% were Catholic (40% Buddhist), and 29.1% had completed over four years of college (Kitano & Daniels, 1988).

#### *Pacific Islanders.*

Since 1980, the United States census treated Pacific Islanders as a specific group. The majority within that group are the native Hawaiians (85% of the Pacific Islanders), followed by

the Samoans, Guamanians, and Tongans. Samoans started immigrating in the 1920s when Samoans of the Mormon Church were brought to Hawaii to build the Hawaiian Mormon Temple at Laie. After the 1950s, subsequent groups started to immigrate for economic reasons and wanted to move to Honolulu and other areas to obtain better economic opportunities and education or to join relatives. There are many reasons for immigration of Guamanians to the United States: military services, better education, overpopulation and several storms in Guam (Kitano & Daniels, 1988).

### *Cultural Diversity*

Asian and Pacific Island elders in the U.S. migrated from their own origins, which means that they may have difficulties when living in and adapting themselves to U.S. culture and society. Cultural differences between their origins and the U.S. may cause them to have fewer resources (e.g., less income, ineligible public benefits, and insufficient language abilities) and also lead to limited housing options for their later life. In this section, various cultures of Asian and Pacific Islanders are discussed to be aware of the differences from those of other U.S. groups.

Culture can be defined in two ways: (a) civilization or refinement of the mind in education, art and literature; (b) collective programming of the mind which distinguishes the members of one group or category of people from another (Hofstede, 1991). When assessing the cultural diversity of Asian and Pacific Islanders, the second definition is more pertinent to this study.

Within Asian families and households in the United States, strong traditions of extended kinship ties are found in their relationships. Historically, Chinese, Japanese, Korean, and Vietnamese families differed from each other somewhat, but their basic norms and values came from Confucianism. These norms consist of obedience to parents, responsibility for parents, patrilineality, patriarchy, a preference for sons, and considerable personal interdependence (Barringer, Gardner, & Levin, 1993). Such norms are similar to those of Asian Indian families, but Filipinos focus on more egalitarian roles for women.

Asian families experienced changes from urbanization and industrialization, but still the societies of Asians emphasize more the importance of families than is the case in American society. In addition, the family can be considered one of the chief determinants of the educational successes of Asian American children because education has been regarded as a

prerequisite for high-status positions in Asia. For Asian immigrants, the family is a fundamental adaptive mechanism to survive in the United States. For example, Asian immigrant families often comprise extended-family structures in the U.S., which implies the services of grandparents in child rearing and sharing of financial resources outside the immediate household (Barringer et al., 1993).

Communist China is officially atheist. However, traditional religions still exist in Chinese society. The religions tend to be inclusive and mingle various aspects of different faiths. There are three dominant religions: Confucianism, Taoism, and Buddhism. Confucianism is closer to philosophy than religion but gained religious aspects over historical times. In China, Confucian values emphasize functioning of the social order and the maintenance of the group, not the rights of the individual as does Western law. The prevailing social norms consist of ideas of order, responsibility, hierarchy, and harmony (Barnes, 2006). Taoism, which dates from 500 B.C., still integrates its original ideas of harmony with nature, but now incorporates mystical beliefs (e.g., faith healing, fortune telling, and magic). Buddhism, which originally came from India, focuses on the idea that “all life involves suffering, which is linked to one’s desires, so that one must eliminate all desire in order to achieve spiritual peace (called nirvana)” (Moss & Wilson, 1993, p. 249).

Korean values are based on filial-piety centered Confucianism, emphasizing family obligation and mutual dependence among kinship within the extended family structure while American values are based on conjugal-system centered individualism, focusing on individual relationships and independence within the nuclear family structure (Hurh, 1998). Confucianism, based on ideas recommend by Confucius centuries ago, continues to lead Korean people in home, workplace, school, and government. “The young are to respect their elders, children their parents, wives their husbands, daughters-in-laws their mothers-in-law, students their teachers, employees their employers, and friends their friends” (Corner, 2002, p.182). Examples of Confucianism in Korea are that decisions are familial (e.g., parents provide advice on choice of marital partner), paternal grandparents are considered the most important grandparents, and traditional family rituals related to marriage, ancestor worship, and funerals are enacted (Corner, 2002). Filial piety is one dominant value of Confucianism, of which the most outstanding aspects are respect, responsibility, family, harmony, and sacrifice (Sung, 1990). In Korea, most elderly people live with their adult children, generally with their eldest son and his family, and their daughter-in-law

has a role to provide care for her husband's parents (Hurh, 1998). Korea is similar to Japan in that social etiquette and language forms of address are the markers of unequal status, which can be determined by gender, age, and position in society. Koreans emphasize seniority and loyalty to those in higher positions to make harmonious relationships (Barnes, 2006). Religions of Korea include Buddhism (22.8%), Protestantism (18.3%) and Roman Catholicism (10.9%) (U.S. Department of State, 2009a).

Japan is the most densely populated country in the world, which has resulted in a tightly organized society that emphasizes obedience and cooperation. In decision-making, power is spread throughout the organization, not centralized in one key position. Japan has three major religions, Shintoism, Confucianism, and Buddhism, which have greatly influenced Japanese culture (Barnes, 2006). Shintoism is practiced by 83.9% of the total population; Buddhism, 71.4%; Christianity, 2%; other, 7.8% (total adherents exceed 100% because many people belong to both Shintoism and Buddhism) (CIA, 2009a). Shintoism values compromise which can be achieved through peaceful negotiation or conciliation rather than by lawsuit, mutual respect among people, and the promotion of solidarity in order (Sanada's work as cited in Barnes, 2006). In Japan, Buddhism focuses on "a world-view of including human beings and their surroundings harmoniously," (Barnes, 2006, p.51), which allows nonliving and living beings to co-exist (Barnes, 2006).

In India, 80.5% of the total population is Hindu, followed by Muslim, 13.4%; Christian, 2.3%; Sikh, 1.9%, other, 1.8%; unspecified, 0.1% (CIA, 2009b). Religions of Vietnamese include Buddhism (9.3%), Catholicism (6.7%), Hoa Haoism (1.5%), Cao Daism (1.1%), Protestantism (0.5%), Islam (0.1%), and 80% of the total population has no religion (CIA, 2009c). Approximately 93% of the Philippines are Christian, with Roman Catholics being the largest religious group comprising between 80% and 85% of the total population. The largest minority religion is Islam, and Muslims comprise 5% to 9% of the total population (U.S. Department of State, 2009b).

Pacific Islanders have various experiences in religion, migration, and residence in the United States. However, they also have common beliefs in that they all remain connected to the places where they or their ancestors came from, and they experienced colonialism and dislocation by Western countries or the United States. They experienced strong missionary efforts since the end of 19<sup>th</sup> century by Americans and Europeans, which resulted in Christian

churches and families being the most important social institutions to Pacific Islanders. Also, concurrently, non-Christians also remain in the islands and among islanders in the U.S. The social systems are also various. Tonga and Hawaii had centralized monarchies in the early modern era while Samoa and Fiji were controlled by many chiefs. Native island religions have one common theme in that a religion is intimately connected to the land, the sea, and all creatures. Christianity of the Pacific Islanders blended with elements of pre-Christian religions. For example, Hawaiian Catholic farmers pray to the god Lono when hoping for an abundant harvest (Laderman & León, 2003).

### *Housing Overview of Asian and Pacific Islanders in the United States*

Based on the report, *Discrimination in Metropolitan Housing Markets: Phase 2 - Asians and Pacific Islanders*, Asian and Pacific Islanders face significant levels of discrimination when they search for housing in large metropolitan areas nationwide. The study revealed that the level of consistent adverse treatment against Asian and Pacific Island renters is the same as that of African American and Hispanic renters and that homebuyers experience consistent adverse treatment in housing availability, inspection, financing assistance, and agent encouragement, comparable to the discrimination level experienced by African American homebuyers and significantly higher than the discrimination level against Hispanics (Turner, Ross, Bednarz, Herbig, & Lee, 2003).

As of 2002, the majority (95%) of Asian and Pacific Islanders lived in metropolitan areas, and half of Asian and Pacific Islanders lived in the West region (Reeves & Bennett, 2003). In the United States, homeownership rates of this group were relatively lower than those of the total U.S. population. In 2000, 53.2% of Asian-occupied housing units were owner-occupied housing units while 46.8% were renter-occupied housing units (i.e., compared with 66 % of owner-occupied housing units and with 34% of rented housing units of the total U.S. population). Japanese (61%), Filipino (60%), and Chinese (58%) persons had the highest proportion of owner-occupied housing units. Hmong, Korean, Pakistani, and Cambodian residents had the highest proportions of renter-occupied housing units (61.3%, 59.9%, 58.3%, and 56.4% respectively) (Reeves & Bennett, 2004). Based on the *March 2005 Current Population Survey* (as cited in Camarota, 2005), 7.6% of all Korean immigrants occupied subsidized housing units; Vietnamese, 6.5%; Chinese, 2.9%; Japanese, 2.7%; Filipinos, 2.4%.

Homeownership rates of Pacific Islanders were much lower than those of the total U.S. population. In 2000 Census, 46% of Pacific Islanders had owner-occupied housing units, compared with 66.2% of owner-occupied housing units of the total U.S. population. Almost half of native Hawaiian, Guamanian, Tongan, and Fijian householders (52.2%, 47.6%, 48.1%, and 50.4% respectively) lived in rental housing units. Also, almost 67% of Samoan and 88% of Marshallese households lived in rental units (Harris & Jones, 2005).

The lower homeownership rates of immigrants are related to their typical demographic characteristics including: (a) old-country knowledge and customs, (b) limited ability to understand and speak English, (c) less conventional credit histories, (d) limited success with conventional financing, (e) less opportunity to obtain conventional mortgage products, and (f) difficulties in finding affordable housing (Schoenholtz & Stanton, 2001). Apart from the above mentioned barriers, elderly Asian immigrants in the United States experience financial and housing problems because of weakened filial obligation. For example, Yoo and Sung (1997) revealed that most elderly Koreans with income below \$5,000 per year were living together with their children. Yet, elderly Koreans and their adult children may want to live independently due to the impact of American culture – individualism. One case study of Korean immigrants (Kauh, 1999) found that most Korean elderly respondents had never experienced any employment for pay in the United States. Their lack of employment made them ineligible for Social Security benefits, resulting in increased poverty. These elderly immigrants would be more dependent on family networks for resources due to less access to government assistance, leading to difficulty pursuing independent living arrangements (which they may prefer) and to challenges with their housing quality, leading to dissatisfaction.

### Housing Assistance for Elders in the United States

Based on the *March 2005 Current Population Survey* (as cited in Camarota, 2005), 9.9% of immigrant households with heads aged 65+ lived in subsidized housing units, compared with 4.9 % of native households with heads aged 65+.

All levels of government have recognized that elders and disabled persons have distinct needs and cannot always be well served with regular housing subsidy programs. Therefore, housing programs for members of these groups have been adapted and have combined housing

subsidies with supportive services. Politically, housing assistance programs targeting elderly groups face less opposition than other low-income housing programs (Schwartz, 2006). The U.S. Government Accountability Office (2005) reported that there are 23 federal housing programs which target or have special features for elders. The programs include housing production programs targeted entirely to elderly adults, other subsidy programs offering special features for elderly persons, and several mortgage insurance programs for old people. The 23 federal housing programs are:

(a) Targeted to older adults

- USDA (United States Department of Agriculture) Section 504 Rural Housing Repair and Rehabilitation Grants
- HUD (United States Department of Housing and Urban Development) Section 202 Supportive Housing for the Elderly

(b) Targeted to elderly and disabled persons

- HUD Assisted Living Conversion Program
- HUD Section 231 Mortgage Insurance for the Elderly
- HUD Section 232 Mortgage Insurance for Nursing Homes, Intermediate Care, Board and Care, and Assisted Living Facilities

(c) With special features for older adults

- USDA Section 502 Rural Housing Loans (Direct)
- USDA Section 502 Direct Housing Natural Disaster Loans
- USDA Section 502 Guaranteed Rural Housing Loans
- USDA Section 504 Rural Housing Repair and Rehabilitation Loans
- USDA Section 515 Rural Rental Housing Loans
- USDA Section 521 Rural Rental Assistance
- USDA Section 538 Guaranteed Rural Rental Housing Loans
- HUD Housing Choice Vouchers
- HUD Project-based Rental Assistance (Section 8 and Rent Supplement) (inactive)
- HUD Public Housing
- HUD Section 8 Moderate Rehabilitation (inactive)
- HUD Section 207 Mortgage Insurance for Manufactured Home Parks
- HUD Section 207/223(f) Mortgage Insurance for Existing Multifamily Properties

- HUD Section 213 Mortgage Insurance for Cooperatives
- HUD Section 221(d)(3) Below-Market Interest Rate (inactive)
- HUD Section 221(d)(3)/(d)(4) Mortgage Insurance
- HUD Section 236 Mortgage Insurance and Interest Reduction Payments (inactive)
- HUD Section 542(b)/(c) Risk Sharing

Of those above, the oldest (i.e., created by the Housing Act of 1959) and largest federal housing program is Section 202, which enables nonprofit organizations to build and operate rental housing for low-income people 62 years and older (Schwartz, 2006). There are two types of assistance of Section 202. First, the U.S. Department of Housing and Urban Development (2007) assists private, nonprofit sponsors with interest-free capital advances to finance the development of the housing for elders. The advances do not need to be repaid as long as the development continues to serve very low-income elders for 40 years. Secondly, USDHUD (2007) provides *project rental assistance funds* to cover the difference between the HUD-approved operating cost for the project and the tenants' contribution toward rent.

Public housing programs also provide accommodations to elderly people. Almost one third of the households living in public housing are headed by people 62 years or older, and many of these households live in units which public housing authorities specifically designate for elderly households. Elderly tenants in public housing are permitted rent reductions. When determining adjusted income and rent, elderly families obtain deductions from their annual income of \$400 and certain medical expenditures (USGAO, 2005; Schwartz, 2006).

Other examples of federal subsidy programs to be considered for elderly people are Housing Choice Vouchers, Section 8 New Construction/Substantial Rehabilitation, and Section 515. Regarding housing vouchers, housing authorities can provide the older adults with priority when allocating new vouchers.

For elderly homeowners, reverse mortgages can be considered as a program designed to help elderly people who wish to remain in place. HUD's Federal Housing Administration (FHA) created the Home Equity Conversion Mortgage (HECM), which allows elders (62+) to withdraw some of the equity of their home. Many elders use the reverse mortgage program to supplement social security, meet unexpected medical expenses, and repair homes (USDHUD, 2009). Besides the reverse mortgage program, government funding is offered to low-income elderly

homeowners who need to pay for critical repairs or renovations (Louie, Belsky, & McArdle, 1998)

Funded by HUD and administered by local HUD offices, the Assisted Living Conversion Program provides a grant to alter some or all of the units in the project into an assisted living facility for frail elders. The program is available to private, nonprofit owners of housing developments, which include Section 202 and Section 8 project-based developments. Basic physical conversion of existing units and space for services are covered by HUD funding (Milbank Memorial Fund, 2006). From 2000 to 2003, 3,000 units were converted to assisted living, of which 63% were in Section 202 developments (USGAO, 2005).

#### Personal Responsibility and Work Opportunity Reconciliation Act of 1996

By the 1990s, welfare liberalism was less popular among legislators, and conservative welfare solutions became increasingly dominant. President Clinton signed the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) (Public Law 104-193) into law on August 22, 1996. This law replaced Aid to Families with Dependent Children (AFDC) with Temporary Aid to Needy Families (TANF) and reformed most welfare entitlements (O’Conner, 2004). The comprehensive bipartisan welfare reform plan significantly changed the welfare system of the United States into one that required work in exchange for time-limited assistance. The law was originally scheduled to be reauthorized by October 2002, but “was extended by Congress through a series of short-term extensions until re-enacted in the Deficit Reduction Act of 2005” (U.S. Department of Health & Human Services, 2002).

Between the creation of the WIN (Work Incentive) program in 1967 and the caseload peak in 1994, AFDC caseloads grew from 1.2 to 5.1 million (Lurie, 2006). However, between PRWORA’s enactment in August 1996 through March 2006, there was a 59% decline in TANF caseloads for families from 4.4 to 1.8 million, which was the largest welfare caseload decline in history and the lowest percentage of the population on welfare since 1969 (USDHHS, 2002). PRWORA made significant funding cuts in basic programs for low-income children, families, elderly persons, people with disabilities, and immigrants (National Association of Social Workers, 1996).

Mainly, PRWORA contains: (a) strong work requirements, (b) a performance bonus to reward states for moving from an emphasis on welfare to requiring employment, (c) state maintenance of spending on welfare, (d) comprehensive child support enforcement, and (e) supports for families moving from welfare to work (USDHHS, 1996). Major provisions of PRWORA consist of nine programs (Library of Congress, n.d.). This study focuses on revealing housing environments and challenges of elderly immigrants in the United States since 1996. For this, “Title IV: Restricting Welfare and Public Benefits for Aliens” is the relevant part of the law for exploring limited income sources of such groups. Under Title IV, pre-PRWORA immigrants who entered the country before enactment of the legislation on August 22, 1996 remain eligible for some benefits. However, new immigrants who came to the U.S. after August 22, 1996 are not eligible for federal benefits (a) during their first five years of U.S. residency, (b) until they become naturalized citizens, or (c) unless they have a special immigration status excepted from the restriction (U.S. Government Accountability Office, 1998).

#### *Major Federal Programs: TANF/AFDC, SSI, Medicaid and Food Stamps*

This section explores four major federal programs (TANF/AFDC, SSI, Medicaid and Food Stamps) which are closely related to ‘Title IV: Restricting Welfare and Public Benefits for Aliens’ of PRWORA of 1996

#### *TANF/AFDC*

The major shift by PRWORA was replacement of Aid to Families with Dependent Children (AFDC) program with a new program, the Temporary Assistance for Needy Families (TANF) block grant (National Association of Social Workers, 1996), which assists needy families with dependent children who meet state eligibility criteria. AFDC was established by the Social Security Act of 1935 as a grant program to offer cash welfare payments for needy children who were deprived of parental support and care. Under AFDC, states focused on defining need, setting their own benefit levels, establishing (within federal limitations) incomes and resource limits, administering the program, and supervising its administration. Also, states were entitled to unrestricted federal funds for reimbursement of benefit payments and required to provide assistance to people who were eligible under federal law and whose incomes were within state-set limits (USDHHS, 2005a). Under PRWORA of 1996, TANF replaced AFDC, the related Job

Opportunities and Basic Skills Training (JOBS) and Emergency Assistance (EA) programs. TANF became effective July 1, 1997 and was reauthorized under the Deficit Reduction Act of 2005 in February 2006. The goals of TANF are to assist needy families so that children can be cared for in their own homes; to reduce the dependency of needy parents by promoting job preparation, work and marriage; to prevent out of wedlock pregnancies; and to encourage the two-parent family structures (USDHHS, 1997). TANF includes: (a) a lifetime limit of five years (60 months) on the amount of time which a family with an adult can receive assistance funded with federal funds; (b) increasing work participation rate requirements which states must meet; and (c) broad state flexibility in program design (USDHHS, 2005a).

In terms of eligibility for TANF, if an immigrant is a sponsored noncitizen and the sponsor signed an affidavit of support, the person is subject to sponsor deeming. Sponsor deeming requires public benefit agencies to add the noncitizen's income to those of the sponsor when determining public benefit eligibility (USGAO, 2009). This can lead the immigrant to be ineligible for benefits because the sponsor's income and resources are likely to render the immigrant *over-income* (California Immigrant Policy Center, 2006).

Section 213A(F)(1) of the Immigration and Nationality Act (INA) established the sponsor requirements. A person executing the I-864 affidavit (which is required for most family-based immigrants and some employment-based immigrants) must have citizenship or U.S. nationality or a lawful permanent residence; be at least 18 years old; be domiciled in the U.S. or any territories or possessions; and maintain a gross annual household income at least 125% of the FPL (federal poverty line) for the sponsor's household size or 100% of the FPL for the sponsor on active duty in the U.S. Armed Forces and sponsoring a spouse or child. The sponsor's household size comprises the sponsor; persons who are related to the sponsor by birth, marriage, or adoption and living at the same residence as the sponsor; any dependents who the sponsor has legally claimed on the sponsor's federal income tax return; all aliens who are included in the current affidavit of support; any immigrants previously sponsored under section 213A of the INA if the obligation has not terminated. All immigrants having an I-864 affidavit of support are lawful permanent residents (LPR) (USDHHS, 2003).

Also, if a senior adult is the primary caregiver of a child who is under 19 years old, is living together with the child at home, and is a relative (e.g., a grandparent), the senior adult does not need to have legal custody or guardianship of the child to obtain TANF benefits. To obtain

benefits for an older adult and the child living together, the older adult should meet TANF eligibility requirements (i.e., income and resource limits), but not need to meet the work requirement if the senior is aged 60 and over. Only to get benefit for the child, senior adult's income and resources are not counted (Community Resources Information, Inc., 2009).

### *SSI (Supplemental Security Income)*

SSI provides cash assistance to people with low-income who are age 65 or older, blind, or have a disability and who meet federal eligibility criteria. The Social Security Administration (SSA) manages the program, and SSI is paid for by U.S. Treasury general funds, not the Social Security trust funds (Social Security Administration, 2007). The SSA periodically reviews disability or blindness status to decide if a person is still disabled or blind. The review, called a continuing disability review (CDR), is dependent on how a person's disability is classified (SSA, 2008). There are three classification of CDR: (a) MINE (Medical Improvement not Expected) is conducted every 7 years; (b) MIP (Medical Improvement Possible), every three years; (c) MIE (Medical Improvement Expected), within 6 to 18 months (USGAO, 2003).

In most states, if people receive SSI benefits, they will automatically be eligible to receive Medicaid, which is the federal and state health insurance program for low-income persons with disabilities and others; they may also be eligible to receive Food Stamps in all states except California (USDHHS, 2005b).

### *Medicaid*

Medicaid is health insurance helping needy people who cannot make payments for medical care for some or all of the medical bills and who meet federal and state eligibility criteria (USDHHS, 2010; National Association of Social Workers, 1996). Medicaid criteria include whether a person is pregnant, disabled, or aged; income and resources; whether a person is a U.S. citizen or lawfully admitted immigrant (USDHHS, 2010). Health coverage may begin retroactive to any or all of the 3 months before application (if an individual is qualified during the retroactive period); stops at the end of the month when a person's situations change (USDHHS, 2009).

PRWORA retains entitlement to Medicaid for AFDC recipients as of July 1996 and makes those people transit from welfare to work. States are allowed to deny Medicaid to adults

losing cash assistance for failure to comply with work requirements except children and pregnant women. In terms of SSI, people who fail to maintain Medicaid coverage for children lose SSI benefits under the PRWORA. The Congressional Budget Office estimates that 15% of the children who lose or are denied SSI benefits lose Medicaid eligibility (National Association of Social Workers, 1996).

### *Food Stamps*

Food Stamps assist needy individuals who meet federal eligibility criteria. The program, administered by the United States Department of Agriculture (USDA) Food and Nutrition Service, is the largest food assistance program in the United States. The eligibility consists of the presence of children, elderly persons, or disabled individuals in a household, which results in a program that provides assistance to a large and diverse population of needy persons, many of whom are not eligible for other assistance. The federal government is mainly responsible for all rules controlling the program. However, the local welfare offices of states, the District of Columbia, Guam, and Virgin Islands have primary responsibility for administration of the program. The household is the basic Food Stamp beneficiary unit. Monthly cash income is the determinant of Food Stamp eligibility, except for households composed entirely of TANF, SSI, or general assistance recipients who are automatically eligible for Food Stamps. To maintain eligibility, adult applicants must accept a suitable job if offered, and fulfill any work, job search, or training requirements offered by the welfare agencies (USDHHS, 2005c). The National Association of Social Workers (1996) reported that half of PRWORA's spending reductions came from the Food Stamp program and that when fully implemented, PRWORA would reduce benefits about 20% and two thirds of the benefit reductions would come from families with children. As of 1998, almost seven million families with children lost an average \$435 in Food Stamp benefits; 2.3 million working poor families lost an average of \$355. Almost 1.75 million low-income older adult households also lost about 20% of their Food Stamp benefits.

As of 2002, Congress passed the Farm Security and Rural Investment Act of 2002 (PL 107-171), of which the part of the act re-authorizing the Food Stamp program included provisions that made it easier for legal immigrants to go back into the Food Stamps program, in several stages: (a) October 1, 2002 for disabled *qualified* legal immigrants who met the definition of disability in the Food Stamp law regardless of when they entered the U. S.; (b)

April 1, 2003 for *qualified* immigrants 18-64 years old who had been in the U. S. for five years (this ended PRWORA's seven-year limit on Food Stamp benefits for refugees and people who had been granted asylum); (c) October 1, 2003 for qualified immigrant children without the five-year residency requirement (Cohen, 2007).

As of Oct. 1, 2008, the federal Food Stamp Program changed its name as Supplemental Nutrition Assistance Program (SNAP) (U.S. Department of Agriculture, 2009). The USDA (2009) provides eligibility for SNAP. To obtain SNAP benefits, households must meet resource and income tests.

In terms of resource tests, households may have \$2,000 in countable resources (e.g, bank account) or \$3,000 if at least one household member is 60 years and older or is disabled. However, certain resources are not considered (e.g., a home and lot). Also, the resources of those receiving SSI, the resources of those receiving TANF, and most retirement plans are not counted. Licensed vehicles can or cannot be counted as resource. In specific, if the fair market value of the vehicle is over \$4,650 or the equity value is more, it is counted as a resource (USDA, 2009).

For income tests, unless all household members receive TANF, SSI, or general assistance, they must meet income criteria. Most households have to meet both the gross and net income tests while a household with an elderly person or a person receiving disability payments only has to meet the net income test. Gross income refers to a household's total, nonexcluded income, which has no deductions; net income refers to gross income minus allowable deductions. Table 4 provides income criteria by household size, and Table 5 provides an allotment by household size. SNAP households are expected to spend around 30% of their resources on food. Therefore, the net monthly income is multiplied by .3 and then subtracted from the maximum allotment, which is the amount of benefits the household obtains (USDA, 2009).

### *Research on Impact of PRWORA on Immigrants in the United States*

One goal of PRWORA was to ensure that possible public benefits do not provide an incentive for immigration and that immigrants entering the United States are self-reliant. In particular, Title IV makes immigrants ineligible for certain federal welfare benefits (USGAO, 1998). From this aspect, PRWORA has influence on federal or state benefits for immigrants.

From the Social Security Act in 1935 through the welfare reform law of 1996, the immigration status of those lawfully admitted for permanent U.S. residence allowed eligibility

Table 4

*Income Criteria by Household Size (from October 1, 2009 through September 30, 2010)*

Household size	Gross monthly income (\$) (130 percent of poverty)	Net monthly income (\$) (100 percent of poverty)
1	1,174	903
2	1,579	1,215
3	1,984	1,526
4	2,389	1,838
5	2,794	2,150
6	3,200	2,461
7	3,605	2,773
8	4,010	3,085
Each additional person	+406	+312

*Note.* From U.S. Department of Agriculture. (2009). *Supplemental Nutrition Assistance Program: Eligibility*. Retrieved April 11, 2010, from [http://www.fns.usda.gov/snap/applicant\\_recipients/eligibility.htm](http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm).

Table 5

*Monthly Allotment by Household Size (October 2009 through September 2010)*

Household size	Maximum monthly allotment (\$)
1	200
2	367
3	526
4	668
5	793
6	952
7	1,052
8	1,202
Each additional person	150

*Note.* From U.S. Department of Agriculture. (2009). *Supplemental Nutrition Assistance Program: Eligibility*. Retrieved April 11, 2010, from [http://www.fns.usda.gov/snap/applicant\\_recipients/eligibility.htm](http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm).

for welfare benefits. Under the Title IV (*Restricting Welfare and Public Benefits for Aliens*) of PRWORA, pre-PRWORA immigrants (who entered the United States before enactment of the legislation on August 22, 1996) remained eligible for some benefits. New immigrants are not eligible for federal benefits during their first five years of U.S. residency, “until they become naturalized citizens, or unless they have an immigration status excepted from the restriction” (USGAO, 1998). Examples of exceptions include refugees or asylees, Amerasian immigrants,

Cuban or Haitian entrants, and those whose deportation is withheld (USGAO, 1998). Amerasian refers to the person of mixed American and Asian descent (Merriam-Webster Dictionary, 2010). They are qualified to apply for TANF and Food Stamps during their first five years and for Medicaid and SSI during the first seven years of U.S. residency (USGAO, 1998). To be a naturalized citizen, a foreign national must be at least 18 years old with a status of a granted lawful permanent resident in the United States and continuously have resided for at least five years (Rytina & Caldera, 2008). Table 6 shows an overview of federal welfare program eligibility for immigrants, which reflects the welfare reform provisions as of 1998. The key federal programs include TANF, Medicaid, SSI, and the Food Stamps program (USGAO, 1998).

One of the most critical features of PRWORA was the denial of benefits to legal immigrants. Nearly half of the projected savings came from reductions in public benefits eligibility for immigrants (Woodside, 2001). Under this law, nearly half a million elderly and disabled individuals who obtained benefits were projected to lose their SSI benefits and Medicaid (National Association of Social Workers, 1996). The U.S. Government Accountability Office (1998) indicated that the law required some sponsors of new immigrants to sign legally binding contracts (affidavits of support) in which they agreed to help the new immigrants financially. Such limited government support does not help immigrants who are struggling with their finances. From this point, aging members of immigrant minority groups could be more dependent on family networks for resources because they have no access to government assistance, which leads to housing challenges.

In short, PRWORA restricted open-ended entitlement to assistance programs for immigrants (i.e., AFDC), made a block grant (TANF) for states to provide time-limited cash assistance for needy families with work requirements for most recipients, and created residency and citizenship requirements for legal immigrants that limited access to public assistance (USDHHS, 2008). The particular concern is “Title IV: Restricting Welfare and Public Benefits for Aliens,” which is the relevant part when exploring limited income source (such as TANF, SSI, Medicaid, and Food Stamps) of immigrants (USDHHS, 1996). Those income-related restrictions influence elderly immigrants’ housing environments in the United States, which should be resolved to improve their quality of life.

Table 6

*Outline of Federal Welfare Program Eligibility for Immigrants*

	<u>Immigrants</u>	
Federal program	Pre-PRWORA (entered United States before Aug. 22, 1996)	New (entered United States on and after Aug. 22, 1996)
TANF (previously AFDC)	State's option to continue benefits	No benefits available for first 5 years, then at state's option
Medicaid	Benefits continued for those receiving SSI and state's option to continue benefits for others	No benefits available for first 5 years, then at state's option
SSI	Benefits continued for those receiving SSI and those who are or become blind or disabled can apply in the future	No benefits available until citizenship
Food stamps	No benefits available until citizenship	No benefits available until citizenship

*Note.* From U.S. Government Accountability Office. (1998, July). *Welfare reform: Many states continue some federal or state benefits for immigrants* (Publication No. GAO/HEHS-98-132). Retrieved April 11, 2010, from <http://www.gao.gov/archive/1998/he98132.pdf>.

### Theoretical Background

This research is organized according to the theory of housing adjustment (Morris & Winter, 1978) to investigate housing satisfaction of Asian and Pacific Island elders in the United States. This section explains the theory of housing adjustment and describes housing norms as a key concept of the theory.

#### *A Theory of Housing Adjustment*

The theory of family housing adjustment was developed by Earl W. Morris and Mary Winter in 1975 to provide a conceptual and theoretical framework for the housing adjustment behaviors of families (Morris & Winter, 1975). The theory has been largely employed when investigating housing satisfaction, housing preferences, residential mobility, and housing decisions (Steggell, Binder, Davidson, Vega, Hutton, & Rodecap, 2003). For example, Coveney

and Rudd (1986) examined determinants of housing satisfaction of male family heads who were low-income, work force age, and in a rural area. Bruin and Cook (1997) studied constraints and residential satisfaction among low-income single parent families. Whiteford and Morris (1986) studied the relationship between age and housing satisfaction with tenure type. Liu and Crull (2006) tested this theory by examining the housing satisfaction of Asian and Pacific Islander households compared to non-Hispanic White households. Also, the theory of housing adjustment has been extended to more international settings' studies (Steggell et al., 2003). Ukoha and Beamish (1996) studied predictors of housing satisfaction in Abaja, Nigeria. Yust, Hadjiyanni, and Ponce (1997) explored housing quality measures in a rural area of the Philippines. Kutintara and Parrott (2003) examined home conditions, housing satisfaction, and allergen avoidance practices of people having allergic rhinitis, focusing on older female patients living in an urban area in the hot, humid climate of Thailand.

The theory describes the complex processes of American families making decisions about their housing and explains the relationships of individuals, housing, and neighborhoods within the social context (Morris & Winter, 1978). The central themes of the theory are: (a) housing adjustment represents a casual chain from housing conditions to dissatisfaction to adjustment behavior to adaptive behavior, (b) progress through the chain depends on the household members' ability to complete housing adjustment processes, and (c) the ability depends on the strengths of the various constraints (Morris & Winter, 1998).

Housing is evaluated by families based on their cultural and family norms (Morris & Winter, 1975). Cultural norms are defined as prescriptions that point out the socially acceptable and appropriate housing conditions for families (Morris & Winter, 1975; Winter & Morris, 1982) and are also regarded as equal to housing needs, which derive from cultural standards against which actual housing conditions are judged (Morris & Winter, 1975, 1978). Family norms are the criteria, developed by the family itself, to judge current or potential housing; they do not necessarily coincide with cultural norms (Winter & Morris, 1982). For example, some families may have family norms which favor rental, which differs from the preferred cultural norm of owning homes in American society (Morris & Winter, 1975). When their housing does not fit such norms, the family may feel dissatisfied. Consequently there is a tendency to desire to reduce the normative deficit, which is a gap between actual conditions and those prescribed by norms. To reduce their deficits, two adjustment modes are suggested: housing adaptation and family

adaptation. Housing adaptation consists of residential mobility (i.e., moving) and residential adaptation (additions, alterations, remodeling, and changing the functions of rooms). Family adaptation includes structural adaptation (actions having to do with childbearing and with the entrance into and departure from the household of other members) and normative adaptation (changed family norms) (Morris & Winter, 1975). One example of normative adaptation can be that if household members are too poor to make housing adaptations, they may have to stay in a place and accept the provided conditions that are all they can afford. Or it can be said that persons living in poor households and having fewer housing choices to tolerate housing that has poor quality because it is cheap (Morris & Winter, 1998). A simplified version of the reasoning process of housing adjustment theory is depicted in Figure 2.

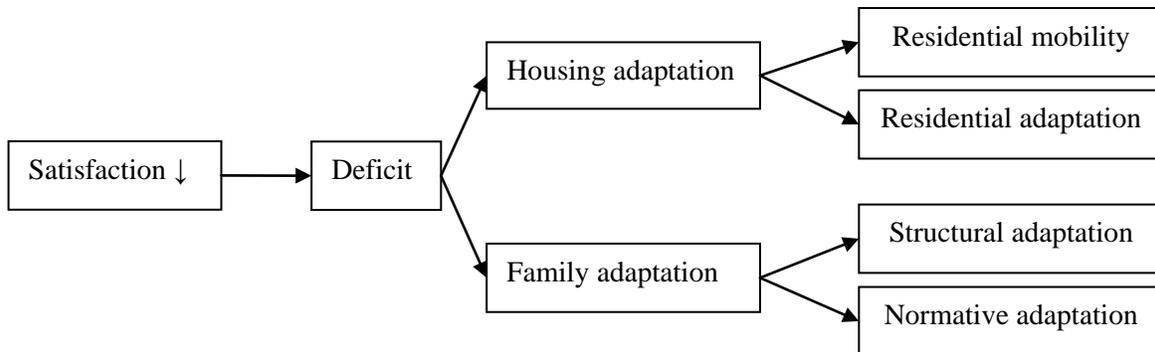


Figure 2. A simplified version of housing adjustment process.

### *Housing Norms*

Housing norms are a key concept in housing adjustment theory, and the motivations which make members of households engage in adjustment and adaptation result from a perceived normative deficit or imbalance in their housing. Housing norms are regarded as social phenomena and the social pressures on individuals and members of households to live in housing with prescribed characteristics. The assertion that certain housing norms are approximately universal may not be always acceptable due to variations in housing conditions of societies.

However, these norms can be expressed informally as in the social pressures exerted by friends and family or manifested formally as in the laws and regulations about housing occupancy and development (Morris & Winter, 1998).

Norms and constraints (e.g., economic resources and discrimination) are important influential forces when household members need to decide about housing. Morris and Winter (1975) suggest five types of American housing norms: housing space, tenure, structure type, quality, and neighborhood (location) norms. Housing norms in the United States prescribe homeownership (i.e., an example of tenure norms), single family dwellings (an example of structure type norm), adequate numbers of rooms (especially sleeping spaces) for the number of household members of each age and sex category, and private outdoor space (Morris & Winter, 1998). Quality norms are more likely to be subjective and are most likely to be congruent with income. Neighborhood norms are related to the location of the unit and the nature of the area, which are important determinants of the family's satisfaction with the dwelling and of its ability to complete non-housing goals (e.g., the quality of the children's education is greatly determined by the location of the dwelling) (Morris & Winter, 1975).

Constraints may interfere with people's ability to live in normative housing conditions. There are five categories of constraints: (a) *resources* (income, wealth, information, skills and time), (b) *family organizations* (the household's ability to effectively make and implement decisions about its housing), (c) the *housing market* (prices, supplies of housing, building materials and mortgage money), (d) *predispositions* (psychological characteristics of household members – apathy, ambition, etc.), and (e) *discrimination* (because of race, ethnicity, sex, age, disability and social class) (Morris & Winter, 1998).

In general, many people do not live in housing that meets shared norms due to various constraints (e.g., low income) on members within the household. Also, they may not choose housing which meets such norms because of different value systems among household members (Morris & Winter, 1998). Morris and Winter (1978) address that values are defined as general guideline(s) for evaluation of norms, are not the norms themselves, are much more general, and serve to systematize norms that in turn direct specific behaviors and conditions. Based on this definition, members within the household may think that their family values are more important than their housing quality or quantity (i.e., housing norms), and live in housing that does not meet their housing norms (Morris & Winter, 1998). For example, Asian and Pacific Islanders in

the United States keep values rooted on Confucianism and may live in an intergenerational housing structure, which allows three generations to live together and to save on their housing expenditures.

The constraints and values of household members lead to either housing adjustment or adaptation to reduce housing deficits or problems. Housing adjustment can be explained with changes of dwellings while adaptation involves making changes in the household members. In general, housing adjustment can be the preferable method. However, if household members cannot make housing adjustments due to their own constraints and values, they may consider adaptation. There are two forms of adaptation: needs reduction and constraint reduction. Needs reduction is related to relaxing their family norms or changing the composition of the household. Constraint reduction is related to changeable constraints such as those in resources (e.g., to improve income by investing in training or education) (Morris & Winter, 1998). Or as with normative adaptation, they may have to stay in a place and accept that the provided condition (e.g., poor neighborhood) is all they can afford.

Simply, housing norms which have been mostly acceptable in the United States consist of homeownership (tenure status), single-family dwellings (structure type) and sufficient numbers of rooms (housing space) for the number of household members of each age and sex category, and at least some private outdoor spaces. Based on household members' mental calculations on current housing condition, housing norms, relevant values and the constraints, household members develop their own preferences. Preferences specify the housing type, quality, and other characteristics which household members are willing and able to gain (Morris & Winter, 1998). However, it should be kept in mind that expressions of norms involve social, psychological, and political processes. Therefore, the existence of particular behaviors or social conditions does not infer that there are norms that prescribe them (Morris & Winter, 1998). Based on Valentine's and Rodman's study (as cited in Stack, 1974), a single-family home, fine furnishings, good schools, and occupational opportunities for children are values which poor Blacks share with mainstream society. However, poor Black families might have less opportunity to enact their values, and therefore, they adapt their values or tolerate the differences to adjust to their deprived circumstances.

## Conceptual Definitions

Based on the theory of housing adjustment, housing satisfaction is closely related to a household members' demographic, housing, and neighborhood characteristics. When the theory is applied to Asian and Pacific Island elders, their housing norms, values, and constraints and resources may be differently defined from those of other majority groups and younger populations.

This section discusses conceptual definitions regarding Asian and Pacific Island elders' demographic characteristics (age, education, family income, geographic locations, household size, marital status, and sex), housing characteristics (housing quality, structure type and size, and tenure status), neighborhood aspects, and housing satisfaction.

### *Demographic Characteristics*

#### *Age*

In general, elderly immigrants are likely to regard immigration as a more stressful life event than young people, because they have multiple barriers including age, immigration issues, and lack of cultural and language skills, which may lead to difficulties in employability in U.S. (Gorospe, 2006). When comparing younger Asian and Pacific Island groups who are more easily Americanized, aging groups may struggle with American culture because of their longer ties to the previous culture and certain expectations of their children. For example, Weinstein-Shr and Henkin (1991) found that elderly Southeast Asians were unskilled in the English language and had insufficient knowledge of American culture, which lessened their credibility with family members when they advised the younger ones. The author mentioned that in American society, older Asians were likely to be dependent on younger family members who took roles of gatekeepers and interpreters of American institutions. The cultural differences between older and younger result in greater conflicts between the generations, which may have a negative impact on elderly people's life satisfaction (Yee, 1997).

Age of household heads of Asian and Pacific Island elders is related to poverty levels in the United States. Reeves and Bennett (2003) summarized that Asian and Pacific Island elders aged 65 and older (10.2%) were more likely to be poor in the United States, comparing to non-

Hispanic Whites aged 65 + (8.1%). Also, more immigrant households with heads aged 65+ occupied subsidized housing units (9.9%) than native households with heads aged 65+ (4.9%).

### *Education*

Compared to majority groups in the United States, Asian and Pacific Islanders are likely to consider education an important tool to success in society. Education is related to occupations and income. Barringer et al. (1993) demonstrated that occupations convert education to income, carry with them prestige, primarily determine life-styles as a major contributor to personal identity, help to define networks of acquaintances, and further opportunities for success.

Schoenholtz and Stanton (2001) reported that one of the reasons for the lower homeownership rates of immigrants can be a limited ability to understand and speak English. The ability to speak English is highly correlated with formal education years, which improves significantly the longer immigrants' stay in the U.S. More formal education allows improvements of speaking English, which leads to longer stay in U.S. The ability to speak English varies among Asian origins because some countries (e.g., Philippine) use English as a second language and others do not (e.g., Vietnam) (Barringer et al., 1993). Also, younger immigrants learn English much faster than older groups, which implies the negative effects of poor English is likely to be tied with age (Rumbaut & Ima, 1987).

Education may bring a conflict between younger and older generations among Asian and Pacific Islanders. Hyun (2001) found that traditional values were less strong among Koreans who were younger, female, and in greater contact with Western ideas, and that higher education and experience with modern Western lifestyle had the predicted negative effects on traditional values among Detroit Korean people.

### *Family Income*

Morris and Winter (1998) regarded income as a constraint which may interfere with people's ability to live in normative housing conditions. Family income and education are likely to be closely associated together. "The very high levels of education of Asian Americans have led to much speculation about the contribution of education to earning" (Barringer et al., 1993, p. 238).

In general, Asian Americans (especially men) are well represented among the professions and obtain positions of executives and managers. However, Asian Americans (especially women) are over represented in service jobs, of which there was variation among ethnicities. Generally, Asian Americans are likely to be disadvantaged compared to whites in employment. Most Asian Americans are more educated compared to whites for the income they are paid. (Barringer et al., 1993), which means the association of education and income is not strong for Asian Americans.

Kauh (1999) studied the current status of older Korean immigrants and the changing roles of their families by interviewing 50 elderly persons and 40 adult children from Korean-American families. The results suggested that elderly Koreans' decrease in power and resources placed them in an unfavorable position (i.e., due to inadequate income, older Korean immigrants are likely to be dependent on their adult children and then, to have a constraint in their fulfillment of the provider role as parents).

Ishii-Kuntz (1997) studied intergenerational relationships among Chinese, Japanese, and Korean Americans. The author revealed that higher family income was significantly associated with more frequent monetary aid by adult children to their elderly parents and that adult children living close to their parents and having higher norms of filial obligation gave more financial support to parents. That means financial and structural factors (i.e., adult children's income and their parents' need for assistance) influenced the frequency of adult children's support for their parents and that these factors also affected their sense of filial obligation to provide support for their parents. The author also suggested that interaction effects of cultural, financial, and structural factors on Asian American intergenerational relationships and the diversity of such relationships within the Asian American population, should be further examined.

Hyun (2001) studied sociocultural change and traditional values, focusing on Confucian values among Koreans in Seoul and Korean Americans in Detroit. The author questioned what traditional Korean values they have come to cherish more after coming to the U.S. The author revealed that those reporting a great deal or quite a bit of financial difficulties cited only certain Korean values (e.g., respect for older people, filial piety, chastity of teenagers, practice of proprieties, and Confucian emphases on familial solidarity) as enhanced after immigrating to the U.S. Therefore, the author concluded that immigrants' experience of financial difficulty was

significantly associated with their appreciation of Korean values which increased after coming to the United States.

Pacific Islanders' income levels are relatively lower because they are likely to work fewer weeks and fewer hours per week than the total U.S. population. Also, poverty exists because they are younger and are living in larger households and families, and have higher fertility rates than the other U.S. populations (Barringer et al., 1993).

### *Geographical Location*

Location is important for economic returns, quality of life, and many other reasons (Briggs, 2005). The location of the dwelling unit and the characteristics of its immediate neighborhood are key determinants of the family's ability to achieve non-housing goals (e.g., quality of the children's education, and thus their prospects for future social and economic security) (Morris & Winter, 1978).

De Jong and Fawcett (1981) indicated that economic opportunities and the location of friends and relatives are important factors when deciding on location. The fact that most Asians historically were settled on the West Coast and in Hawaii is the most important factor which affects the distribution of Asian Americans. Older Asian Americans including Chinese, Japanese, and Filipinos still live in such areas, while groups recently moving into U.S., Koreans and Asian Indians, are not following the traditional moving trends (Barringer et al., 1993). Barringer et al. (1993) reported that as Asian Americans (except refugees from Southeast Asia) become more assimilated, their geographic distribution patterns are getting similar to those of a majority of the U.S. population. According to Reeves and Bennett's study on Asian and Pacific Islanders, half of Asian and Pacific Islanders lived in the western region, and the majority groups (95%) live in metropolitan areas (Reeves & Bennett, 2003).

Location is important to elderly immigrants in the United States when obtaining social resources. Elderly immigrants who live in metropolitan areas are likely to obtain more services than those who live in rural areas, because they may find more service agencies which are familiar with their cultures. Kim and Lauderdale (2002) claimed that elderly Koreans' adaptation could be eased by reducing unfamiliar environmental features, either by living with children or by living in areas with concentrations of Korean businesses and social services. Korean community organizations providing social services are very important to elderly Koreans who

have independent living arrangements in the United States. An example is Korean Community Services (KCS) of Metropolitan New York. KCS was founded in 1973 and focuses on developing and delivering a broad range of community services to meet the various needs of the community. One major program focuses on aging groups. An example is *home delivered meals*, which has been funded by Citymeals on Wheels and NYC Department for the Aging. The senior center delivers hot meals to homebound elderly persons, 60 years and over, by between 10 a.m. and 12 p.m. (Korean Community Services of Metropolitan New York, Inc., 2004). Even though the program is not directly related to housing challenges, such a program is very important to allow elderly Koreans to keep pursuing independent living arrangements with less strain on their finances and problems with insufficient health conditions.

### *Household Size*

Beamish, Goss, and Emmel (2006) explored relationships between influencing factors with people's housing choices and behaviors, and indicated that household characteristics (e.g. household size) are important influential variables related to their lifestyle and housing choice. The authors mentioned that household size varies according to races and ethnic origins, and that household size greatly influences the number of bedrooms which may be required when selecting housing.

Yoo and Sung (1997) studied elderly Koreans' tendency to live independently from their adult children, focusing on adaptation to cultural differences in the United States. They stated that Korean elderly immigrants in the U.S. were living apart from their adult children, which was contrary to the assumption that they would keep their old custom of intergenerational living arrangement, which was common in Korea where the filial piety is still prominent. They interviewed 102 elderly Korean Americans who were 60 and over and lived in Greater Dallas Metropolitan Area of Texas. Almost 2/3 of the sample lived with their children while only 1/3 lived independently. Of the elders who lived separately from their children, almost 80% rented public housing, 71% received SSI benefits, and 56% of those received financial supports from their children. Of the sample in the study, almost 80% had income less than \$10,000, and 70% received children's contributions. The authors concluded that public welfare programs, income, education, and needs for privacy and freedom were factors associated with their independent living from their adult children.

Reeves and Bennett (2003) reported that Asian and Pacific Island families had more family members than non-Hispanic Whites (i.e., 18% of Asian and Pacific Island families had five or more members, compared with 11% of non-Hispanic; 30% of Asian and Pacific Islanders lived in two-members of family, compared with 47% of non-Hispanic Whites). Family composition of Asian Americans was larger within married-family households (Barringer et al., 1993). Household size is closely related to income levels, and income is closely associated with housing because it is a key indicator of what a household is able to pay for housing (Beamish et al., 2006).

### *Marital Status*

Marital status of a household head is closely related to income. In general, married couple families were well above the grand mean income and the number of household workers had a strong effect in gaining income (Barringer et al., 1993).

Family composition of Asian Americans showed high numbers in married-family households (Barringer et al., 1993). Divorcing rates of Asian and Pacific Islanders (5%) were a half of non-Hispanic Whites (10%). Also, Asian and Pacific Island families with female householder with no spouse present (14.6%) were more likely to live in poverty, than married couple families (6.6%) and families having with male householder (9.1%) (Reeves & Bennett, 2003). Specifically, Asian American households with female householders with no spouse present had much lower incomes than married couples. The income levels of Koreans and Vietnamese having female householders with no spouse present were more than one third of married couple families while those of Chinese and Filipinos were half of the incomes of married couple families (Barringer et al., 1993).

### *Sex*

Morris and Winter (1978) regarded sex of the household head as a constraint. Sex of a household head only acts as a constraint in a society where the purveyors of housing (e.g., landlords, real estate brokers, and builders) have viewed women as undesirable neighbors or tenants or poor credit risks, regardless of income or social status. The sexual constraints can engage discrimination against women and, in particular, women who are household heads of families.

Sex can be intersected with income and age. Reeves and Bennett (2003) reported that Asian and Pacific Island female householder with no spouse present had relatively lower income levels than those of families having male householder and that they were more likely to live in poverty, than married couple families and families having with male householder. However, Asian and Pacific Island *males aged 65 and older* were more likely to live in poverty than the Asian and Pacific Island *females aged 65 and older* (Reeves & Bennett, 2003).

### *Housing Characteristics*

Morris and Winter (1975) addressed that norms are important influential forces when household members need to decide about their housing. The authors (1975) suggested five types of American housing norms: housing quality, space (i.e., structure size), structure type, tenure and neighborhood (location) norms. This section discusses previous research regarding housing quality, structure size, structure type, and tenure status. The next section provides discussion about neighborhood research.

### *Housing Quality*

Housing quality can be defined as the desirability of a given residence, perceived by the observer, the occupants, the potential owners, and others, and as characteristics of dwelling units contributing to its desirability through subjective reactions to the units' characteristics (Morris & Winter, 1978). Quality norms are more likely to be subjective and are most likely to be congruent with income. Therefore, there is no direct measure of housing quality except perhaps market value. Even if family preferences regarding their dwelling and neighborhood are essential for determining the presence of quality deficits, such characteristics must be excluded from the objective measurement of quality because the evaluation of quality could change if a different family moved in (Morris & Winter, 1978).

Housing quality can be measured with housing adequacy levels, from adequate to severely inadequate (ICF International, 2009). Housing adequacy is one of the important mediating variables between housing satisfaction and household variables (Liu & Crull, 2006). Also, poor quality is closely related to affordability issues [i.e., almost 50% of the low-income households living in inadequate housing paid more than 50% of their incomes for their housing (Joint Center for Housing Studies of Harvard University, 2009)].

Housing quality can also be explained in the context of age of household head, maintenance skills, and housing satisfaction. Coveney and Rudd (1986) examined housing problems facing families with chronic poverty and found that quality of maintenance (a measure of housing quality) decreased with age of the household head and increased with those having higher skills in maintenance. Crull (1996) studied relationships of housing inadequacy and housing satisfaction (as an indicator of quality of life) of black and white households with poverty. This study revealed that the direct determinants of housing satisfaction were housing adequacy and neighborhood factors, not racial differences.

Schill, Friedman, and Rosenbaum (1998) studied the housing conditions of immigrants in New York City, focusing on homeownership, affordability, crowding, and housing quality. The authors found that immigrants (households with foreign-born members) were more likely to be renters, face affordability problems, and to live in overcrowded and unsafe housing. However, race and ethnicity were more significant than immigrant status when determining housing conditions.

Zhu and Shelton (1996) examined the effects of quality and housing costs on residential satisfaction of homeowners aged 65 and over. A finding was that housing quality was one of the most positively influential factors contributing to elders' housing satisfaction. The authors also mentioned that policies and programs related to housing quality would impact older Americans' preferences for aging in place and their quality of life.

### *Structure Size*

Structure size (i.e., number of bedrooms) is positively related to housing satisfaction (Hwang & Ziebarth, 2006). Crowding refers to deficit of space, and is measured by various methods (e.g., square feet per person, persons per room, persons per sleeping room, and bedroom deficit). For example, when following the persons per room ratio, overcrowded housing refers to a condition having more than one person per room (Morris & Winter, 1978). Morris and Winter stated that a negative space deficit appeared when a family was crowded in comparison with normative standards.

In relation to bedroom deficit, the bedroom-need norms can be an expression of the number of bedrooms which are needed to meet the cultural norms, prescribing which family members should have separate bedrooms and which may share bedrooms. To determine

bedroom need, the cultural rules which concern bedroom sharing need to be identified. The bedroom deficit can be calculated based on the *number of bedrooms minus the number of bedrooms needed*, and is regarded as a significant predictor of housing satisfaction, mobility desires, mobility expectations, family adaption behavior, and residential alteration behavior (Morris & Winter, 1978).

Larger families are likely to have greater need for more bedrooms (Coveney & Rudd, 1986). If sleeping arrangements have not met the space norms and if there is more than one person occupying each room in the house (Beamish et al., 2006), household members may feel uncomfortable at home. Baillie (1990) found that dwelling features such as adequate size had direct effects on housing satisfaction.

### *Structure Type*

Structure type refers to categorization of dwelling types (e.g., mobile home, single family detached dwelling, row house, townhouse, duplex, apartment, highrise, and garden apartment). A structure type deficit means living in a structure which does not meet the norms. An example of negative structure-type deficit is living in a dwelling of an inferior structure type related to norms, as in family living in an apartment even if they want a single family structure (Morris & Winter, 1978).

Structure types influence household members' satisfaction. Gruber, Shelton, and Godwin (1985) studied housing satisfaction levels with the six housing factors (near environment, physical structure, amenities, church and school, public services, and housing costs) of three types of residences (conventional, mobile home and apartment). The major finding was that residents of conventional homes and apartments were more similar to each other in relation to housing satisfaction than residents of mobile homes.

### *Tenure Status*

Tenure means the mode of holding or possessing housing, and can be commonly categorized as ownership and rental (Morris & Winter, 1978). Most conventional and mobile homeowners believe that homeownership benefits them with economic advantages while residents of apartments cannot have tax benefits, which affect the costs of their homes (Gruber et al., 1985)

Tenure can also be explained in relation to housing expenditures and housing satisfaction. Danes and Morris (1986) studied the relationship between monthly housing expenditures and satisfaction with quality of housing among renters and owners with and without mortgages. The authors found that housing quality satisfaction was related to small household sizes, young household heads, high education and high incomes, that renters' satisfaction in housing quality was less than that of owners, and that housing expenditures were positively related to family size, income, and education.

Tenure status is closely related to income and marital status. Chi (1984) studied housing tenure changes for national samples of movers with 1974 and 1976 Annual Housing Surveys, indicating that changes of tenure status from renting to owning were influenced by family income and that those from owning to renting were influenced by the incidence of marital dissolution. The author concluded that dynamic marital and income change would influence high rates of housing tenure change in either direction in housing markets.

Also, tenure type and age are likely to interact in relation to housing satisfaction (Whiteford & Morris, 1986). Whiteford and Morris (1986) examined relationships of tenure types, housing satisfaction, and age (under 35, 35-49, 50-64, and over 65). Both young and old homeowners were equally satisfied with their housing; both elderly renters and owners were equally satisfied with their living place; younger renters had less satisfaction levels than other groups (i.e., young owners, elderly renters and owners).

### *Neighborhood*

Evaluating conditions of a neighborhood is closely related to housing satisfaction among Asian and Pacific Island elders. Neighborhood satisfaction is defined as contentment with a neighborhood, which is based on the relative absence of perceived neighborhood deficits and low salience of the deficits that exist (Morris & Winter, 1978). The exemplary case of the importance of the neighborhood is that the quality of the children's education and prospects for future social and economic security are partially determined by the location of the dwelling unit (Morris & Winter, 1978).

Neighborhoods can be explained with an ecological approach, which includes the fields of sociology, psychology, economics, anthropology, geography, and planning. The ecological approach views the neighborhood as a functional entity, and looks at the interdependence

between the residents within neighborhood and their environment and the interrelationships among the neighborhood residents. Measuring satisfaction is difficult, and the simplest way is asking residents how satisfied they are (Higgitt & Memken, 2001). Six mechanisms define how neighborhoods may influence people at different life stages: quality of local services, socialization by adults, peer influences, social networks, exposure to crime and violence, and physical distance and isolation (Ellen & Turner, 1997).

Belonging to neighborhood is closely related to housing satisfaction. Kaplan (1985) examined the influence of the perceived availability of similar others and the frequency of social interactions on women's community satisfaction. The author found that perceived availability of similar others had stronger relationship to community satisfaction than did frequency of interaction. This means that even if frequency of interactions was less strongly related to community satisfaction, females tended to be more satisfied with the community where they lived. As an implication, the author mentioned that there were individual differences in relation to personal and social experiences and backgrounds, and therefore, further policies could be planned with respect to community growth and the integration of different lifestyles into one community.

Hwang and Ziebarth (2006) studied the influence of residential environments on housing satisfaction among Korean American elders. The authors found that housing satisfaction of Korean American elders was positively related to psychological (a sense of belonging to one's neighborhood) and social aspects (neighborhood social environment and community services).

#### *Dependent Variable, Housing Satisfaction*

Morris and Winter (1978) defined housing satisfaction as a state of the contentment level with current housing conditions. The authors mention that low levels of satisfaction are experienced as stress. Housing satisfaction encompasses the entire continuum of satisfaction ranging from very dissatisfied to very satisfied.

There are two levels of satisfaction measurement: global (i.e., satisfaction can be accessed directly) and partial (i.e., satisfaction can be assessed by a summation or other weighted combination of satisfaction having various partial preferred states). Within the global and partial levels, satisfaction can be measured objectively or subjectively. Objective measurements mean actual levels of well-being achieved and the relative absence of unmet needs as identified by an

unbiased observer. Subjective measurements mean satisfaction with the levels achieved and a psychological emotion (feeling) of being well off. The subjective reaction to the states achieved can be a motivation to improve well-being. Therefore, subjective measurement of well-being is based on reported satisfaction while objective measurement of well-being is on measurement of the unmet needs. Unmet needs are defined as the mean deviation of actual conditions from norms (i.e., normative deficits) (Morris & Winter, 1978).

The most acceptable measurement method for satisfaction can be found from the studies of Yockey (1976), Harris (1976), and Morris (1976). Yockey (1976) developed a satisfaction scale with space-oriented characteristics of the house, Harris (1976) developed a scale based on quality orientation, and Morris (1976) developed an overall satisfaction scale including quality, quantity, ownership, and structure type satisfactions. These scales focused on weighting the satisfaction responses by the importance responses. A high satisfaction level with a very important item had a higher score than a high satisfaction level with an unimportant item (Morris & Winter, 1978).

As a global level measurement, housing satisfaction has been assessed by a one-item measurement. Liu and Crull (2006) measured housing satisfaction by using a 10-point rating scale (1 represented the least satisfied while 10 represented the most satisfied) when investigating housing satisfaction of Asian and Pacific Islander households in the U.S. by using the American Housing Survey Metropolitan Sample. James (2008) measured housing satisfaction by a question using a 10-point rating scale (10 is the best and 1 is worst) when examining residential satisfaction of elderly tenants in apartment housing by employing the 2005 American Housing Survey.

Housing satisfaction has also been measured in other ways. Housing satisfaction is closely related to household members' demographic and housing characteristics. Coveney and Rudd (1986) identified housing problems facing families with chronic poverty. The authors found that the household members having low levels of maintenance quality (quality deficit) and fewer bedrooms (space deficit) are likely to have lower housing satisfaction.

Asian and Pacific Islanders' housing satisfaction can be explained within cultural backgrounds and industrialization. As a society becomes industrialized, family-kinship structure changes toward the conjugal family system (Goode, 1963), focusing on individual relationships and independence within the nuclear family structure (Hurh, 1998). A wide range of blood

relatives are excluded from everyday affairs, focusing on the nuclear family with *neolocal* residence and freedom of mate selection. This results in a congruence between family-kinship and conjugal family structure (Goode, 1963). For example, Korean immigrants' family-kinship system would change toward the conjugal family, but might retain characteristics of their traditional system, resulting in an *extended conjugal family system*, where filial obligation is an option of adult children, not a cultural norm. Therefore, if the extended conjugal family appears in Korean communities in the United States, the system is likely to create serious tensions in the intergenerational relationships between elderly parents and their children (Kim, Kim, & Hurh, 1991). This phenomenon does significantly influence elderly Koreans' living arrangements and housing satisfaction and also raises housing issues for their later life.

A study of Hwang and Ziebarth (2006) showed that housing satisfaction of Korean American elders was positively related to duration in the United States. The authors also found that housing satisfaction was positively related to health status, number of bedrooms, neighborhood social environments, community services, and a sense of belonging to the neighborhood and that housing satisfaction was negatively related to age, income and household size.

Lee and Parrott (2004) examined the relationship between apartment residents' cultural background and housing satisfaction and revealed that national origin was significantly correlated with housing satisfaction and satisfaction of housing features such as size, layout, interior, and others (e.g., pre-installing lights and air conditioner).

However, Liu and Crull (2006) indicated that background of households does not matter because housing conditions and neighborhood satisfaction contribute significantly to their housing satisfaction. Their study examined the effects of demographic variables, housing deficits, and neighborhood satisfaction on housing satisfaction of Asian and Pacific Islander households in the United States, compared with non-Hispanic White households. The authors found that housing deficits (renter status and housing inadequacy) and neighborhood satisfaction were the main mediating variables between housing satisfaction and household variables, that length of residence and extended family living structure did not predict housing satisfaction of Asian and Pacific Islanders, and that housing satisfaction of Asian and Pacific Island households was not very different from that of non-Hispanic White households.

Zhu and Shelton (1996) studied the relationship of housing costs and quality to housing satisfaction of older American homeowners, focusing on regional and racial differences. The authors revealed that housing satisfaction was positively and significantly related to housing quality, which was significantly associated with racial (Whites vs. non-Whites) and regional differences (Northeast, Midwest, South and West). Housing satisfaction and housing costs were positively associated only for White elders. The authors found diverse income and housing cost distribution among elderly homeowners. In addition, the authors claimed that many older adult homeowners regarded their housing as a suitable place regardless of conditions in that non-White elderly householders with less income and lower health are often likely to perceive their housing conditions positively.

### Summary of Literature Review

The purpose of the study is to investigate housing challenges of Asian and Pacific Island elders, focusing on government assistance, and demographic, housing, and neighborhood characteristics.

Before developing a research framework to implement the research purpose, the literature review section allows me to gather previous and related knowledge and research. This section was composed of the five subsections:

- (a) Background information of Asian and Pacific Islanders in the U.S. (demographic profile, immigration history, cultural diversity, and housing characteristics);
- (b) Housing assistance programs for elders in the U.S.;
- (c) PRWORA of 1996 and four major federal programs influenced by the law;
- (d) Housing adjustment theory as a theoretical background of this study; and
- (e) Conceptual definitions focusing on housing satisfaction and demographic, housing and neighborhood characteristics.

## CHAPTER 3

### METHODOLOGY

The purpose of this study was to examine the impact of Asian and Pacific Island elders' government assistance, and demographic, housing, and neighborhood characteristics on their housing challenges, which were measured by housing satisfaction scores. To implement this research, I developed a research framework and employed an existing data set, called the American Housing Survey National Data from 1995 through 2007. This methodology chapter includes:

- (a) The research questions;
- (b) The research framework;
- (c) Description of the American Housing Survey data;
- (d) Variables of this study and data coding; and
- (e) Data analysis procedure.

#### Research Questions

The following research questions were developed to direct this study:

- 1) What is the profile of government assistance (Food Stamps and SSI/AFDC/other welfare) of Asian and Pacific Island elders since 1995?
- 2) What is the demographic profile of Asian and Pacific Island elders in terms of age of head of household, education level of head of household, family income, geographic locations, household size, marital status of head of household, and sex of head of household from 1995 through 2007?
- 3) What is the profile of housing characteristics of Asian and Pacific Island elders in terms of housing quality, structure size, structure type, and tenure status from 1995 through 2007?
- 4) What is the profile of neighborhood ratings by Asian and Pacific Island elders from 1995 through 2007?
- 5) Is there any impact of Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 on housing satisfaction and other variables (the government assistance,

and demographic, housing, and neighborhood characteristics) of Asian and Pacific Island elders from 1995 through 2007?

- 6) What is the relationship between government assistance and demographic, housing, and neighborhood characteristics and housing satisfaction of Asian and Pacific Island elders from 1995 through 2007?

### Research Framework

Based on the theory of housing adjustment (Morris & Winter, 1975, 1978) and previous research and literature, the research framework for this study included two main parts: (a) measuring whether government assistance influenced housing satisfaction of Asian and Pacific Island elders from AHS 1995 through 2007, and (b) determining the impact of Asian and Pacific Island elders' demographic, housing, and neighborhood variables on housing satisfaction during that time.

The research framework appears in Figure 3. Housing satisfaction is considered as a representative term when investigating each householder's housing challenges in the United States. Therefore, housing satisfaction score was selected as the dependent variable in this study. The framework focused on revealing (a) the relationships of government assistance variables (independent variables, IVs) and housing satisfaction score (dependent variable, DV) of Asian and Pacific Island elders, (b) the relationships of demographic, housing, and neighborhood variables (IVs) and housing satisfaction score (DV) of Asian and Pacific Island elders, and (c) the overall relationships of government assistance, demographic, housing, and neighborhood variables (IVs) and housing satisfaction score (DV) of Asian and Pacific Island elders in the United States.

#### *Influence of Government Assistance on Asian and Pacific Island Elders' Housing Challenges*

The variable "government assistance" was designed as an independent variable to investigate whether the government assistance influenced Asian and Pacific Island elders' housing challenges since the enactment of the PRWORA of 1996. To measure housing challenges, a housing satisfaction score was used as a dependent variable because its score was able to represent contentment levels with housing conditions (Morris & Witner, 1978).

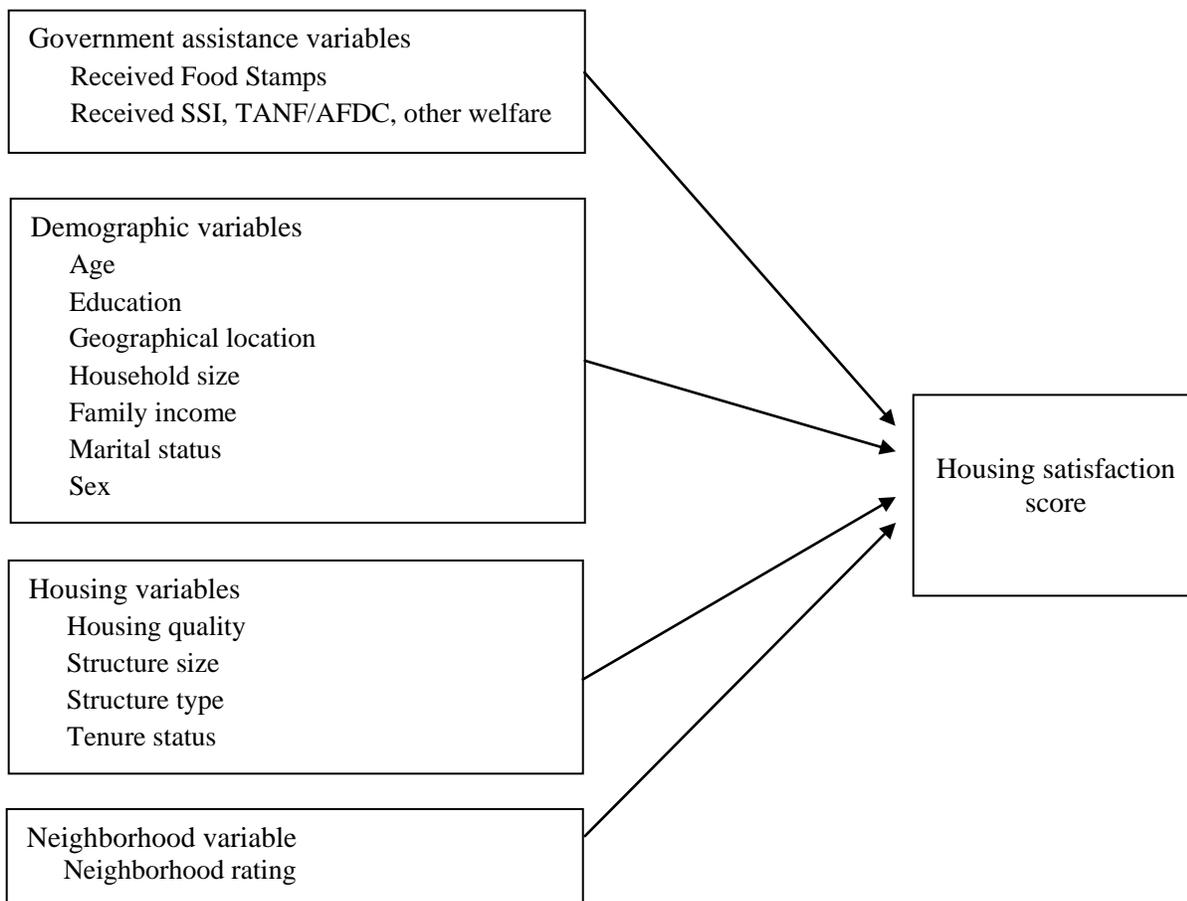


Figure 3. A research framework (Focusing on Asian and Pacific Island elderly groups from 1995 through 2007).

According to the theory of housing adjustment, constraints (i.e., low income) may prevent people from living in normative housing conditions. For example, elderly Koreans who immigrate to America may prefer to live independently from their adult children, desiring privacy and freedom (Yoo & Sung, 1997). However, elderly Koreans' housing preferences can be affected by fewer financial resources and public support, which can be considered constraints. PRWORA limits immigrants' eligibility for key federal programs consisting of TANF (Temporary Assistance for Needy Families), SSI (Supplemental Security Income) and Food Stamps (USGAO, 1998). Such programs can be closely related to immigrants' financial resources, which are likely to affect their housing satisfaction. For this purpose, the dependent

variable of this study was a housing satisfaction score, and the independent variables chosen for PRWORA in this framework were:

(a) Government assistance variables

- Received Food Stamps
- Received SSI, TANF/AFDC, other welfare

*Impact of Asian and Pacific Island Elders' Demographic, Housing, and Neighborhood Variables on Housing Satisfaction Scores from 1995 to 2007*

One of main goals of the research framework was to examine influences of Asian and Pacific Island elders' demographic, housing, and neighborhood variables on their housing satisfaction score. A dependent variable of this study was a housing satisfaction score, and independent variables in the framework were:

(a) Demographic variables

- Age
- Education
- Family income
- Geographic locations
- Household size
- Marital status
- Sex of head

(b) Housing variables

- Housing quality
- Structure size
- Structure type
- Tenure status

(c) Neighborhood variable

- Neighborhood rating

## Description of American Housing Survey Data

The American Housing Survey (AHS, previously called the Annual Housing Survey because it was conducted every year from 1973 to 1981) is designed to provide a current and continuous series of data related to selected housing and demographic characteristics. The AHS is the largest, regular national sample describing people and their homes in the United States. The AHS is conducted by the U.S. Census Bureau to obtain up-to-date housing statistics and is sponsored by the United States Department of Housing and Urban Development (USDHUD) (Montfort, 1998). The AHS provides data on apartment, single-family homes, mobile homes, vacant homes, family (household) composition, income, housing and neighborhood quality, housing costs, equipment, fuels, size of housing unit, and recent movers (HUD User, 2008).

### *Sample Design and Size*

The American Housing Survey consists of a national survey and a survey of metropolitan areas. This study focused on AHS national surveys. The national survey started in 1973 with a sample size of 60,000 housing units, and has had the same sample since 1985 when the national sample was redesigned and based on data from the 1980 Census. A base sample size is approximately 47,000 units and rotating supplemental samples of around 6,000 to 9,000 are added for each survey. The AHS national survey is performed every other year to the same housing units, which provide information on changes in homes and households over the years and which uses a similar form of longitudinal interviewing. In some metropolitan areas, additional samples are added every 4 to 6 years, to measure local conditions (HUD User, 2008; USDHUD, 2003; Montfort, 1998).

### *Selection of Sample*

This study focused on Asian and Pacific Island elders 65 + in AHS national samples of 1995, 1997, 1999, 2001, 2003, 2005, and 2007. To select the subsample of Asian and Pacific Islanders from the AHS national sample, the race of the head of household was used to determine eligibility for the study. Within the AHS data coding, the variable related to *race of head of household* has been named as RACE1, HHRACE, or RACE. From AHS 1995 through 2001, the variable related to race had five categories with Asian and Pacific Islander in a single

category. From 2003 to 2007, the variable was categorized into 21 groups with Asian and Pacific Islanders in three different categories (Table 7). When matching Asian and Pacific Island groups in 1995 through 2001 to those in 2003 to 2007, there is no official statement about how to match the two systems. Mr. David A. Vandenbroucke, a senior economist in the Department of Housing and Urban Development, responded to my inquiry of how to match races between the two categorization systems of the AHS:

I'm afraid there is no definitive, official answer to your question. The Census Bureau changed its race coding system in the 2000 decennial census, and all government surveys converted to the new system. The two systems are simply different, and there has never been an official statement about how to match the two. One would expect that persons who answered 4 in the earlier system would answer 4 or 5 in the later one, except for the unknown percentage of respondents who would indicate more than one. But the final decision about how to relate the two sets of codes in your own research is up to you (D. A. Vandenbroucke, personal communication, March 30, 2009)

One of USDHUD sponsored studies, *Analysis of Racial Characterization under Different Reporting Options* (Eggers, 2006) presented percentage distribution of race in 2001 by 2003 racial categories. Based on the work of Eggers (2006), race of *Asian or Pacific Islander* in 2001 was categorized in 2003 as shown in Table 8. Based on limitations of the race categorization, I decided to group: (a) *Asian only*, (b) *Hawaiian, Pacific Islander only*, and (c) *Asian/ Hawaiian, Pacific Islander* in the AHS national survey from 2003 to 2007 as the race of *Asian and Pacific Island* groups in this study.

As mentioned as a limitation in Chapters 1 and 2, a large percentage of Pacific Islanders are not immigrants, but rather natives (80% of this population) (Harris & Jones, 2005). However, to keep consistency of race categorization from 1995 through 2007 for this study, I decided to select Pacific Islanders from categories including *Hawaiian, Pacific Islander Only* and *Asian/Hawaiian, Pacific Islander* from AHS 2003 to 2007. Thus, the sample for this study was limited to Asian and Pacific Island elders of 1995 through 2007. The delimitations resulted in useable sample of approximately 1,039 of Asian and Pacific Island 65 + household heads (10.2% of Asian and Pacific Islanders responding household heads) (Table 9).

Table 7

*Categorization of RACE in 1995 AHS through 2007AHS*

Variable names (Label)	Value labels in 2001, 1999, 1997, 1995 AHS	Value labels in 2007, 2005, 2003AHS
RACE1/ HHRACE/ RACE (Race of head of household)	1 White, including Hispanic white	1 White Only
	2 Black, including Hispanic Black	2 Black Only
	3 American Indian, Aleutian, Eskimo	3 American Indian, Alaskan Native Only
	<b>4 Asian or Pacific Islander</b>	<b>4 Asian Only</b>
	5 Other	<b>5 Hawaiian, Pacific Islander Only</b>
	9 Vacant, URE, or non-interview	6 White/ Black
		7 White/ American Indian, Alaska Native
		8 White/ Asian
		9 White/ Hawaiian, Pacific Islander
	10 Black/ American Indian, Alaska Native	
	11 Black/ Asian	
	12 Black/ Hawaiian, Pacific Islander	
	13 American Indian, Alaska Native/ Asian	
	<b>14 Asian/ Hawaiian, Pacific Islander</b>	
	15 White/ Black/ American Indian, Alaska Native	
	16 White/ Black/ Asian	
	17 White/ American Indian, Alaska Native/ Asian	
	18 White/ Asian/ Hawaiian, Pacific Islander	
	19 White/ Black/ American Indian, Alaska Native/ Asian	
	20 Other combinations of 2 or 3 races	
	21 Other combinations of 4 or 5 races	

Table 8

*Percentage Distribution of Asian and Pacific Islander in 2001 by Race in 2003 Categories*

Race as reported in 2003 AHS		Asian or Pacific Islander (as a race category reported in 2001 AHS)	
		Responses	%
1	White Only	182	8.4
2	Black Only	5	0.2
3	American Indian, Alaska Native Only	2	0.1
<b>4</b>	<b>Asian Only</b>	<b>1,773</b>	<b>81.8</b>
<b>5</b>	<b>Hawaiian, Pacific Islander Only</b>	<b>117</b>	<b>5.4</b>
6	White/ Black	0	0.0
7	White/ American Indian, Alaska Native	0	0.0
8	White/ Asian	41	1.9
9	White/ Hawaiian, Pacific Islander	10	0.5
10	Black/ American Indian, Alaska Native	0	0.0
11	Black/ Asian	4	0.2
12	Black/ Hawaiian, Pacific Islander	0	0.0
13	American Indian, Alaska Native/ Asian	1	0.0
<b>14</b>	<b>Asian/ Hawaiian, Pacific Islander</b>	<b>17</b>	<b>0.8</b>
15	White/ Black/ American Indian, Alaska Native	4	0.2
16	White/ Black/ Asian	0	0.0
17	White/ American Indian, Alaska Native/ Asian	0	0.0
18	White/ Asian/ Hawaiian, Pacific Islander	11	0.5
19	White/ Black/ American Indian, Alaska Native/ Asian	0	0.0
20	Other combinations of 2 or 3 races	0	0.0
21	Other combinations of 4 or 5 races	0	0.0
	Total	2,167	100.0

*Note.* From Eggers, F. J. (2006). *Analysis of racial characterization under different reporting options*. Retrieved April 11, 2010, from <http://www.huduser.org/datasets/ahs/AnalysisRacialCharacterization.pdf>.

Table 9

*Summary of Useable Sample Numbers in this Study*

	Total number of observations	Response number of household heads	% of total observations	Asian and Pacific Island household heads <sup>a</sup>	% of total observation	Asian and Pacific Island elders (65 + household heads)
1995	63,143	45,675	72.34	1,286	2.04	118
1997	58,287	39,981	68.59	1,116	1.91	89
1999	67,177	46,589	69.35	1,529	2.28	133
2001	62,314	42,487	68.18	1,346	2.16	117
2003	71,170	48,197	67.72	1,823	2.56	191
2005	69,020	43,360	62.82	1,542	2.23	183
2007	65,419	39,107	59.78	1,481	2.27	208
Total				10,123		1,039

<sup>a</sup> From 1995 through 2001: Asian or Pacific Islander; From 2003 through 2007: Asian only, Hawaiian, Pacific Islander Only, and Asian/Hawaiian, Pacific Islander.

*Interview Methods*

In 1995, the AHS employed three different interview methods: personal visit, decentralized telephone interviewing, and computer assisted telephone interviewing (CATI) (USDHUD, 1997). USDHUD (1997) reported that in the 1995 AHS, 21% of the interviews (12,067) were completed using CATI and 25% by decentralized telephone interviewing (14,688). However, more interviews were conducted by personal visits (31,563). Since 1997, the Census Bureau eliminated the paper questionnaire, and has conducted computer-assisted interviewing (CAI) using laptop computers (USDHUD, 2008).

*Single File/Flat File Version of AHS National Data*

In 1995 and earlier, the AHS data was provided as a single file or flat file version, where each housing unit's information was contained on a single logical record, and which had a set number of characters for each observation with each variable having a fixed location in the file. However, in 1997 and later, the AHS data have been formatted as different modules, which need to be converted to a single or flat file version. The 1997 and later the AHS data format is analogous to a relational database, which means a collection of different files that can be joined based on merging different sets of variables. The merging may be one-to-many merging, not one-to-one. For example, for a household living in a housing unit, the one housing unit can be matched to the multiple persons comprising the household. Therefore, each data set from 1997 through 2007 in this study should be converted as a single or flat file version by using a SAS

program developed by ICF International that is distributed with the data (ICF Consulting, 2001; ICF International, 2009).

### *Codebooks*

When dealing with AHS from 1995 through 2007, different coding systems must be referenced. When investigating AHS 1995, two codebooks needed to be considered: *Codebook for the American Housing Survey Codebook Volume 1* (USDHUD, 2010) and *Codebook for the American Housing Survey Volume 2: Supplement for 1984-96* (USDHUD, 1998). When working with data of 1997 AHS and later, *Codebook for the American Housing Survey, Public Use File: 1997 and later* (ICF International, 2009) was the reference.

### Variables of this Study and Data Coding

Variables selected from AHS datasets were based on the theory of housing adjustment (Morris & Winter, 1975, 1978), PRWORA of 1996, and existing research. This section introduces variables of this study and how data were coded for data analysis.

### *Variables of this Study*

The data of this study included seven sets of the AHS national survey from 1995 through 2007. Some variables were coded under the same variable name (e.g., *rating of unit as a place to live* was coded under HOWH from 1995 to 2007) while other variables were coded under a different variable name even if the value labels were identical (e.g., *sex of head of household* coded under sex1 from 1997 to 2007 and under SEX in 1995). Since 2001, HHAGE, HHGRAD, HHSEX, and HHMAR have all appeared in AHS as additional variable names for the same construct. HHAGE matches age1; HHGRAD matches grad1; HHSEX matches sex1; and HHMAR matches mar1. Variables included in the model of this study and their variable names were shown in Table 10.

Table 10

*Variables Included in the Model*

	Construct	Label	Variable name used only in 1995 data	Variable name in 1995 AHS to 2007		
Dependent variable	Housing satisfaction score	Housing satisfaction score	Rating of unit as a place to live	-	HOWH	
Independent variables	Government assistance variables	Food Stamps	Received Food Stamps in last 12 months	-	QFS1	
		SSI/TANF/AFDC/Welfare	Received SSI, TANF/AFDC, other Welfare	-	QWELF	
	Demographic variables	Age	Age of head of household	AGE	age1/AGE1 <sup>ab</sup>	
					(HHAGE) also used since 2001	
		Education	Educational level of head of household	GRADE1	grad1/GRAD1 <sup>ab</sup>	
					(HHGRAD) also used since 2001	
		Family Income	Family income	-	ZINC	
		Geographical location	Central city /Suburban		METRO	METRO3
			Census region		-	REGION
		Household size	Number of persons in household	-	PER	
	Marital status	Marital status of head of household	MAR	mar1/MAR1 <sup>ab</sup>		
				(HHMAR) also used since 2001		
	Sex	Sex of head of household	SEX	sex1/SEX1 <sup>ab</sup>		
				(HHSEX) also used since 2001		
	Housing variables	Housing quality	Adequacy of housing	-	ZADEQ	
Structure size		Number of bedrooms in unit	-	BEDRMS		
Structure type		Structure type	-	NUNIT2		
Tenure status		Owner/renter status of unit	-	TENURE		
Neighborhood Variable	Neighborhood rating	Rating of neighborhood as place to live	-	HOWN		

<sup>a</sup> age1=HHAGE, grad1=HHGRAD, sex1=HHSEX, and mar1=HHMAR.

<sup>b</sup> The variables are capitalized as AGE1, GRAD1, SEX1, and MAR1 in the 2003 AHS.

### *Data Coding*

Table 11 shows how data were coded in the AHS national data; and the value labels and measurement scales for this study. Data analyses employed in this study included multiple regression. Therefore, when coding each variable, it is better to have continuous variables and to make categorical variables into a set of indicator (i.e., dummy) variables.

#### *Dependent Variable*

**Housing satisfaction score:** The housing satisfaction level was measured with a single-item variable showing *rating of unit as a place to live*. This satisfaction was a continuous variable, which employed a 10-point rating scale, from 1 (worst) and 10 (best).

#### *Independent Variables*

**Government assistance:** Two variables, *received Food Stamps in last 12 months* and *received SSI, TANF/AFDC, other welfare*, were used to measure government assistance under PRWORA 1996. In this study, both were categorical variables and coded as Yes (1) and No (0). Also, in relation to the variable *received Food Stamps in last 12 months*, I made another category, Not eligible (2), due to a confusion coming from AHS using the different two coding schemes before and after 1997.

As shown in Table 12, AHS provided Yes (1) and No (2) as value labels for these items from 1995 to 2007. In fact, this question was asked only if household income was less than \$25,000. According to the AHS codebook, B (Not applicable, *more \$25,000 automatically assigned*) has been used since 1997. However, when looking at coding values from 1997 and 1999 AHS data, Blank seemed to be used instead of B for coding those data. Also, Table 10 suggests this happened in 1995 as well. Therefore, to avoid confusion from using B and Blank, I developed a value label, Not eligible which comprised B and Blank; other values (8, D, and R) were treated as missing values in this study.

Also, after combining B and Blank as a Not eligible, I double-checked if the responses were correctly recoded. If the respondent's family income was not over \$25,000 but located under the Not eligible, I treated those as missing values in this study (I found 16 responses).

Table 11

*Value Labels and Measurement Scale in 1995 AHS; from 1997 to 2007; in this Study*

Construct	Variable names (Label)	Value labels <sup>ab</sup> in 1995 AHS	Value labels <sup>c</sup> In 1997, 1999, 2001, 2003, 2005, 2007 AHS	Value labels/ measurement scale in this study
<b>Dependent variable</b>				
<b>Housing satisfaction score</b>	Housing satisfaction score	HOWH (Rating of unit as a place to live)	1 Worst 10 Best 98 Not answered	1-10 Rating (10 is best, 1 is worst) 1-10 Rating (10 is best, 1 is worst) <b>Continuous</b>
<b>Independent variables</b>				
<b>Government assistance variables</b>	Food Stamps	QFS1 <sup>d</sup> (Received Food Stamps in last 12 months )	1 Yes (1) 2 No (0) 8 Not answered (Missing value) Blank (2)	1 Yes (1) 2 No (0) B Not applicable (More \$25,000 automatically assigned) (2) D Don't know (Missing value) R Refused (Missing value) Blank Not reported (2) <b>Categorical</b>
		SSI/ TANF/AFDC/Welfare	QWELF <sup>e</sup> (Received SSI, TANF/AFDC, other Welfare)	1 Yes (1) 2 No (0)
<b>Demographic variables</b>	Age	age1/ HHAGE/ AGE (Age of household head)	10-90 10 – 90 years 91 91 years or older	0-120 0-120 years old 10-90 10-90 years old 91 91 years and older <b>Continuous</b>
		Education	grad1/ GRADE1 (Educational level of household head )	31 Less than 1st grade (1) 32 1st, 2nd, 3rd or 4th grade (1) 33 5th or 6th grade (1) 34 7th or 8th grade (1) 35 9th grade (1) 36 10th grade (1) 37 11th grade (1) 38 12th grade, no diploma 39 HIGH SCHOOL GRADUATE - high school DIPLOMA or equivalent (For example: GED) (2) 40 Some college but no degree (3)

*(table continues)*

Table 11 (Continued)

Construct	Variable names (Label)		Value labels <sup>ab</sup> in 1995 AHS		Value labels <sup>c</sup> In 1997, 1999, 2001, 2003, 2005, 2007 AHS		Value labels/ measurement scale in this study
		41	Diploma or certificate from a vocational, technical, trade or business school beyond high school(3)		41	Diploma or certificate from a vocational, technical, trade or business school beyond high school	
		42	Associate degree in college - Occupational/vocational program(3)		42	Associate degree in college - Occupational/vocational program	
		43	Associate degree in college - Academic program(3)		43	Associate degree in college - Academic program	
		44	Bachelors degree (For example: BA, AB, BS) (4)		44	Bachelors degree (For example: BA, AB, BS)	
		45	Master's degree (For example: MA, MS, MEng, MEd, MSW, MBA)(4)		45	Master's degree (For example: MA, MS, MEng, MEd, MSW, MBA)	
		46	Professional School Degree (For example: MD, DDS, DVM, LLB, JD) (4)		46	Professional School Degree (For example: MD, DDS, DVM, LLB, JD)	
		47	Doctorate degree (For example: PhD, EdD)(4)		47	Doctorate degree (For example: PhD, EdD)	
Family income	ZINC (Family income)	-10000	loss of \$10,000 or more	-10000	loss of \$10,000 or more	0	no income
		-9999 to -1	loss of \$1to \$9,999	-9999 to -1	loss of \$1to \$9,999	1 to 9999996	\$1 to \$999,996
		0	no income	0	no income	9999996	income of \$9,999,996 or more
		1 to 999996	\$1 to \$999,996	1 to 9999995 9999996	income of \$1-\$9,999,995 income of \$9,999,996 or more		
							<b>Continuous</b>
							Log <sub>10</sub> transformation for data analysis
							<b>Continuous</b>
						1	Less than \$25,000
						2	\$25,000 to \$34,999
						3	\$35,000 to \$49,999
						4	\$50,000 to \$74,999
						5	\$75,000 and over
							<b>Categorical</b>
Geographical location	METRO3/ METRO (Central city /Suburban)	1	Central city of SMSA (1)	1	Central city of MSA (1)	1	Urban
		2	Urbanized suburb (1)	2	Inside MSA, but not in central city – urban (1)	2	Suburban
		3	Other urban suburb (1)	3	Inside MSA, but not in central city – rural (2)	3	Rural
		4	Rural suburbs (2)	4	Outside MSA, urban (2)		
		5	Urbanized area, non-metro (2)	5	Outside MSA, rural (3)		
		6	Other urban, non-metro (2)				
		7	Rural, non-metro (3)				
							<b>Categorical</b>
REGION (Census region)		1	Northeast	1	Northeast	1	Northeast
		2	Midwest	2	Midwest	2	Midwest
		3	South	3	South	3	South
		4	West	4	West	4	West
							<b>Categorical</b>

(table continues)

Table 11 (Continued)

Construct	Variable names (Label)	Value labels <sup>ab</sup> in 1995 AHS		Value labels <sup>c</sup> In 1997, 1999, 2001, 2003, 2005, 2007 AHS		Value labels/ measurement scale in this study	
		1-98	1-98	1-30	1-30	1-98	1-98
Household size	PER (Number of persons in household)	1-98	1-98 occupied	1-30	1-30 persons	1-98	1-98
<b>Continuous</b>							
Marital status	mar1/ MAR (Marital status of household head)	1	Married (0)	1	Married, SPOUSE PRESENT (0)	0	Married
		2	Widowed (1)	2	Married, SPOUSE ABSENT (0)	1	Not married
		3	Divorced (1)	3	Widowed (1)		
		4	Separated (1)	4	Divorced (1)		
		5	Never married (1)	5	Separated (1)		
				6	Never married (1)		
<b>Categorical</b>							
Sex	sex1/SEX (Sex of household head)	1	Male	1	Male	0	Male
		2	Female	2	Female	1	Female
<b>Categorical</b>							
<b>Housing variables</b>	Housing quality (Adequacy of housing)	1	Adequate	1	Adequate	2	Adequate
		2	Moderately inadequate	2	Moderately inadequate	1	Moderately inadequate
		3	Severely inadequate	3	Severely inadequate	0	Severely inadequate
<b>Continuous</b>							
Structure size (Space)	BEDRMS (Number of bedrooms in unit)	0	None	0-10	0 to 10 full bedrooms	0-9	0-9 full bedrooms
		1-9	1 to 9 bedrooms			10	10 or more
		10	10 or more bedrooms				
<b>Continuous</b>							
Structure type	NUNIT2 (Structure type)	1	One-unit building, detached (1)	1	One-unit building, detached from any other building	1	One-unit building, detached from any other building
		2	One-unit building, attached (2)	2	One-unit building, attached to one or more buildings	2	One-unit building, attached to one or more buildings
		3	Two or more unit building (3)	3	Building with two or more apartments	3	Building with two or more apartments
		4	Mobile home - one-unit (4)	4	Manufactured (mobile) home	4	Manufactured (mobile) home
		5	Mobile home - two or more unit (4)				
<b>Categorical</b>							
Tenure	TENURE (Owner/renter status of unit)	1	Own or buying- regular	1	Owned or being bought by someone in your household?	1	Own or buying- regular
		2	Rent for cash	2	Rented for cash rent	2	Rent for cash
		3	No cash rent	3	Occupied without payment of cash rent?	3	No cash rent
<b>Categorical</b>							
<b>Neighborhood variable</b>	Neighborhood rating	HOWN	0 No neighborhood	0	No neighborhood	1-10	Rating (10 is best, 1 is worst)
		(Rating of neighborhood as place to live)	1 Worst	1-10	Rating (10 is best, 1 is worst)		
			10 Best				
			98 Not answered				
<b>Continuous</b>							

(table continues)

Table 11 (Continued)

Construct	Variable names (Label)	Value labels <sup>ab</sup> in 1995 AHS	Value labels <sup>c</sup> In 1997, 1999, 2001, 2003, 2005, 2007 AHS	Value labels/ measurement scale in this study	
<b>Variable for Research Interest, not included in the model</b>					
Citizenship	CITSHP1/ citshp1 <sup>f</sup> (Citizenship of head of household)		1 Native, born in US	1 Native, born in US	
			2 Native, born in Puerto Rico or US outlying area	2 Native, born in Puerto Rico or US outlying area	
			3 Native born abroad of US parent(s)	3 Native born abroad of US parent(s)	
			4 Foreign born, US citizen by naturalization	4 Foreign born, US citizen by naturalization	
			5 Foreign born, not a US citizen	5 Foreign born, not a US citizen	
			B Not applicable	<b>Categorical</b>	
		Blank Not reported			
Housing subsidy	SUB <sup>g</sup> (Federal housing subsidy)	1 Yes (1)		1 Yes	
		2 No (0)		0 No	
		8 Not answered (missing)			
		9 Vacant. URE (usual residence elsewhere). Non- Interview. Owner occupied or publicly owned (missing)		<b>Categorical</b>	
	SUBLOC <sup>g</sup> (State or local housing subsidy)				
/SUBRNT <sup>h</sup> (Government housing subsidy)			0 Blank (Missing)	1 Yes	
			1 Yes (1)	0 No	
			2 No (0)		
			B Not applicable (missing)		
			D Don't know (missing)		
			R Refused (missing)		
			Blank Not reported (missing)	<b>Categorical</b>	

<sup>a</sup>From U.S. Department of Housing and Urban Development. (2010). *American Housing Survey codebook: HUD USER*. Retrieved April 11, 2010, from [http://www.huduser.org/portal/Datasets/ahs/ahs\\_codebook.html](http://www.huduser.org/portal/Datasets/ahs/ahs_codebook.html).

<sup>b</sup>From U.S. Department of Housing and Urban Development. (1998). *Codebook for the American Housing Survey volume 2: Supplement for 1984-96*. Retrieved April 11, 2010, from <http://www.huduser.org/datasets/ahs/ahsdoc2.doc>.

<sup>c</sup>From ICF International. (2009). *Codebook for the American Housing Survey, public use file: 1997 and later*. Retrieved April 11, 2010, from [http://www.huduser.org/Datasets/ahs/AHS\\_Codebook.pdf](http://www.huduser.org/Datasets/ahs/AHS_Codebook.pdf).

<sup>d</sup>This question had been asked only if households income was not more than \$25,000.

<sup>e</sup>In 1995 AHS through 2005, a question of QWELF was expressed as *In the past 12 months did you receive SSI/AFDC/other welfare?*. In 2007 AHS, the question has been revised as *Did you receive any public assistance or public welfare payments from the state or local welfare office DURING THE PAST 12 MONTHS?*.

<sup>f</sup>This variable has been showed since 2001 AHS. The variable name was *citshp1* in 2001, 2005, 2007 AHS; *CITSHP1* in 2003 AHS.

<sup>g</sup>In 1995 AHS, SUB and SUBLOC was used to ask to identify housing subsidies from federal and state/local government respectively. The description of SUB was *federal government pays some of cost of the unit*, and that of SUBLOC was *state or local government pays some costs for unit*.

<sup>h</sup>Since 1997 AHS, SUBRNT was used to ask housing subsidies from government (i.e., not separated by federal and state government subsidies as those in 1995 AHS). The description of SUBRNT was *does the federal, state, or local government pay some of the cost of the unit?*.

Table 12

*Cross-tabulation on 1995 to 2007 AHS Responses regarding a Variable, Food Stamps*

Value Labels AHS year	Blank (Not reported)	1 (Yes)	2 (No)	8 (Not answered)	B (Not applicable)	D (Don't know)	R (Refused)	Total
1995	48	5	62	3	0	0	0	118
1997	40	7	42	0	0	0	0	89
1999	64	10	59	0	0	0	0	133
2001	1	6	46	0	63	0	1	117
2003	0	9	76	0	102	2	2	191
2005	2	10	88	0	81	1	1	183
2007	5	13	81	0	103	2	4	208
Total	160	60	454	3	349	5	8	1,039

**Age:** Age in this study implied age of head of household, which was a continuous variable. In 1995 AHS, it ranged from 10 through 90; 90 and older was coded as 91. From 1997 to 2007, it ranged from 0 through 120. Due to different coding scheme, I followed 1995's coding method. In this study, age ranged from 10 to 90. Ninety years and older was coded as 91.

**Education:** Education meant educational level of head of household. The value labels were re-grouped differently from the AHS coding scheme, which was not a true continuous variable. The AHS consisted of 17-noncontinuous categories of unequal umbers of years of education. This study made a categorical variable with four categories. This was recoded as Less than high school (1), High school graduate (2), Some college or associate degree (3), and Bachelor's degree or more (4).

**Family income:** Income in this study meant family income, which was a continuous variable. It was the sum of the wage and salary income of the householder and all related individuals age 14+ (in 1999 AHS, age 16+) and all other reported income (ICF International, 2009).

From the AHS coding scheme, loss of \$10,000 or more was coded as *-10000*; loss of \$1 to \$9,999 coded as *-9999 to -1*; no income was coded as *0*; and income ranged from \$1 to 999,996 coded as *1 to 999996*.

In this study, no respondents selected from the AHS had negative family income. Therefore, no income was coded as *0*; and income ranged from \$1 to 999,996 was coded as *1 to 999996*. Log<sub>10</sub> transformation was also used for data analysis. Also, to see the distribution of

income levels of the respondents as shown in Census reports, I recoded income data as a five value labels which were used in Census reports: Less than \$25,000 (1); \$25,000 to \$34,999 (2); \$35,000 to \$49,999 (3); \$50,000 to \$74,999 (4); and \$75,000 and over (5).

**Geographic location:** To measure location, two categorical variables (Central city/Suburban and Region) were used. Central city/Suburban was categorized into three groups in this study: Urban (1), Suburban (2), and Rural (3). Region was coded as Northeast (1), Midwest (2), South (3), and West (4).

According to a report, *Documentation of Changes in the 1997 American Housing Survey* (ICF Consulting, 2001), responses of Central city/Suburban since 1997 and later were coded as:

- (a) 1 = Central city;
- (b) 2 = Suburb, urban (old METRO codes 2 and 3);
- (c) 3 = Suburb, rural (old METRO code 4);
- (d) 4 = Non-metro, urban (old METRO codes 5 and 6); and
- (e) 5 = Non-metro, rural (old METRO code 7).

For the 1997 AHS and later, I recoded the responses of the 1997 and later as below:

- (a) Central city of MSA (coded as 1 in AHS 1997 and later) and Inside MSA, but not in central city – urban (2) were recoded as Urban (1) in this study;
- (b) Inside MSA, but not in central city – rural (3) and Outside MSA, urban (4) were recoded as Suburban (2); and
- (c) Outside MSA, rural (5) as Rural (3).

Based on this categorization, I recoded the responses of the 1995 AHS as below:

- (a) Central city of SMSA (coded as 1 in 1995 AHS), Urbanized suburb (2), and Other urban suburb (3) were treated as Urban (1);
- (b) Rural suburbs (4), Urbanized area, non-metro (5), and Other urban, non-metro (6) were treated as Suburban (2); and
- (c) Rural, non-metro (7) was recoded as Rural (3).

**Household size:** Household size indicated number of persons in the household, which was a continuous variable. It ranged from 1 to 98.

**Marital status:** Marital status meant marital status of head of household, which was a categorical variable. In this study, the variable was coded as Married (0) and Not Married (1)

**Sex:** Sex meant sex of head of household. This was a categorical variable and coded as Male (0) and Female (1).

**Housing quality:** Housing quality was measured with a variable of *adequacy of housing* in the AHS. The variable was regarded as a roughly continuous variable, and coded as Adequate (2), Moderately inadequate (1), and Severely inadequate (0).

**Structure size:** Structure size was measured with a variable of *number of bedrooms* in the AHS. This variable was continuous and ranged from 0 to 10. More than 10 bedrooms was also coded as 10.

**Structure type:** Structure type was a categorical variable and consisted of four types: one-unit building, detached from any other building (1); one-unit building, attached to one or more buildings (2); building with two or more apartments (3); and manufactured (mobile) home (4).

**Tenure status:** Tenure implied owner/renter status of unit. This variable was a categorical variable, which consisted of three values: own or buying-regular (1), rent for cash (2), and no cash rent (3).

**Neighborhood rating:** Neighborhood rating was measured with a variable related to *rating of neighborhood as place to live* in AHS. In AHS, no neighborhood was coded as 0. In the responses of the sample selected from AHS, three household heads thought they did not have any neighborhood. I think every household had their own neighborhood around, and therefore, I treated those as missing values in this study. In this study, the variable was continuous and ranged from 1 to 10 (1 was worst and 10 was best).

#### *Variables for Research Interest (Not Included in the Model)*

**Citizenship:** To further understand relationships between government supports and demographic variables, a variable regarding citizenship shown in 2001 AHS through 2007 AHS was selected for this study. The variable was coded as Native, born in US (1); Native, born in Puerto Rico or US outlying area (2); Native born abroad of US parent(s) (3); Foreign born, US citizen by naturalization (4); and Foreign born, not a US citizen (5).

**Housing subsidy:** To further understand housing characteristics of Asian and Pacific Island elders, variables related to housing subsidies were selected from 1995 to 2007 AHS. In 1995 AHS, two variables (SUB and SUBLOC) provided information on housing subsidies. SUB was for federal housing subsidies while SUBLOC was for state and local housing subsidies. Since

1997 AHS, SUBRNT was used to indicate government subsidies including federal, state or local housing subsidies. In this study, the three variables were categorical variables and coded as Yes (1) and No (0).

From a report, *Documentation of Changes in the 1997 American Housing Survey* (ICF Consulting, 2001), housing subsidy questions since 1997 have been changed. This change was based on previous USDHUD research (i.e., based on research before 1997 AHS) that found significant over-counting of data. Therefore, the data related to housing subsidy cannot be directly compared from year to year because different questions led to changes in the data. If comparing different years of data, the meaning of results can be slightly different. Therefore, only descriptive statistics of housing subsidies were provided in this study.

### Data Analysis Procedures

The Statistical Package for the Social Sciences (SPSS) version 17 was used to describe and analyze data for this study. Mainly, descriptive statistics (frequencies, percentages, and means) were employed to provide profiles of Asian and Pacific Island elders' government assistance, and demographic, housing, and neighborhood characteristics. Pearson correlation was used to reveal bivariate associations among continuous variables; one-way analysis of variance was used to detect the association between a continuous variable (which is the dependent variable, housing satisfaction score) and categorical variables; crosstabs were used to investigate the association between categorical variables. To test hypotheses, hierarchical (sequential) multiple regression, simultaneous multiple regression, and simple regression were used. A significance level of  $\alpha=.05$  was chosen as the criterion for decision on rejecting the null hypotheses. Five null hypotheses in this study were as follows:

$H_{01}$ : There is no relationship between receipt of government assistance and housing satisfaction among eligible Asian and Pacific Island elders.

*Analysis: Simultaneous multiple regression and simple regression*

Statistical hypothesis test:  $H_0 : \beta_j = 0$  vs.  $H_1 : \beta_j \neq 0$  for  $j = 1 \sim 2$

A model for hypothesis 1:

For low income group (family income  $\leq$  \$25,000)

$$Y_i = \beta_0 + \beta_1 dFS_i + \beta_2 dSA_i + \beta_3 Family\ Income_i + \varepsilon_i$$

For high income group (family income  $>$  \$25,000)

$$Y_i = \beta_0 + \beta_1 Family\ Income_i + \varepsilon_i$$

$_i$  = individual household head

$Y$  = Housing satisfaction score

$dFS$  = dummy of Food Stamps variable

$dSA$  = dummy of SSI/TANF/AFDC/Welfare

$H_02$ : There is no relationship between demographic characteristics and housing satisfaction of Asian and Pacific Island elders.

*Analysis: Simultaneous multiple regression*

Statistical hypothesis test:  $H_0 : \beta_j = 0$  vs.  $H_1 : \beta_j \neq 0$  for  $j = 3 \sim 10$

A model for hypothesis 2:

$$Y_i = \beta_0 + \beta_3 Age_i + \beta_4 dEducation_i + \beta_5 Family\ Income_i + \beta_6 dMetro_i + \beta_7 dRegion_i + \beta_8 Household\ Size_i + \beta_9 dMarital\ Status_i + \beta_{10} dSex_i + \varepsilon_i$$

$_i$  = individual household head

$Y$  = Housing satisfaction score

$d$  = dummy for categorical variable

$H_03$ : There is no relationship between housing characteristics and housing satisfaction of Asian and Pacific Island elders.

*Analysis: Hierarchical multiple regression*

Statistical hypothesis test:  $H_0 : \beta_j = 0$  vs.  $H_1 : \beta_j \neq 0$  for  $j = 11 \sim 14$

A model for hypothesis 3:

$$Y_i = \beta_0 + \beta_{11} Housing\ Quality_i + \beta_{12} Structure\ Size_i + \beta_{13} dStructure\ Type_i + \beta_{14} dTenure_i + \varepsilon_i$$

$_i$  = individual household head

$Y$  = Housing satisfaction score

$d$  = dummy for categorical variable

$H_04$ : There is no relationship between neighborhood rating and housing satisfaction of Asian and Pacific Island elders.

*Analysis: Simple regression*

Statistical hypothesis test:  $H_0 : \beta_j = 0$  vs.  $H_1 : \beta_j \neq 0$  for  $j = 15$

A model for hypothesis 4:

$$Y_i = \beta_0 + \beta_{15} \text{Neighborhood Rating}_i + \varepsilon_i$$

$_i$  = individual household head

$Y$  = Housing satisfaction score

$H_05$ : Government assistance and, demographic, housing, and neighborhood characteristics as a whole are not related with Asian and Pacific Island elders' housing satisfaction in the United States.

*Analysis: Hierarchical multiple regression*

Statistical hypothesis test:  $H_0 : \beta_j = 0$  vs.  $H_1 : \beta_j \neq 0$  for  $j = 1 \sim 15$

A preliminary model for hypothesis 6:

$$Y_i = \beta_0 + \beta_1 dFS_i + \beta_2 dSA_i + \beta_3 \text{Age}_i + \beta_4 d\text{Education}_i + \beta_5 \text{Family Income}_i + \beta_6 d\text{Metro}_i + \beta_7 d\text{Region}_i + \beta_8 \text{Household Size}_i + \beta_9 d\text{Marital Status}_i + \beta_{10} d\text{Sex}_i + \beta_{11} \text{Housing Quality}_i + \beta_{12} \text{Structure Size}_i + \beta_{13} d\text{Structure Type}_i + \beta_{14} d\text{Tenure}_i + \beta_{15} \text{Neighborhood Rating}_i + \varepsilon_i$$

$_i$  = individual household head

$Y$  = Housing satisfaction score

$d$  = dummy for categorical variable

$dFS$  = dummy of Food Stamps variable

$dSA$  = dummy of SSI/TANF/AFDC/Welfare

## CHAPTER 4

### FINDINGS AND RESULTS

The major purpose of this study was to examine the impact of Asian and Pacific Island elders' government assistance, and demographic, housing, and neighborhood characteristics on their housing challenges, which was measured by housing satisfaction score. To implement this study, the research framework included three main parts in order to reveal: (a) the relationships of government assistance variables (independent variables, IVs) and housing satisfaction score (dependent variable, DV) of Asian and Pacific Island elders, (b) the relationships of demographic, housing, and neighborhood variables (IVs) and housing satisfaction score (DV) of Asian and Pacific Island elders, and (c) the overall relationships of government assistance, demographic, housing, and neighborhood variables (IVs) and housing satisfaction score (DV) of Asian and Pacific Island elders in the United States.

The sample of this study was limited to Asian and Pacific Island households with a head aged 65+, selected from 1995 through 2007 American Housing Surveys. It totaled 1,039 persons (see Chapter 3). When analyzing data and reporting results, I treated some responses as missing data if a respondent did not respond to a question or if a response tended to be outliers. Therefore, the total response numbers was not always 1,039 in analyses results. This chapter presents descriptive data, trends analyses, bivariate relationships among variables, and results of the hypotheses. Each section provides a brief summary.

#### Descriptive Data

Before providing results of data analyses, the next section provides descriptive data related to housing satisfaction, government assistance, demographic profile of the sample, housing characteristics of the sample, and neighborhood characteristics.

#### *Housing Satisfaction*

In this study, housing satisfaction was the dependent variable. It was selected as a representative term showing housing challenges of Asian and Pacific Island aged 65+ households in the United States. To obtain results of descriptive statistics, univariate properties including

measures of minimum and maximum, mean ( $M$ ), standard deviation ( $SD$ ), skewness, and kurtosis were computed. Household heads ( $n = 986$ ) showed the range of satisfaction score from 1 to 10 (1 is worst and 10 is best) with  $M = 7.97$  and  $SD = 1.641$  (Table 13). Figure 4 is a histogram of the dependent variable, demonstrating skewness and kurtosis. The skewness indicates the symmetry of distribution while kurtosis provides information on the peakedness of the distribution. Positive skewness means scores clustering to the left at the low values, and negative skewness means scores clustering at the right hand side of a graph. Positive kurtosis means that the distribution is rather peaked (i.e., clustered in the center) and negative kurtosis means a distribution which is relatively flat (i.e., too many cases in the extremes) (Pallant, 2007).

Housing satisfaction scores showed normal distribution with a negative skewness value (-.708) indicating that satisfaction scores were located from 8 to 10 on housing satisfaction score in a histogram (i.e., this sample tended to be highly satisfied with their housing); with a positive kurtosis value (.345) indicating that the distribution was rather peaked. As shown in Figure 4, there is a distribution peak at 8 on the housing satisfaction score, which has a long thin tail at the left-hand side of a graph. I concluded that this sample tended to be very satisfied with their housing and that few people expressed dissatisfaction.

Table 13

*Descriptive Statistics for the Dependent Variable, Housing Satisfaction Score (N = 1,039)*

	$n$	Min.	Max.	$M$	$SD$	Skewness Statistic	Kurtosis Statistic
<b>Housing satisfaction score</b>	986	1	10	7.97	1.641	-.708	.345

*Note.* Scale: 1 = worst to 10 = best.

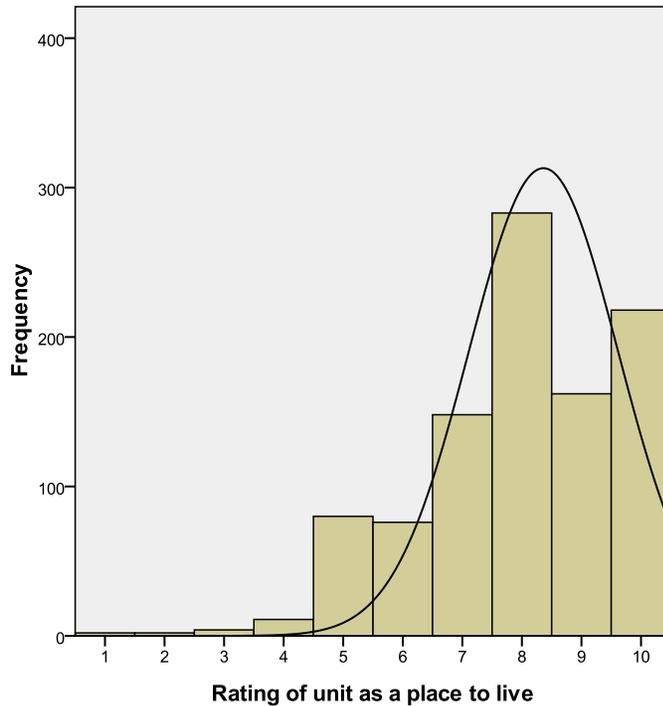


Figure 4. Histogram of dependent variable, housing satisfaction score ( $M = 7.97$ ,  $SD = 1.641$ , and  $n = 986$ ).

#### *Government Assistance*

This study included two variables in relation to government assistance: (a) *received Food Stamps in last 12 months* and (b) *received SSI, TANF/AFDC, and other welfare*. Table 14 shows descriptive statistics for government assistance variables.

Household heads who obtained Food Stamps comprised 5.8% ( $n = 60$ ) and those who did not obtain Food Stamps were 43.7% ( $n = 454$ ). Those who were not eligible for Food Stamps (because their income was more than \$25,000) comprised 47.4% ( $n = 493$ ). When conducting AHS, this Food Stamps question was not asked if a person had more than \$25,000 as family income.

Household heads who obtained SSI/TANF/AFDC/Welfare consisted of 13.4% ( $n = 139$ ) and those who did not receive, 86.6% ( $n = 900$ ). In brief, only a small portion of the sample tended to obtain government benefits.

Table 14

*Descriptive Statistics for the Independent Variables related to Government Assistance**(N = 1,039)*

	<i>n</i>	<i>%</i>
<b>Food Stamps</b>		
Yes	60	5.8
No	454	43.7
Not eligible	493	47.4
<b>SSI/TANF/AFDC/Welfare</b>		
Yes	139	13.4
No	900	86.6

*Demographic Profile of the Sample*

Demographic characteristics included age (age of head of household), education (education level of head of household), family income, geographic location (central city/suburban and Census region), household size (number of persons in household), marital status (marital status of head of household), and sex (sex of head of household). Descriptive statistics for demographic characteristics are summarized in Table 15 (for continuous variables) and Table 16 (for categorical variables); histograms relating the demographic characteristics are depicted in Figure 5.

Average age of the sample was approximately 73 years old ( $M = 73.34$  and  $SD = 6.720$ ) (Table 15). The distribution of age was positively skewed (.834) indicating that age of the sample was rather clustered in 65 to 75 years old, not over 75 years old. Also, a negative kurtosis value (-.042) implied that the distribution seemed relatively flat. Many cases were distributed in the range of 65 to 75 years old in the histogram and the central portion of the distribution in the curve looked flat (Figure 5). In the age histogram in Figure 5, 91 years old is the maximum score in the age distribution because I followed 1995 AHS coding scheme, where age ranged from 10 to 90, and 91 years and older was coded as 91.

Regarding education, those who had their education level as less than high school comprised 31.1% ( $n = 323$ ), those who completed high school comprised 22.4% ( $n = 233$ ), some college or an associate degree, 16.3% ( $n = 169$ ), and Bachelor's degree or more, 30.2%

Table 15

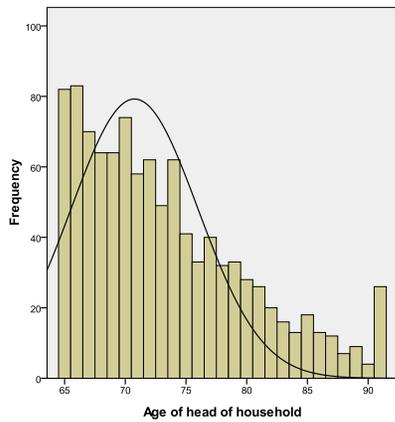
*Descriptive Statistics for the Independent Continuous Variables related to Demographic Characteristics (N = 1,039)*

	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>	Skewness Statistic	Kurtosis Statistic
<b>Age</b>	1,039	65	91	73.34	6.720	.834	-.042
<b>Family income (ZINC)</b>	1,039	0	875,122	39,220.27	55,552.188	5.990	62.967
<b>Family income<sup>a</sup>(logZINC)</b>	1,013	0	5.94	4.3351	.56092	-1.588	7.909
<b>Household size</b>	1,039	1	14	2.18	1.332	2.606	11.976

<sup>a</sup> Log transformation was used for Family income (ZINC).

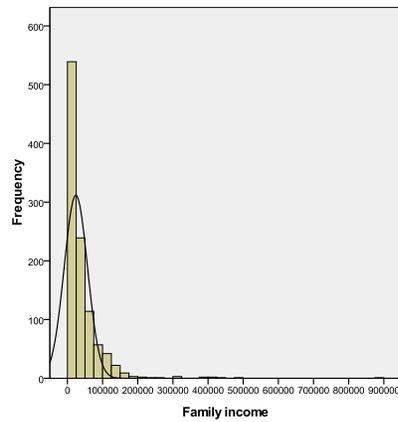
(a) Age

( $M = 73.34$ ,  $SD = 6.72$ , and  $N = 1,039$ )



(b) Family income

( $M = 39,220.27$ ,  $SD = 55,552.188$ , and  $N = 1,039$ )



(c) Household size

( $M = 2.18$ ,  $SD = 1.332$ , and  $N = 1,039$ )

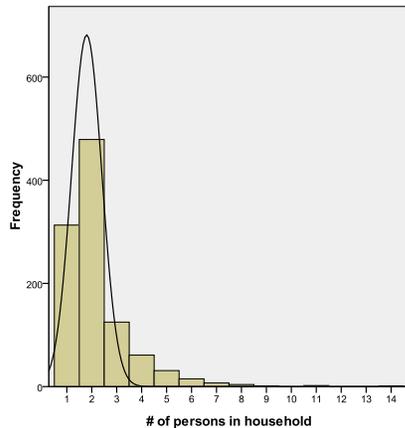


Figure 5. Histogram of independent variables related demographic characteristics.

Table 16

*Descriptive Statistics of the Independent Categorical Variables related to Demographic Characteristics (N = 1,039)*

	<i>n</i>	<i>%</i>
<b>Education</b>		
Less than high school	323	31.1
High school graduate	233	22.4
Some college or associate degree	169	16.3
Bachelor's degree or more	314	30.2
<b>Family income</b>		
Less than \$25,000	539	51.9
\$25,000 to \$34,999	141	13.6
\$35,000 to \$49,999	98	9.4
\$50,000 to \$74,999	114	11.0
\$75,000 and over	147	14.1
<b>Geographical location (Central city/Suburban)</b>		
Urban	972	93.6
Suburban	59	5.7
Rural	8	.8
<b>Geographical location (Census region)</b>		
Northeast	144	13.9
Midwest	90	8.7
South	105	10.1
West	700	67.4
<b>Marital status</b>		
Married	625	60.2
Not married	414	39.8
<b>Sex</b>		
Male	654	62.9
Female	385	37.1
<b>Citizenship<sup>a</sup></b>		
Native, born in U.S.	155	22.2
Native, born in Puerto Rico or US outlying area	37	5.3
Native born abroad of US parent(s)	11	1.6
Foreign-born, US citizen by naturalization	414	59.2
Foreign-born, not a US citizen	82	11.7

<sup>a</sup> Responses based on 2001 AHS through 2007 AHS. For the question, *n* = 699 (67.3% of total responses, 1,039). This variable was provided in AHS since 2001.

(*n* = 314) (Table 16). It seemed their education level was relatively lower than overall Asian and Pacific Island Islanders. When compared, almost 11% of male and 15% of female of Asian and Pacific Islanders reported their education level as less than high school, and 51% of males and

44% of females of Asian and Pacific Islanders completed at least a Bachelor's degree (Reeves & Bennett, 2003).

More than half of the household heads (51.9%,  $n = 539$ ) earned income less than \$25,000, and only 14% ( $n = 147$ ) reported their income as over \$75,000 (Table 16). Average family income was \$39,220 (Table 15). Distribution of family income was positively skewed (5.990) indicating family income was rather clustered in relatively lower income levels (less than \$25,000) in the graph (Figure 5). A positive kurtosis value (62.967) indicated the distribution was rather peaked at the lower income levels (\$0 to \$25,000) (Table 15 and Figure 5). Overall income levels were relatively lower than overall Asian and Pacific Islanders, in that only 14.3% of married couples of Asian and Pacific Islanders and 11.8% of those of non-Hispanic Whites reported their income less than \$25,000.

Approximately 94% ( $n = 972$ ) of household heads lived in urban areas, followed by suburban (5.7%,  $n = 59$ ) and rural areas (0.8%,  $n = 8$ ). In terms of Census region, almost 70% lived in the West ( $n = 700$ ), followed by Northeast (13.9%,  $n = 144$ ), South (10.1%,  $n = 105$ ), and Midwest (8.7%,  $n = 90$ ) (Table 16).

Almost 60% of household heads ( $n = 625$ ) were married and 40% were not married ( $n = 414$ ). Sex of household heads comprised 62.9% male ( $n = 654$ ) and 37.1% female ( $n = 385$ ) (Table 16).

Average household size was slightly over two ( $M = 2.18$  and  $SD = 1.332$ ) (Table 15). The distribution of household size was positively skewed (2.606) and had a positive kurtosis (11.976), indicating that household size tended to be small with one or two and few people had larger household sizes (Table 15 and Figure 5).

Citizenship profiles of the samples from 2001 to 2007 AHS ( $n = 699$ ) were also investigated in order to provide a means of interpreting results for this study. Approximately 59.2% ( $n = 414$ ) of the household heads were foreign-born US citizen by naturalization and almost 22.2% ( $n = 155$ ) of those were native, born in U.S. Others included foreign-born, not a US citizen (11.7%,  $n = 82$ ), Native, born in Puerto Rico or US outlying area (5.3%,  $n = 37$ ), and native born abroad of US parent(s) (1.6%,  $n = 11$ ) (Table 16). The numbers of naturalized citizenship in this study was higher compared with 34.4% of all Asian and Pacific Islanders (Reeves & Bennett, 2004). Also, almost 71% of the sample were immigrants (59.2% of foreign-born, US citizen by naturalization and 11.7% of foreign-born, not a US citizen), indicating that

this sample has a high percentage of immigrants. However, almost 12% of the sample that did not have citizenship were those who were not eligible for applying for government benefits due to PRWORA of 1996.

### *Housing Characteristics of the Sample*

Housing characteristics comprised housing quality (adequacy of housing), structure size (number of bedrooms in unit), structure type, and tenure status (owner/renter status of unit). The housing profile is summarized in Table 17 (continuous variables) and Table 18 (categorical variables) and related histograms are presented in Figure 6.

Average scores of housing quality was 1.91 (0 is severely inadequate; 1, moderately inadequate; and 2, adequate). The distribution of housing quality was negatively skewed (- 4.367), implying that housing quality scores tended to be higher, and had a positive kurtosis statistic (18.534), indicating that a distribution peak was at 2 (Table 17 and Figure 6). This sample seemed to be very satisfied with their housing quality.

Average structure size was 2.58 bedrooms, ranging from 0 to 10 bedrooms ( $M = 2.58$  and  $SD = 1.275$ ). The distribution of structure size was positively skewed (.073) indicating that the distribution was clustered at the lower values (many cases were located from 1 to 4, not over 5 bedrooms), and had a negative kurtosis value (-.603) indicating that the central portion of the distribution curve was relatively flat and many cases were located from 1 to 3 bedrooms (Table 17 and Figure 6). Structure size seemed to be varied from small to large numbers of bedrooms (Figure 6).

Fifty-six percent ( $n = 582$ ) of households lived in one-unit buildings, detached from any other building, followed by buildings with two or more apartments ( $n = 382$ , 36.8%). Almost 59% ( $n = 608$ ) of households selected tenure status as own or buying, followed by rent for cash (39.8%,  $n = 414$ ) (Table 18). The sample tended to have less homeownership, compared with 66% of the total U.S. population (Reeves & Bennett, 2004).

Housing subsidy profiles of the samples from 1995 to 2007 AHS were also investigated in order to provide a means of interpreting results for this study. The responses for housing subsidies were divided into two groups, 1995 and 1997 to 2007 because of different variables of housing subsidies. In 1995, only 5.1% ( $n = 6$ ) of the 1995 sample ( $n = 118$ ) obtained federal housing subsidy, 0.8% ( $n = 1$ ) received state or local housing subsidy. From 1997 to 2007,

10.5% ( $n = 97$ ) of the sample 1997 - 2007 ( $n = 921$ ) received government housing subsidy (Table 18). In 1995, only small portion of the sample received housing subsidies from either federal or state or local government.

Table 17

*Descriptive Statistics for the Independent Continuous Variables related to Housing Characteristics (N = 1,039)*

	<i>N</i>	Min	Max.	<i>M</i>	<i>SD</i>	Skewness Statistic	Kurtosis Statistic
<b>Housing quality<sup>a</sup></b>	1,039	0	2	1.91	.366	-4.367	18.534
<b>Structure size</b>	1,039	0	6	2.58	1.275	.073	-.603

Note. <sup>a</sup>Scale: 0 is severely inadequate; 1, moderately inadequate; 2, adequate

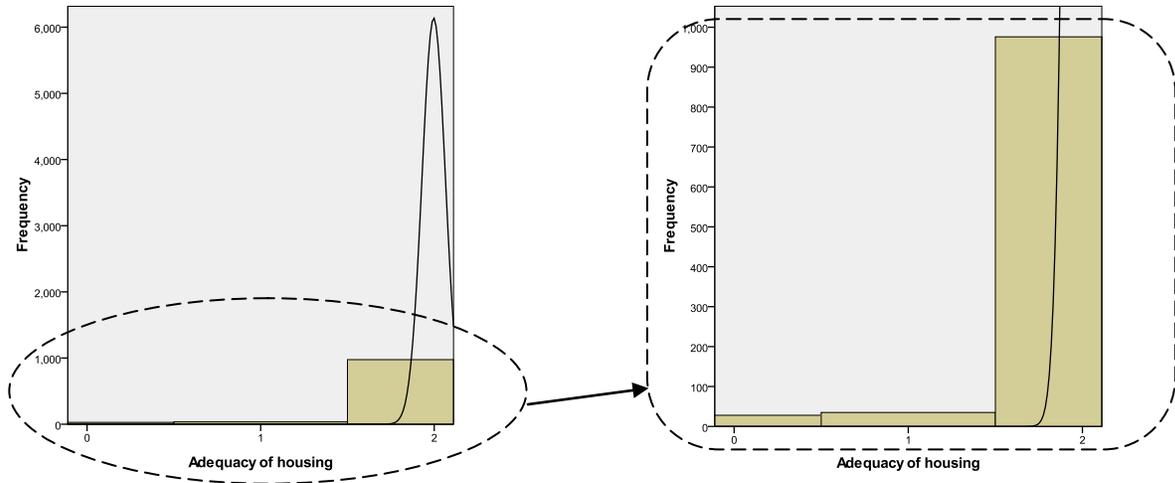
Table 18

*Descriptive Statistics for the Independent Categorical Variables related to Housing Characteristics (N = 1,039)*

	<i>n</i>	%
<b>Structure type</b>		
One-unit building, detached from any other building	582	56.0
One-unit building, attached to one or more buildings	65	6.3
Building with two or more apartments	382	36.8
Manufactured (mobile) home	10	1.0
<b>Tenure status</b>		
Own or buying- regular	608	58.5
Rent for cash	414	39.8
No cash rent	17	1.6
<b>Housing subsidy</b>		
(Federal housing subsidy, only 1995, $n = 118$ )		
Yes	6	5.1
No	42	35.6
(State or local housing subsidy, only 1995, $n = 118$ )		
Yes	1	.8
No	41	34.7
(Government housing subsidy, 1997 to 2007, $n = 921$ )		
Yes	97	10.5
No	237	25.7

(a) Housing quality

( $M = 1.91$ ,  $SD = 0.366$ , and  $N = 1,039$ )



(b) Structure size

( $M = 2.58$ ,  $SD = 1.275$ , and  $N = 1,039$ )

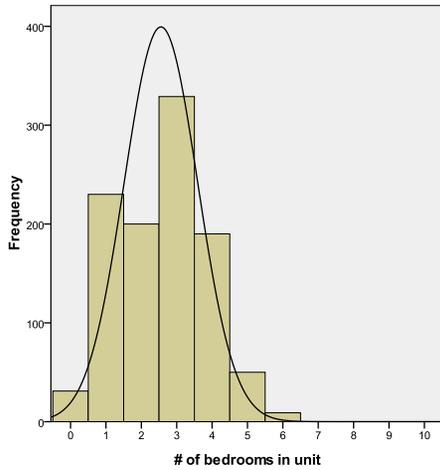


Figure 6. Histogram of independent variables, housing characteristics.

### *Neighborhood Rating*

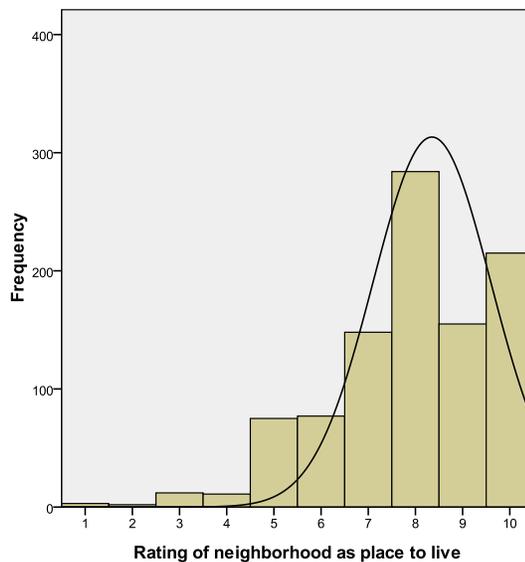
When asked the rating of their neighborhood as a place to live, the responses ( $n = 982$ ) comprised the range of neighborhood rating from 1 to 10 (1 is worst and 10 is best) with  $M = 7.92$  and  $SD = 1.7$  (Table 19). Neighborhood rating scores showed normal distribution with a negative skewness value (-.810) indicating neighborhood scores were likely to be clustered at the high end, and with a positive kurtosis value (.651) indicating that the distribution was rather peaked. A distribution peak was at 8 and 10 in the neighborhood rating scores, ranging from 1 to 10 (Figure 7). This sample tended to be very satisfied with their neighborhood and few people expressed dissatisfaction.

Table 19

*Descriptive Statistics for the Independent Variable, Neighborhood Rating (N = 1,039)*

	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>	Skewness Statistic	Kurtosis Statistic
<b>Neighborhood rating</b>	982	1	10	7.92	1.700	-.810	.651

*Note.* Scale: 1 = worst to 10 = best.



*Figure 7.* Histogram of independent variable, neighborhood rating ( $M = 7.92$ ,  $SD = 1.7$ , and  $n = 982$ ).

### *Summary of Descriptive Data*

The sample of this study was limited to Asian and Pacific Island household heads aged 65 and over, selected from 1995 to 2007 AHS. Total sample size was 1,039. The sample's housing satisfaction scores were relatively high, with  $M = 7.97$  (1 to 10 range). Those who obtained SSI/TANF/AFDC/Welfare and Food Stamps were only a small part of the sample (13.4% and 5.8% respectively). Average age was almost 73 years old. Their income and education levels were relatively low (over half earned less than \$25,000 and reported education levels as a high school graduate or less. Most lived in urban (94%) and Western areas (70%). Their household size was relatively small with  $M = 2.18$  persons. Almost 60% of household heads were male and married. Almost 60% were naturalized citizens, and approximately 71% of the sample were immigrants (based on the sample from 2001 to 2007). Over half of the sample were homeowners (59%) who lived in one-unit buildings, detached from any other buildings (56%). Average structure size was 2.58 bedrooms. The sample's housing quality and neighborhood rating was relatively high, with  $M = 1.91$  (0 to 2 range) and  $M = 7.92$  (1 to 10 range) respectively.

### *Trends over Time from 1995 to 2007*

This study focused on seven sets of AHS data from 1995 to 2007, which allows detection of trends of each variable during the time. One-way analysis of variance and crosstabs were used to detect the significant difference of each variable before and after the enactment of Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996; of each variable by time from 1995 to 2007. Descriptive statistics (means, frequencies, and percentages) and related boxplots and means plots of variables by each year were used to know trends of each variable from 1995 to 2007.

This section includes results of analyses related to impacts of PRWORA of 1996 on housing satisfaction and other related variables (the government assistance, and demographic, housing, and neighborhood characteristics) of Asian and Pacific Island elders before and after 1996, (b) variables showing statistically significant difference by times from 1995 to 2007, and (c) descriptive data by time from 1995 to 2007 regarding housing satisfaction scores, government assistance, demographic profile of the sample, housing characteristics of the sample, and

neighborhood ratings of Asian and Pacific Island elderly households. The last section provides a brief summary of trends analyses results.

*Impacts of PRWORA of 1996 on each Variable before and after 1996*

To examine if there are impacts of PRWORA of 1996 on each variable before and after 1996, I conducted one-way ANOVA (for continuous variables) and crosstabs (for categorical variables) and checked significant differences of each variable before and after 1996. I developed a group having two value labels: one value having a 1995 AHS sample and another one having 1997 through 2007 AHS samples.

Table 20 was produced to show the significance level among the categorical variables from the Chi-square analyses by a group; Table 21 was produced to show the significance level among the continuous variables from the results one-way ANOVA by a group. None of the variables showed significant differences or associations. I concluded that there has been no significant impact of PRWORA on housing satisfaction and other variables (government assistance, and demographic, housing, and neighborhood characteristics) of Asian and Pacific Island elders since 1996.

Table 20

*A Compounded Matrix of Chi-square Analyses Results (Association between Two Categorical Variables)*

	Food Stamps	SSI/TANF/ AFDC/ Welfare	Education	Family income	Geographical location: Central city/Suburban	Geographical location: Census Region	Marital Status	Sex	Structure type	Tenure status
Group <sup>a</sup>	.123	.727	.195	.530	.170	.381	.997	.246	.162	.410

*Note.* Each value in a cell was p-value from Pearson's chi-square test results.

<sup>a</sup>This group variable comprised two categories: one category having a 1995 AHS sample and another category having 1997 through 2007 AHS samples.

\*  $p < .05$

Table 21

*A Compounded Matrix of Results of One-way ANOVA for Continuous Variables by a Group Variable*

	Housing Satisfaction Score	Age	Family Income	Household Size	Housing quality	Structure size	Neighborhood rating
Group <sup>a</sup>	.183	.770	.572	.264	.722	.051	.570

*Note.* Each value in a cell was p-value from each one-way ANOVA result.

<sup>a</sup>This group variable comprised two categories: one category having a 1995 AHS sample and another category having 1997 through 2007 AHS samples.

\*  $p < .05$

*Variables showing Statistically Significant Difference by Time from 1995 to 2007*

To detect significant differences of each variable from 1995 to 2007, I conducted one-way ANOVA (for continuous variables) and crosstabs (for categorical variables) Only three variables including SSI/TANF/AFDC/Welfare ( $\chi^2(6, N = 1,039) = 62.133, p < .05$ ), geographical location (central city/suburban status) ( $\chi^2(12, N = 1,039) = 26.568, p < .05$ ), and household size ( $F(6, 1032) = 2.527, p < .05$ ) showed significant differences by each year. Table 22 was produced to show the significance level among the categorical variables from the Chi-square analyses by a group from 1995 to 2007. Table 23 was produced to show the significance level among the continuous variables from the results one-way ANOVA by a group from 1995 to 2007. These variables showing statistically significant differences were as follows:

- (a) Each year by SSI/TANF/AFDC/Welfare ( $\chi^2(6, N = 1,039) = 62.133, p < .05$ ): There was an association between SSI/TANF/AFDC/Welfare and each year. The most influential cell was that those received SSI/TANF/AFDC/Welfare in 2005. The cell had less observed frequencies than expected, indicating that people in 2005 were less likely to receive SSI/TANF/AFDC/Welfare.
- (b) Each year by geographical location (central city/suburban status) ( $\chi^2(12, N = 1,039) = 26.568, p < .05$ ): There was an association between geographical location (central city/suburban status) and each year. The most influential cells were that those lived in suburban areas in 2007 (the cell had more observed frequencies than expected) and those lived in urban areas in 2007 (the cell had less observed frequencies than expected). That means that people in 2007 were more likely to live in suburban areas and less likely to live in urban areas.
- (c) Household size by each year ( $F(6, 1032) = 2.527, p < .05$ ): There was a statistically significant difference at the  $p < .05$  level in household size by each year. The post hoc test (employing Games Howell due to unequal sample size of each group) was additionally conducted to check patterns of mean differences among the grouping variable (Howell, 2007). The mean of household size in 1997 ( $M = 2.60, SD = 1.368$ ) was significantly different from the mean of household size in 2005 ( $M = 2.03, SD = 1.045$ ) and 2007 ( $M = 2.07, SD = 1.222$ ). It is likely that the household size in 1997 tended to be smaller than in 2005 and 2007.

Table 22

*A Compounded Matrix of Chi-square Analyses Results (Association between Two Categorical Variables) by Group from 1995 to 2007*

	Food Stamps	SSI/TANF/ AFDC/ Welfare	Education	Family income	Geographical location: Central city/Suburban	Geographical location: Census Region	Marital Status	Sex	Structure type	Tenure status
Group <sup>a</sup>	.463	.000*	.287	.171	.009*	.082	.273	.131	.684	.677

*Note.* Each value in a cell was p-value from Pearson's chi-square test results.

<sup>a</sup>This grouping variable comprised seven categories: each group of 1995, 1997, 1999, 2001, 2003, 2005, and 2007 AHS

\*  $p < .05$

Table 23

*A Compounded Matrix of Results of One-way ANOVA for Continuous Variables by a Group from 1995 to 2007*

	Housing Satisfaction Score	Age	Family Income	Household Size	Housing quality	Structure size	Neighborhood rating
Group <sup>a</sup>	.507	.789	.149	.020*	.355	.308	.647

*Note.* Each value in a cell was p-value from each one-way ANOVA result.

<sup>a</sup>This grouping variable comprised seven categories: each group of 1995, 1997, 1999, 2001, 2003, 2005, and 2007 AHS

\*  $p < .05$

*A Justification of Pooling of each Sample from 1995 to 2007 AHS*

The most important finding of the trends analyses was shown in Table 24, which indicates cohorts are not a significant factor to explain the variability of housing satisfaction. That means that there is not much difference on housing satisfaction among cohorts from 1995 to 2007. Therefore, pursuing the parsimony of the model, I dropped the cohort indicator variables (i.e., I pooled the cohorts and treated as a single group).

Table 24

*Results of One-Way ANOVA for Dependent Variable (Housing Satisfaction Score) by Group*

By Groups (95, 97, 99, 01, 03, 05, and 07)					
	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Groups	14.254	6	2.376	.882	.507
Within Groups	2636.707	979	2.693		
Total	2650.961	985			

*Descriptive Data by Time from 1995 to 2007*

This section provides trends from 1995 to 2007 regarding housing satisfaction scores, government assistance, demographic profile of the sample, housing characteristics of the sample, and neighborhood ratings of Asian and Pacific Island elderly households. This section only focuses on providing descriptive statistics of each variable during the period because most variables [except SSI/TANF/AFDC/Welfare, geographic location (central city/suburban status), and household size] did not show significant differences by each year. The statistically significant variables were addressed in the previous section, “Analyses for Trends from 1995 to 2007.”

*Housing Satisfaction from 1995 to 2007*

Housing satisfaction scores in AHS ranged from 1 (worst) to 10 (best). Table 25 provides each housing satisfaction mean by each year from 1995 through 2007; and Figure 8 provides a boxplot and means plot showing distribution of the housing satisfaction scores from 1995 to 2007. Boxplots depict the median within the box, which represents the middle 50% of cases

Table 25

Means of the Dependent Variable, Housing Satisfaction Score from 1995 to 2007 ( $N = 1,039$ ,  $n = 986$ )

	1995	1997	1999	2001	2003	2005	2007	Total
<b>Housing satisfaction score, <math>M</math></b>	7.78	7.94	7.87	7.88	7.94	8.08	8.14	7.97

Note. Scale: 1= worst to 10= best.

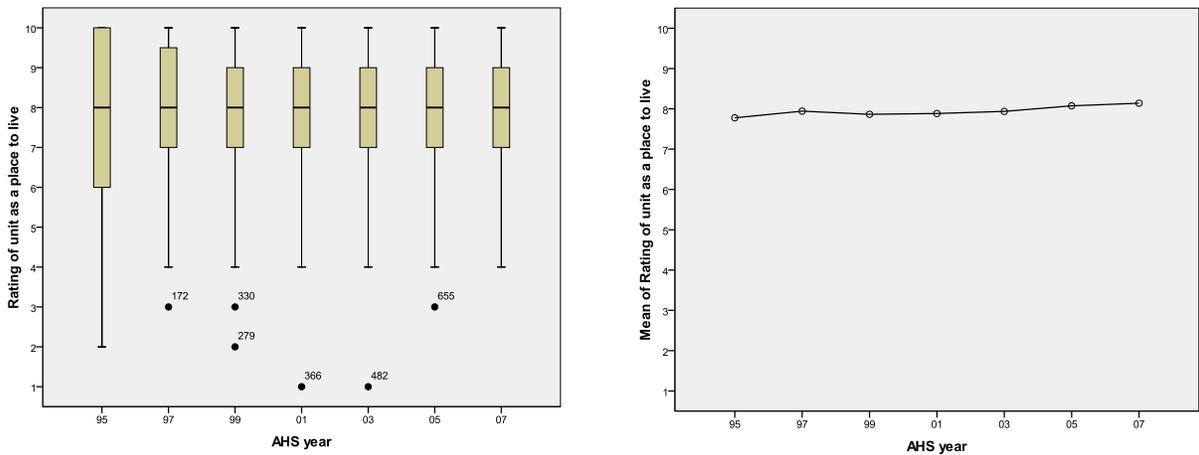


Figure 8. A boxplot and means plot of the dependent variable, housing satisfaction score from 1995 to 2007.

(from 25<sup>th</sup> to 75<sup>th</sup> percentile). The extended lines mean the high and low values, which excludes outliers and extreme values (Keith, 2005). A boxplot allows checking the variability in scores within each group and a visual inspection of the differences between groups (Pallant, 2007).

As shown in Table 25, the means ranged from 7.78 in 1995 to 8.14 in 2007. In particular, the average scores from 1995 to 2001 were relatively lower than those from 2003 to 2007. From the means plot in Figure 8, the mean of housing satisfaction in 1995 was the lowest ( $M = 7.78$ ) and that of 2007 was the highest ( $M = 8.14$ ). Based on the boxplot in Figure 8, the location of median lines in boxes from 1995 to 2007 looked similar (located around 8 in housing satisfaction score distribution). However, the box length and its extended line in 1995 were longer than those

of other years, indicating that the score range of in 1995 (2 to 10) was larger than other years (4 to 10).

Briefly, average housing satisfaction score by each year ranged from 7.78 to 8.14. The lowest was found in 1995 with  $M = 7.78$  and the highest score was in 2007 with  $M = 8.14$ .

#### *Government Assistance from 1995 to 2007*

Table 26 shows frequencies of the independent variables by each year from 1995 to 2007 related to government assistance: (a) Food Stamps and (b) SSI/TANF/AFDC/Welfare. The percentage of household heads who obtained government assistance was very different from 1990s and 2000s (a significant difference; see p.100). From 1995 to 2007, frequencies of 1997 household heads who obtained Food Stamps (7.9%) and who received SSI/TANF/AFDC/Welfare (27.0%) showed the highest recipient numbers than any other years' groups.

The numbers who did not receive Food Stamps had dropped from 53.9% in 1995 to 41.1% in 2007 (12.8% decrease), those who did receive Food Stamps increased from 4.3% to 6.6% during the period (2.3% increase), and those who were not eligible for Food Stamps had increased from 41.7% in 1995 to 52.3% in 2007 (10.6% increase).

The percentage of those receiving SSI/TANF/AFDC/Welfare from 1995 to 2007 had dropped from 14.4% to 5.8% (8.6% decrease). The percentages of both Food Stamps and SSI/TANF/AFDC/Welfare recipients in 1997 and 1999 surpassed those in other years. It might come from the results of the increase of people who obtained citizenship to be qualified for the government benefit under the PRWORA of 1996.

Table 26

*Frequencies of the Independent Variables related to Government Assistance from 1995 to 2007 (N = 1,039)*

	1995		1997		1999		2001		2003		2005		2007		Total	
	<i>n</i>	%														
<b>Food Stamps</b>																
No	62	53.9	42	47.2	59	46.5	46	40.4	76	40.9	88	49.2	81	41.1	454	45.1
Yes	5	4.3	7	7.9	10	7.9	6	5.3	9	4.8	10	5.6	13	6.6	60	6.0
Not eligible	48	41.7	40	44.9	58	45.7	62	54.4	101	54.3	81	45.3	103	52.3	493	49.0
Total	115	100.0	89	100.0	127	100.0	114	100.0	186	100.0	179	100.0	197	100.0	1,007	100.0
<b>SSI/TANF/AFDC/Welfare*</b>																
No	101	85.6	65	73.0	100	75.2	104	88.9	156	81.7	178	97.3	196	94.2	900	86.6
Yes	17	14.4	24	27.0	33	24.8	13	11.1	35	18.3	5	2.7	12	5.8	139	13.4
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0

\*  $p < .05$

### *Demographic Profile of the Sample from 1995 to 2007*

Table 27 shows means of independent variables by each year related to demographic characteristics (age, family income, and household size) and Figure 9 provides boxplots and means plots of those variables. Table 28 provides frequencies of demographic variables by year (education, geographic location, family income, marital status, sex, and citizenship).

The average age of household heads from 1995 through 2007 was 73.34 years old (Table 27). From the age related means plot in Figure 9, the mean in 2001 was the lowest (72.62 years old) and that of 2007 was the highest (73.83 years old). Based on boxplot in Figure 9, the location of median line from 1995 to 2007 was similar (between 70 to 75 years old). However, the extended lines of 1997 and 2001 were shorter than those of other years, implying that the numbers of household heads who reached almost 90 years old were less than those in other years.

Family income of households in 1995 (\$31,924.81) had increased to \$38,681.84 in 2007 (Table 27). The highest family income was shown in 2003 (\$47,814.42) while the lowest income was in 1999 (\$31,389.82) (Figure 9 and Table 27). From 1995 through 2007, almost half of the households by each year showed income less than \$25,000 even though there was no adjustment for inflation in this study. In 1995, almost 60% of households reported their income as less than \$25,000, compared with 50% of those in 2007. Households having income with \$75,000 and more had increased from 6.7% in 1997 to 15.9% in 2007 (Table 28). Based on the boxplots in Figure 9, the boxes and extended lines in 1995 and 1999 were much shorter and located in lower income levels than those in other years, and had outliers in high family income levels. That means, households in 1995 and 1999 were more likely to have lower income than those in other years. Besides, a box in 1997 was much longer but had fewer cases in high income levels than those of 1995 and 1999. Therefore, it roughly says that the average family income of 1995, 1997, and 1999 might be similar. From 2001 to 2007, the box lengths and extended lines were longer and had many outliers in high incomes than those of previous years, indicating that family income levels from 2001 to 2007 can be much higher than those in previous years.

Household size of 1997 was the largest with  $M = 2.60$  and that of 2005 was the smallest with  $M = 2.03$  (with a significant difference, see p.100; means plot in Figure 9 and Table 27). From the household size boxplot in Figure 9, the boxes and extended lines in 1999, 2003, 2005 and 2007 were located in lower household size than those of 1995, 1997 and 2001.

Table 27

*Means of the Independent Variables related to Demographic Characteristics from 1995 to 2007 (N = 1,039)*

	1995	1997	1999	2001	2003	2005	2007	Total
<b>Age, <i>M</i></b>	73.17	72.88	73.29	72.62	73.47	73.48	73.83	73.34
<b>Family income (ZINC), <i>M</i></b>	31,924.81	31,389.82	31,481.89	42,629.18	47,814.42	42,819.45	38,681.84	39,220.27
<b>Family income (logZINC<sup>a</sup>), <i>M</i></b>	4.3072	4.2822	4.2429	4.4227	4.3950	4.3389	4.3252	4.3351
<b>Household size*, <i>M</i></b>	2.31	2.60	2.16	2.29	2.10	2.03	2.07	2.18

Note. <sup>a</sup>Log transformation was used for *Family income (ZINC)*. *n* = 1,013

\* *p* < .05

Table 28

*Frequencies of the Independent Variables, Demographic Variables from 1995 to 2007 (N = 1,039)*

	1995		1997		1999		2001		2003		2005		2007		Total	
	<i>n</i>	%														
<b>Education</b>																
Less than high school	42	35.6	28	31.5	41	30.8	39	33.3	65	34.0	51	27.9	57	27.4	323	31.1
High school graduate	31	26.3	23	25.8	35	26.3	23	19.7	26	13.6	41	22.4	54	26.0	233	22.4
Some college or associate degree	19	16.1	17	19.1	18	13.5	20	17.1	34	17.8	29	15.8	32	15.4	169	16.3
Bachelor's degree or more	26	22.0	21	23.6	39	29.3	35	29.9	66	34.6	62	33.9	65	31.3	314	30.2
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Geographical location (Central city/ suburban status)*</b>																
Urban	115	97.5	86	96.6	128	96.2	109	93.2	185	96.9	165	90.2	184	88.5	972	93.6
Suburban	3	2.5	2	2.2	3	2.3	7	6.0	5	2.6	17	9.3	22	10.6	59	5.7
Rural	0	.0	1	1.1	2	1.5	1	.9	1	.5	1	.5	2	1.0	8	.8
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0

(table continues)

Table 28 (Continued)

	1995		1997		1999		2001		2003		2005		2007		Total	
	<i>n</i>	%														
<b>Geographical location</b> Census region (REGION)																
Northeast	16	13.6	8	9.0	12	9.0	15	12.8	24	12.6	34	18.6	35	16.8	144	13.9
Midwest	9	7.6	5	5.6	11	8.3	7	6.0	22	11.5	17	9.3	19	9.1	90	8.7
South	7	5.9	10	11.2	12	9.0	14	12.0	12	6.3	20	10.9	30	14.4	105	10.1
West	86	72.9	66	74.2	98	73.7	81	69.2	133	69.6	112	61.2	124	59.6	700	67.4
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Family income</b>																
Less than \$25,000	68	57.6	49	55.1	74	55.6	54	46.2	87	45.5	102	55.7	105	50.5	539	51.9
\$25,000 to \$34,999	14	11.9	9	10.1	22	16.5	23	19.7	26	13.6	19	10.4	28	13.5	141	13.6
\$35,000 to \$49,999	13	11.0	7	7.9	12	9.0	10	8.5	22	11.5	13	7.1	21	10.1	98	9.4
\$50,000 to \$74,999	10	8.5	18	20.2	11	8.3	13	11.1	22	11.5	19	10.4	21	10.1	114	11.0
\$75,000 and over	13	11.0	6	6.7	14	10.5	17	14.5	34	17.8	30	16.4	33	15.9	147	14.1
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Marital status</b>																
Married	71	60.2	60	67.4	83	62.4	77	65.8	102	53.4	109	59.6	123	59.1	625	60.2
Not married	47	39.8	29	32.6	50	37.6	40	34.2	89	46.6	74	40.4	85	40.9	414	39.8
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Sex</b>																
Male	80	67.8	62	69.7	81	60.9	82	70.1	118	61.8	114	62.3	117	56.3	654	62.9
Female	38	32.2	27	30.3	52	39.1	35	29.9	73	38.2	69	37.7	91	43.8	385	37.1
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Citizenship<sup>a</sup></b>																
Native, born in U.S.							28	23.9	54	28.3	37	20.2	36	17.3	155	22.2
Native, born in Puerto Rico or US outlying area							7	6.0	7	3.7	9	4.9	14	6.7	37	5.3
Native born abroad of US parent(s)							2	1.7	2	1.0	3	1.6	4	1.9	11	1.6
Foreign-born, US citizen by naturalization							59	50.4	107	56.0	117	63.9	131	63.0	414	59.2
Foreign-born, not a US citizen							21	17.9	21	11.0	17	9.3	23	11.1	82	11.7
Total							117	100.0	191	100.0	183	100.0	208	100.0	699	100.0

<sup>a</sup> Responses was based on AHS 2001 through 2007.

\*  $p < .05$

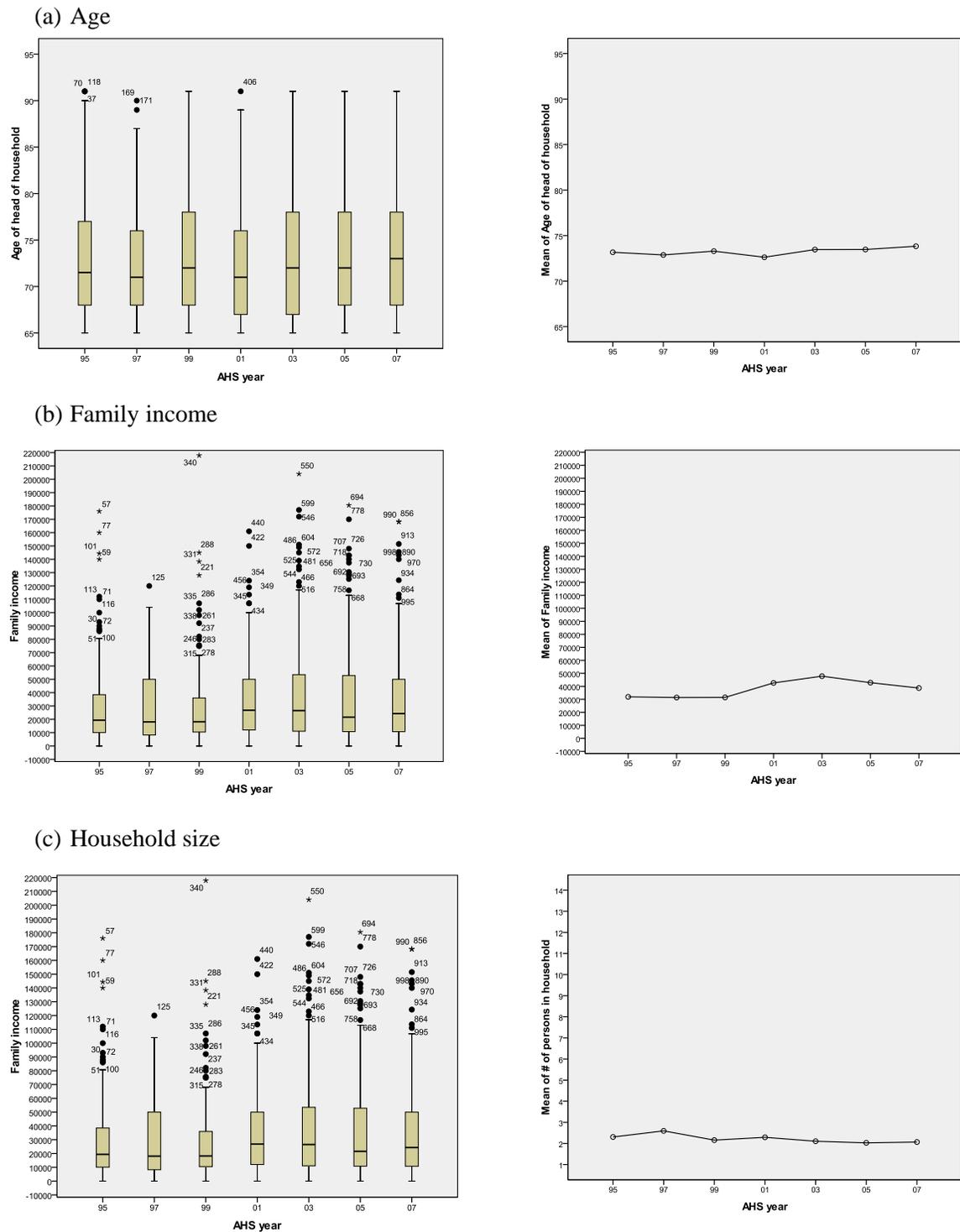


Figure 9. Boxplots and means plots of independent variables related to demographic characteristics from 1995 to 2007.

Regarding education levels, almost 30% of household heads by each year (range from 27.4% to 34%) had less than a high school education. Specifically, almost 36% of household heads in 1995 had less than a high school education. The numbers had decreased to 30.8% in 1999, increased to 34% in 2003, and then reduced to 27.4%. Overall, the household heads who had Bachelor's degree or more had increased from 22% to 34.6% during 1995 to 2007 (Table 28).

In terms of geographic location, most of households by year (from 88.5% to 97.5%) lived in urban areas. In 1995, almost 98% of households lived in urban areas, but the numbers had gradually decreased to 88.5% in 2007. Those living in suburban areas had increased from 2.5% in 1995 to 10.6% in 2007 (a significant change, see p.100). Regarding Census region, almost 73% of respondents lived in the West in 1995, but the numbers had gradually dropped into 60% in 2007. In 1995, approximately 8% of households lived in Midwest, but percentages of those living in Midwest were repeatedly up and down from 1997 to 2007 (5.6% in 1997 was the lowest and 11.5% in 2003 was the highest). In 1995, only 5.6% of households lived in the South; the percentage was increased to 11.2% in 1997. Since then, the percentage was continuously up and down (6.3% in 2003 was the lowest and 14.4% in 2007 was the highest) (Table 28).

Regarding marital status of household heads, the percentage distribution of married and not married by year looked similar in that percentage of those who were married (53.4% to 67.4%) were higher than those who were not married (32.6% to 46.6%) from 1995 to 2007 (Table 28).

Regarding sex of household heads, as of 1995, 67.8% were male while 32.2% were female. In general, the percentage of male household heads (56.3% to 70.1%) was higher than that of female household heads (29.9% to 43.8%) from 1995 to 2007. When comparing the numbers of female household heads of 1995 (32.2%), the female household heads in 2007 had increased 10% with the percentage of 43.8% (Table 28).

In terms of citizenship from 2001 to 2007, more than half of household heads by each year were immigrants and categorized themselves as *foreign-born, US citizen by naturalization*. The numbers had gradually increased from 50.4% in 2001 to 63.0% (i.e., almost 13% increase). The household heads referring themselves as *native, born in U.S.* had dropped 23.9% in 2001 to

17.3% in 2007, except the year of 2003 (28.3%). There was almost 6% increase in immigrants (68.3% in 2001 to 74.1% in 2007) (Table 28).

Overall, some trends from 1995 to 2007 can be highlighted. The sample tended to be better educated in that those who completed Bachelor's degree or more had increased while those who had less than a high school education had decreased. Asian and Pacific Island elderly households tended to be more dispersed in that they had moved from urban to suburban and West to Northeast or South area. Overall family income levels from 2001 to 2007 were relatively higher than previous years. Household size was the highest in 1997. There were likely to be more female household heads and more immigrants, but more naturalized citizens.

### *Housing Characteristics of the Sample from 1995 to 2007*

Table 29 shows means of independent variables, housing characteristics (housing quality and structure size, which are continuous variables) related to housing characteristics by year from 1995 through 2007, and Figure 10 provides boxplots and means plots of those continuous variables. Table 30 provides frequencies of housing variables by year (structure type, tenure status, which are categorical variables).

Housing quality in this study ranged from 0 (severely inadequate) to 2 (adequate). Except the year of 2001 ( $M = 1.84$ ), means of housing quality ranged above 1.90 (1.90 to 1.94) (Table 29). From the box plot in Figure 10, only median lines in terms of housing quality scores were shown, located at approximate 2; extreme scores around 1 and 0 appeared. Therefore, it roughly says that housing quality score of each group might have similar pattern (close to 2). However, from the means plot in Figure 10, we can definitely find that housing quality scores of 2001 ( $M = 1.84$ ) was the lowest and that of 2003 highest ( $M = 1.94$ ).

Average structure size (number of bedrooms in unit) from 1995 to 2007 ranged from 2.36 to 2.72 (Table 29). As shown in structure size boxplot in Figure 10, median structure size from 1995 to 2007 was approximately 3, except that of 1995 (located around 2). The boxes of 2001 and 2007 were positioned in larger structure size, implying that structure size was larger than other years. From the means plot in Figure 10, the lowest structure size was found in 1995 ( $M = 2.36$ ) and the largest structure size was in 2001 ( $M = 2.72$ ).

Table 29

Means of the Independent Variables, Housing Characteristic from 1995 to 2007 (N = 1,039)

	1995	1997	1999	2001	2003	2005	2007	Total
<b>Housing quality<sup>a</sup>, <i>M</i></b>	1.92	1.92	1.92	1.84	1.94	1.92	1.90	1.91
<b>Structure size, <i>M</i></b>	2.36	2.63	2.44	2.72	2.61	2.60	2.65	2.58

Note. <sup>a</sup>Scale: 0 is severely inadequate; 1, moderately inadequate; and 2, adequate

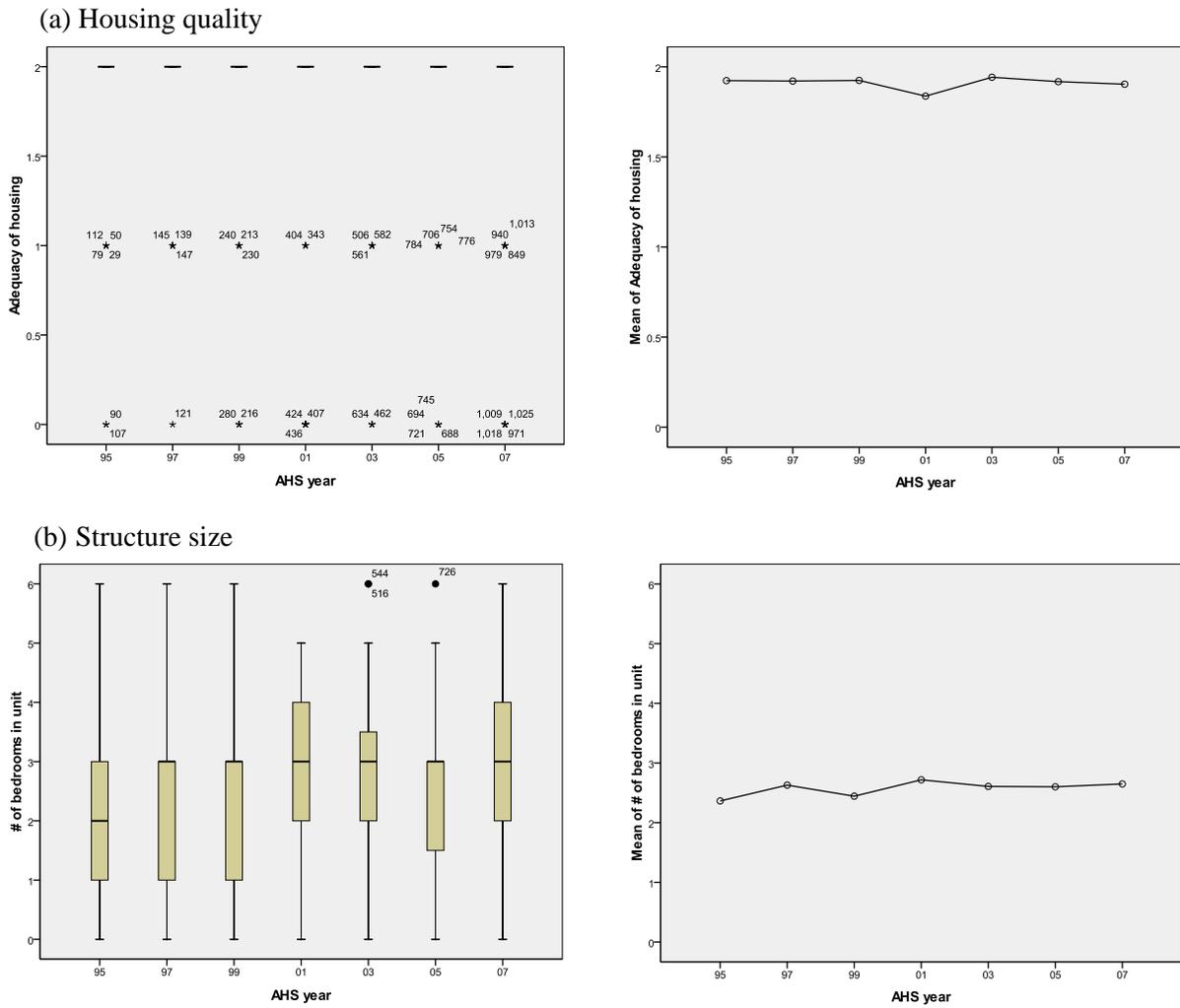


Figure 10. Boxplots and means plots of independent variables, housing characteristics from 1995 to 2007.

Table 30 provides frequencies of structure type and tenure status by year from 1995 to 2007. Based on this structure type patterns, the critical difference from 1995 to 2007 came from the increase of numbers in those who lived in one-unit buildings, detached from any other building (49.2% in 1995 and 57.2% in 2007) and from the decrease of numbers in buildings with two or more apartments (44.9% in 1995 to 34.6% in 2007). The highest frequency of one-unit buildings, detached from any other building was shown in 2001 (65%) and the lowest was in 1995 (49.2%). In terms of one-unit buildings, attached to one or more buildings, the frequency of 1995 (4.2%) increased to 7.7% as of 2007. The highest numbers of one-unit buildings, attached to one or more buildings was shown in 1999 (8.3%).

Regarding tenure status, when comparing patterns of 1995 with 2007, there was not much difference (i.e., the frequency of own or buying-regular by each year was the highest, followed by rent for cash, and no cash rent). In terms of the frequencies of own or buying-regular, the frequency in 2001 (64.1%) was the highest, and that in 1999 (53.4%) was the lowest. In terms of the frequencies of rent for cash, the frequency in 2001 (35.0%) was the lowest, and that in 1995 (44.9%) was the highest. Regarding the frequencies of no cash rent, the frequency in 1997 (3.4%) was the highest, and that in 1995 (0.8%) was the lowest (Table 30).

Briefly, from 1995 to 2007, there was an increase in the numbers of single family homes. There was 8 % increase in the numbers of those living in one-unit buildings, detached from any other building (single family homes), and expected 10% decrease in the numbers living in apartment. There were slightly more homeowners. Four percent increase was shown in those who own or were buying a house (homeownership) while concurrently 4% decrease in those who rent for cash. The relatively larger structure size was found in 1997, 2001, and 2007 while the smaller structure size was in 1995 and 1997.

Table 30

*Frequencies of the Independent Variables relating Housing Characteristics from 1995 to 2007 (N = 1,039)*

	1995		1997		1999		2001		2003		2005		2007		Total	
	<i>n</i>	%														
<b>Structure type</b>																
One-unit building, detached from any other building	58	49.2	51	57.3	68	51.1	76	65.0	111	58.1	99	54.1	119	57.2	582	56.0
One-unit building, attached to one or more buildings	5	4.2	4	4.5	11	8.3	5	4.3	11	5.8	13	7.1	16	7.7	65	6.3
Building with two or more apartments	53	44.9	33	37.1	53	39.8	36	30.8	66	34.6	69	37.7	72	34.6	382	36.8
Manufactured (mobile) home	2	1.7	1	1.1	1	.8	0	.0	3	1.6	2	1.1	1	.5	10	1.0
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Tenure status</b>																
Own or buying-regular	64	54.2	52	58.4	71	53.4	75	64.1	118	61.8	107	58.5	121	58.2	608	58.5
Rent for cash	53	44.9	34	38.2	60	45.1	41	35.0	68	35.6	74	40.4	84	40.4	414	39.8
No cash rent	1	.8	3	3.4	2	1.5	1	.9	5	2.6	2	1.1	3	1.4	17	1.6
Total	118	100.0	89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	1,039	100.0
<b>Housing subsidy<sup>a</sup></b>																
Yes			5	5.6	19	14.3	11	9.4	14	7.3	13	7.1	35	16.8	97	10.5
No			26	29.2	39	29.3	28	23.9	44	23.0	49	26.8	51	24.5	237	25.7
Total			89	100.0	133	100.0	117	100.0	191	100.0	183	100.0	208	100.0	921	100.0

<sup>a</sup>Due to different coding scheme in 1995 and 1997 and later, I only showed frequencies of housing subsidy (a variable, SUBRNT) from 1997 to 2007.

### *Neighborhood Rating from 1995 to 2007*

Average neighborhood rating scores ranged from 7.75 to 8.10 (1 is worst and 10 is best) from 1995 to 2007 (Table 31). The means plot in Figure 11 depicts the pattern of neighborhood rating from 1995 through 2007. The highest mean was found in 2005 ( $M = 8.10$ ) and lowest mean was in 2001 ( $M = 7.75$ ). The scores from 1995 to 2001 were relatively lower than those from 2003 to 2007.

As shown in the boxplot in Figure 11, the box length and extended lines of 1995 was longer than those in other years, implying that the distribution of neighborhood rating scores in 1995 varied from approximately 2.5 to 10 in neighborhood rating scores (i.e., other year's extended lines in lower part started approximately 4 and above). However, the median scores from 1995 to 2007 were similarly located around 8.

In summary, each sample from 1995 to 2007 seemed to be highly satisfied with their neighborhood even if there were some variations in distribution of neighborhood scores.

Table 31

*Means of the Independent Variable, Neighborhood Rating Score from 1995 to 2007 (N = 1,039, n = 982)*

	1995	1997	1999	2001	2003	2005	2007	Total
<b>Neighborhood rating, <math>M</math></b>	7.83	7.83	7.86	7.75	7.91	8.10	7.99	7.92

*Note.* Scale: 1 = worst to 10 = best.

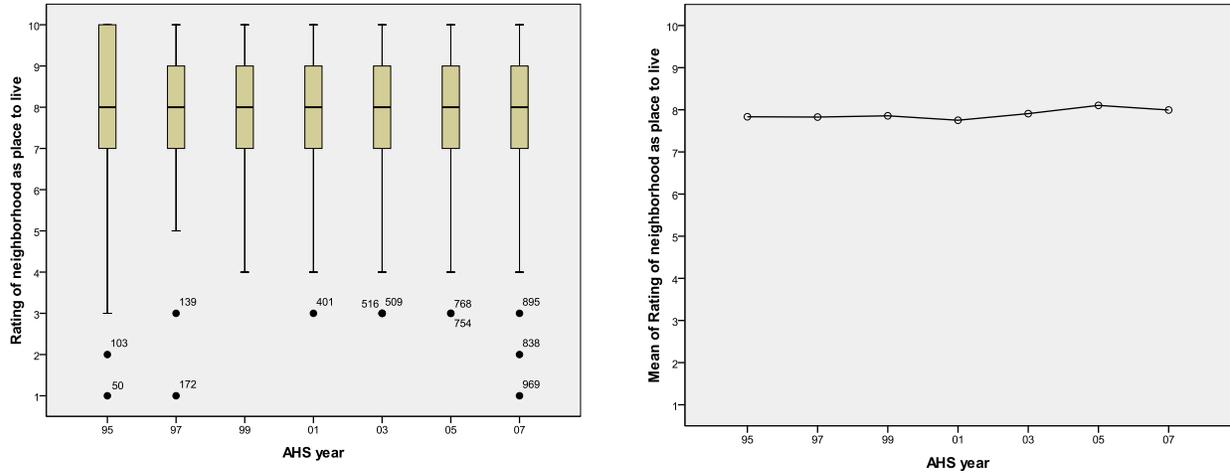


Figure 11. Boxplot and means plot of the independent variable, neighborhood rating score from 1995 to 2007.

*Summary of Trends over Time from 1995 to 2007*

(a) Impacts of PRWORA of 1996 on housing satisfaction and other related variables:

- There has been no impact of PRWORA on housing satisfaction and other variables (the government assistance, and demographic, housing, and neighborhood characteristics) of Asian and Pacific Island elders since 1996.

(b) Variables showing statistically significant difference by time from 1995 to 2007:

- Only three variables including SSI/TANF/AFDC/Welfare ( $\chi^2(6, N = 1,039) = 62.133, p < .05$ ), geographical location (central city/suburban status) ( $\chi^2(12, N = 1,039) = 26.568, p < .05$ ), and household size ( $F(6, 1032) = 2.527, p < .05$ ) showed significant differences by each year. From the results, people in 2005 were less likely to receive SSI/TANF/AFDC/Welfare; people in 2007 were more likely to live in suburban areas and less likely to live in urban areas; and the household size in 1997 tended to be smaller than 2005 and 2007.
- Cohorts are not a significant factor to explain the variability of housing satisfaction (i.e., there is not much difference on housing satisfaction among cohorts). Therefore, pursuing the parsimonious model, I dropped the cohort indicator variables, pooled the cohorts, and treated as a single group.

(c) Descriptive data by time from 1995 to 2007

- Housing satisfaction: Overall housing satisfaction level during the period tended to be high with score ranging from 7.78 to 8.14. The lowest was found in 1995 with  $M = 7.78$  and the highest score was in 2007 with  $M = 8.14$ .
- Government assistance: The numbers who did not receive Food Stamps dropped from 1995 to 2007 (13% decrease), and the numbers who did receive Food Stamps increased slightly during the period (2% increase). Households receiving SSI/TANF/AFDC/Welfare from 1995 to 2007 dropped almost 9%.
- Demographic profiles: The numbers who completed Bachelor's degree or more increased while those with less than high school education decreased. The sample tended to be dispersed from 1995 to 2007 in that people had moved from urban to suburban and from West to Northeast or South areas. Overall, family income levels increased since 2001. The average family income in 1997 was the lowest with almost 60 % having income less than \$25,000. In 1997, average household size was the largest. Female household heads had increased from 1995 to 2007 (almost 10% increase). There was almost 13% increase in naturalization and 5.8% increase in immigrants from 2001 to 2007.
- Housing characteristics: From 1995 to 2007, there was a small increase in the numbers of those living in single family homes, and a decrease in the numbers living in apartments. There was a slight increase in homeownership. From 1997 through 2007, there was almost 3% increase in the numbers of housing subsidies.
- Neighborhood rating: The rating scores from 1995 to 2001 were relatively lower than those from 2003 to 2007. However, overall satisfaction level in neighborhood tended to be high.

Overall, the results of trends analyses may be meaningful in allowing detection of changes or patterns of each variable by each year. However, most of those were not statistically significantly different by times except only three variables: SSI/TANF/AFDC/Welfare, geographical location (central city/suburban status), and household size.

## Bivariate Relationships among Variables

This section includes results of bivariate relationships among variables of this study. First, Pearson correlation was used to detect bivariate associations among continuous variables. Second, one-way analysis of variance was used to detect the association between a continuous variable (which is the dependent variable, housing satisfaction score) and categorical variables (independent variables). Lastly, crosstabs were used to investigate the association between categorical variables.

### *Pearson Correlation*

Pearson correlation allows detection of the direction of the relationship between the variables and determination of strength of the relationships (Pallant, 2007). Based on Cohen's suggestion when interpreting correlation coefficient ( $r$ ) (as cited in Pallant, 2007), a small strength ranges from  $r = .10$  to  $.29$ , medium, from  $r = .30$  to  $.49$ , and large, from  $r = .50$  to  $1.0$ . Continuous variables analyzed for Pearson correlation selected comprised the dependent variable (housing satisfaction score) and the independent variables (age, family income, household size, housing quality, structure size, and neighborhood rating). The Pearson correlation matrix is provided in Table 32.

Housing satisfaction score, the dependent variable of this study, was significantly correlated with four independent variables: household size ( $r = -.079$ ,  $p < .05$ ), housing quality ( $r = .118$ ,  $p < .01$ ), structure size ( $r = .186$ ,  $p < .01$ ), and neighborhood rating ( $r = .689$ ,  $p < .01$ ). Neighborhood rating was strongly correlated to housing satisfaction score while the other three variables were less strongly correlated. The results implied that Asian and Pacific Island household heads aged 65+ who have higher housing satisfaction scores were likely to have a lower household size, more adequate housing quality, larger structure size, and to express higher satisfaction levels in their neighborhood rating.

Age was significantly correlated with variables: family income ( $r = -.202$ ,  $p < .01$ ), household size ( $r = -.163$ ,  $p < .01$ ), and structure size ( $r = -.200$ ,  $p < .01$ ). It implied that if respondents were getting older, their family income, household size, and structure size were likely to be decreased. The strength of these correlations was small.

Family income was significantly correlated with three variables: household size ( $r = .357$ ,

Table 32

*Pearson Correlation Matrix for Relationships between Two Continuous Variables*

	Housing satisfaction	Age	Family income	Household size	Housing quality	Structure size	Neighborhood rating
Housing satisfaction	1	-.024	.061	-.079*	.118**	.186**	.689**
Age		1	-.202**	-.163**	-.004	-.200**	-.011
Family income			1	.357**	.090**	.413**	.031
Household size				1	.051	.352**	-.054
Housing quality					1	.179**	.094**
Structure size						1	.124**
Neighborhood rating							1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

$p < .01$ ), housing quality ( $r = .090$ ,  $p < .01$ ), and structure size ( $r = .413$ ,  $p < .01$ ). If respondents had high income, they were likely to have large household and structure size and more adequate housing quality. The correlation strength of the structure size and household size variables was greater than the housing quality variable.

Household size was significantly correlated with the variable structure size ( $r = .352$ ,  $p < .01$ ), implying that respondents having larger household size were likely to have larger structure size. The correlation strength between household size and structure size is medium.

Housing quality was significantly correlated with variables: structure size ( $r = .179$ ,  $p < .01$ ) and neighborhood rating ( $r = .094$ ,  $p < .01$ ). If respondents have higher housing quality,

they were likely to have larger structure size and to express higher satisfaction in their environment.

Structure size was significantly correlated with one independent variable, neighborhood rating ( $r = .124, p < .01$ ), indicating that if respondents have larger structure size, they were likely to be satisfied with their neighborhood.

Among the statistically significant correlations, the correlation between housing satisfaction score and neighborhood rating ( $r = .689, p < .01$ ) was the most highly correlated. The correlation between housing satisfaction score and household size ( $r = -.079, p < .01$ ) was the weakest.

Briefly, the dependent variable, housing satisfaction score, was correlated with household size, housing quality, structure size, and neighborhood rating. Neighborhood rating was the most influential factor on housing satisfaction score.

Among independent variables, the structure size was correlated with every continuous variable (age, family income, household size, housing quality). Age was negatively correlated with family income, household size, and structure size. Family income was positively correlated with household size, housing quality, and structure size. Housing quality was positively correlated with structure size and neighborhood rating.

#### *One-Way Analysis of Variance*

One-way analysis of variance (ANOVA) was used to investigate the association between a continuous variable (housing satisfaction score as a dependent variable) and categorical variables (independent variables including Food Stamps, SSI/TANF/AFDC/Welfare, education, family income, geographic location, marital status, sex, structure type, and tenure status). Housing satisfaction scores by each year were also analyzed by using one-way ANOVA. When conducting ANOVA, three assumptions were also checked including normality of errors, homogeneity of variance of errors, and independent observations. For grouping variables having more than two groups, post hoc tests (employing Games and Howell due to unequal sample size of groups of each variable) were additionally conducted to check patterns of mean differences among grouping variables (Howell, 2007). Table 33 shows results of one-way ANOVA for housing satisfaction score (dependent variable) by independent variables (Factors) which were

categorical variables. Means plots, showing significant mean differences among groups of each variable are provided in Figure 12.

In terms of government assistance, there was a statistically significant difference at the  $p < .05$  level in housing satisfaction scores by Food Stamps ( $F(2, 967) = 6.807, p < .05$ ) and SSI/TANF/AFDC/Welfare ( $F(1, 984) = 16.280, p < .05$ ). From the post hoc test, the mean of those who obtained Food Stamps ( $M = 7.36, SD = 1.842$ ) was significantly different from those who were not eligible for Food Stamps program ( $M = 8.13, SD = 1.482$ ). From the Figure 12 and the description of ANOVA results, household heads 65 + who obtained SSI/TANF/AFDC/Welfare ( $M = 7.43, SD = 1.925$ ) had lower housing satisfaction levels than those who did not obtain the government assistance ( $M = 8.05, SD = 1.578$ ).

Regarding demographic characteristics, there was a statistically significant difference at the  $p < .05$  level in housing satisfaction scores by education levels ( $F(3, 982) = 6.244, p < .05$ ), geographical location (central city/suburban) ( $F(2, 983) = 3.823, p < .05$ ), geographical location (Census region) ( $F(3, 982) = 6.107, p < .05$ ), marital status ( $F(1, 984) = 8.618, p < .05$ ), and sex ( $F(1, 984) = 7.510, p < .05$ ). The post hoc tests for education and geographical location (central city/suburban and Census region) were conducted as well.

For education levels, the mean of those who had their education level as less than high school ( $M = 7.66, SD = 1.776$ ) was significantly different from those who completed college or had an associate degree ( $M = 8.10, SD = 1.647$ ) and who completed Bachelor's degree or more ( $M = 8.22, SD = 1.328$ ). It is likely that those with higher education levels (i.e., some college, associate degree, Bachelor's degree or more) had higher satisfaction levels than those who did not finish high school.

For geographical location, the mean of those who lived in urban areas ( $M = 7.93, SD = 1.649$ ) was significantly different from those who lived in suburban areas ( $M = 8.50, SD = 1.437$ ), indicating that those who lived in urban areas were less satisfied with their housing than those in suburban areas. The mean of those who lived in the Northeast ( $M = 7.42, SD = 1.777$ ) was significantly different from those who lived in Midwest ( $M = 8.05, SD = 1.526$ ), South ( $M = 8.02, SD = 1.662$ ), and West ( $M = 8.06, SD = 1.604$ ), indicating that those who lived in the Northeast areas were less satisfied with their housing than other groups.

From the Figure 12 and the description of ANOVA results, those who were married ( $M = 7.85, SD = 1.633$ ) were less satisfied with their housing than those who were not married ( $M =$

8.16,  $SD = 1.637$ ). Males ( $M = 7.86$ ,  $SD = 1.625$ ) were less satisfied with their housing than females ( $M = 8.16$ ,  $SD = 1.652$ ).

Regarding housing characteristics, there was a statistically significant difference at the  $p < .05$  level in housing satisfaction scores by structure type ( $F(3, 982) = 10.967$ ,  $p < .05$ ) and tenure status ( $F(2, 983) = 17.419$ ,  $p < .05$ ). From the results of the post hoc test, the mean of those who lived in one-unit buildings, detached from any other building ( $M = 8.23$ ,  $SD = 1.441$ ) was significantly different from those who lived in buildings with two or more apartments ( $M = 7.61$ ,  $SD = 1.854$ ), indicating that those living in single family homes (one-unit buildings, detached from any other building) were more satisfied with their housing than those living in apartments (buildings with two or more apartments). For tenure status, the mean of those who owned or were buying the house ( $M = 8.20$ ,  $SD = 1.440$ ) was significantly different from those who rented for cash ( $M = 7.60$ ,  $SD = 1.846$ ), indicating that those having homeownership were more satisfied with their housing than those renting for cash.

Briefly, there was a statistically significant difference at the  $p < .05$  level in housing satisfaction score by groups of each variable: Food Stamps, SSI/TANF/AFDC/Welfare, education, geographical location, marital status, sex, structure type, and tenure status. It implies that if people receive government assistance; are less educated, married, or male; live in urban or Northeast; in buildings with two or more apartments or a manufactured home; or rent for cash, they were likely to express lower housing satisfaction. From the one-way ANOVA, there was no association between housing satisfaction score and family income levels and groups of each year.

Table 33

*Results of One-Way ANOVA for Dependent Variable (Housing Satisfaction Score) by Independent Variables (Categorical Variables)*

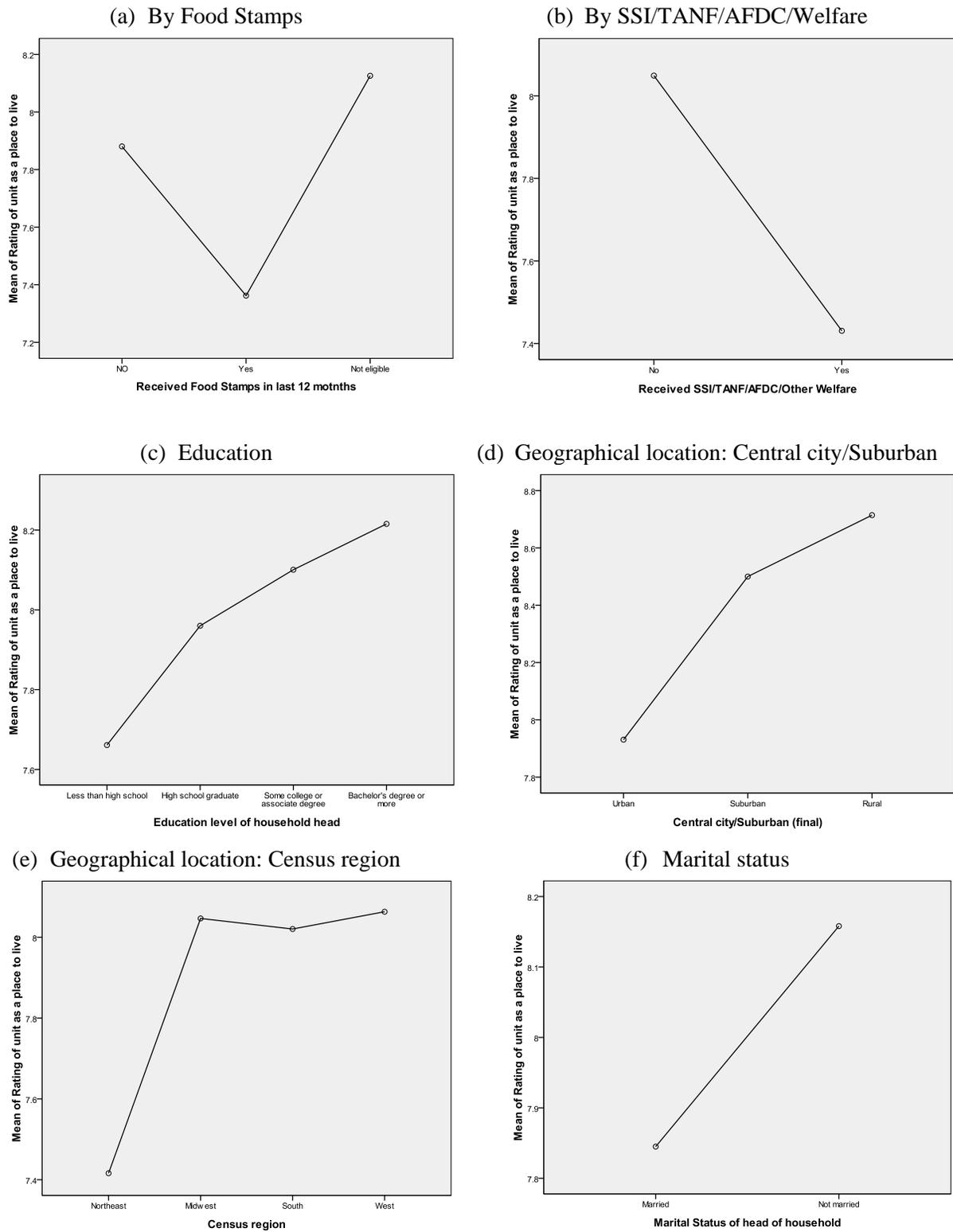
	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
<b>By Food Stamps*</b>					
Between Groups	36.376	2	18.188	6.807	.001
Within Groups	2583.634	967	2.672		
Total	2620.009	969			
<b>By SSI/TANF/AFDC/Welfare*</b>					
Between Groups	43.145	1	43.145	16.280	.000
Within Groups	2607.816	984	2.650		
Total	2650.961	985			
<b>By Education*</b>					
Between Groups	49.619	3	16.540	6.244	.000
Within Groups	2601.342	982	2.649		
Total	2650.961	985			
<b>By Family Income</b>					
Between Groups	24.409	4	6.102	2.279	.059
Within Groups	2626.553	981	2.677		
Total	2650.961	985			
<b>By Geographical location: Central city/Suburban*</b>					
Between Groups	20.461	2	10.230	3.823	.022
Within Groups	2630.500	983	2.676		
Total	2650.961	985			
<b>By Geographical location: Census region*</b>					
Between Groups	48.556	3	16.185	6.107	.000
Within Groups	2602.405	982	2.650		
Total	2650.961	985			
<b>By Marital status*</b>					
Between Groups	23.016	1	23.016	8.618	.003
Within Groups	2627.945	984	2.671		
Total	2650.961	985			
<b>By Sex*</b>					
Between Groups	20.079	1	20.079	7.510	.006
Within Groups	2630.882	984	2.674		
Total	2650.961	985			

*(table continues)*

Table 33 (Continued)

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
By Structure type*					
Between Groups	85.936	3	28.645	10.967	.000
Within Groups	2565.026	982	2.612		
Total	2650.961	985			
By Tenure status*					
Between Groups	90.735	2	45.368	17.419	.000
Within Groups	2560.226	983	2.605		
Total	2650.961	985			

\*  $p < .05$



(figure continues)

Figure 12. Means plots of the housing satisfaction score by independent variables.

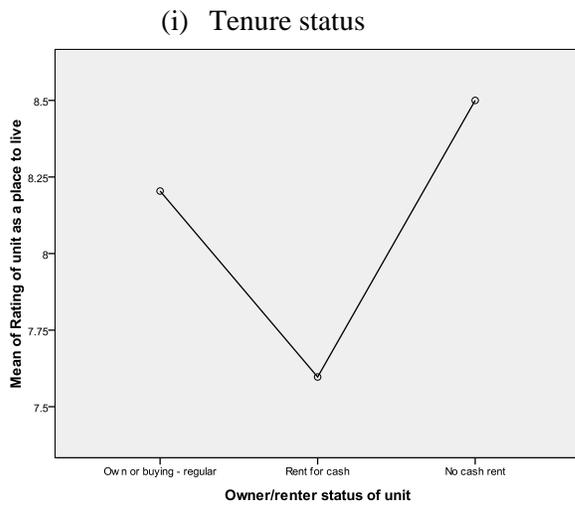
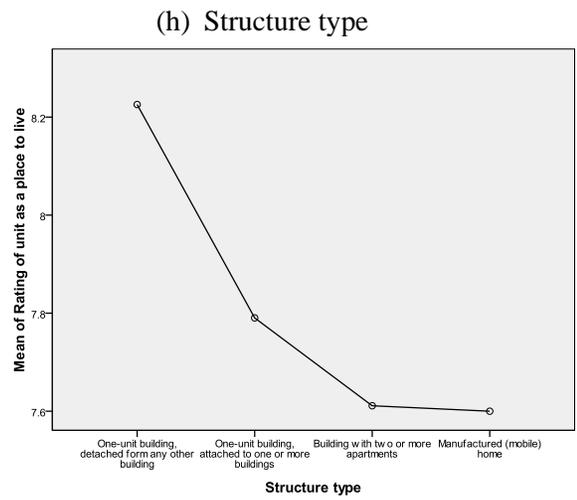
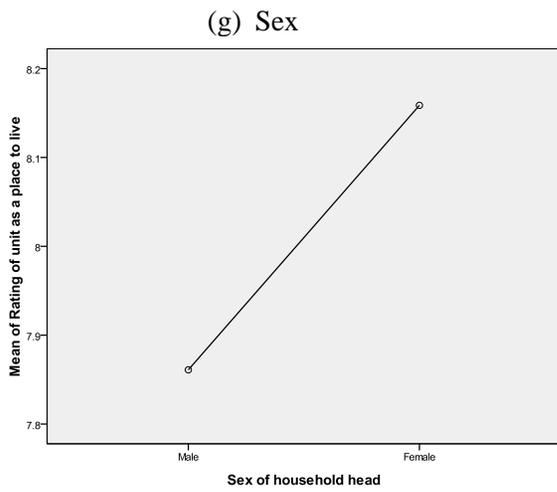


Figure 12 (Continued).

### *Crosstabs*

In this study, crosstabs were used to investigate whether the association between two categorical variables was statistically significant. The variables included Food Stamps, SSI/TANF/AFDC/Welfare, education, family income, geographical location (central city/suburban and Census region), marital status, sex, structure type, and tenure status. A total of 45 sets of categorical variable were analyzed to detect significant difference between two categorical variables. Table 34 was produced to show the significance level among the categorical variables from the Chi-square analyses. The variables showing statistically significant difference were as follows.

(a) Food Stamps by:

- SSI/TANF/AFDC/Welfare ( $\chi^2(2, n = 1,007) = 143.864, p < .05$ ): The most influential cells were those who were not eligible for Food Stamps received SSI/TANF/AFDC/Welfare (the cell had less observed frequencies than expected) and those who were not eligible for Food Stamps did not receive SSI/TANF/AFDC/Welfare (the cell had more observed frequencies than expected). This implies that those who were not eligible for Food Stamps were both less likely to receive SSI/TANF/AFDC/Welfare and more likely not to receive SSI/TANF/AFDC/Welfare.
- Education ( $\chi^2(6, n = 1,007) = 84.485, p < .05$ ): The most influential cell was that those who were not eligible for Food Stamps had less than a high school education. The cell had less observed frequencies than expected, indicating that those who were ineligible for Food Stamps were less likely to have less than a high school education.
- Family income ( $\chi^2(8, n = 1,007) = 980.493, p < .05$ ): The most influential cell was that those who were not eligible for Food Stamps had income less than \$25,000. The cell had less observed frequencies than expected. Flowingly, the second influential cell was that those who did not receive Food Stamps had income less than \$25,000. The cell had more observed frequencies than expected. That means that those who were ineligible for Food Stamps were less likely to have income less than \$25,000 and that those who did not receive for Food Stamps were more likely to have income less than \$25,000.
- Geographical location (Census region) ( $\chi^2(6, n = 1,007) = 39.308, p < .05$ ): The most

Table 34

*A Compounded Matrix of Chi-square Analyses Results (Association between Two Categorical Variables)*

	Food Stamps	SSI/TANF/ AFDC/ Welfare	Education	Family income	Geographical location: Central city/Suburban	Geographical location: Census Region	Marital Status	Sex	Structure type	Tenure status
Food Stamps	.000*	.000*	.000*	.000*	.592	.000*	.000*	.000*	.000*	.000*
SSI/TANF/ AFDC/Welfare		.000*	.000*	.000*	.004*	.450	.074	.073	.000*	.000*
Education			.000*	.000*	.002*	.000*	.001*	.000*	.000*	.000*
Family income				.300	.030*	.000*	.000*	.000*	.000*	.000*
Geographical location: Central city/Suburban					.000*	.065	.036*	.000*	.000*	.086
Geographical location: Census Region						.030*	.794	.000*	.000*	.005*
Marital Status							.000*	.000*	.000*	.000*
Sex								.000*	.000*	.002*
Structure type										.000*

*Note. Each value in a cell was p-value from Pearson's chi-square test results.*

\*  $p < .05$

influential cells were that those did not receive Food Stamps lived in the West. The cell had more observed frequencies than expected, indicating that those who did not receive Food Stamps were more likely to live in the West.

- Marital status ( $\chi^2(2, n = 1,007) = 74.908, p < .05$ ): The most influential cell was that those who were not eligible for Food Stamps were married. The cell had more observed frequencies than expected, indicating those who were ineligible for Food Stamps were more likely to be married
- Sex ( $\chi^2(2, n = 1,007) = 40.817, p < .05$ ): The most influential cell was that those who were not eligible for Food Stamps were male. The cell had more observed frequencies than expected, indicating that those who were ineligible for Food Stamps were more likely to be male.
- Structure type ( $\chi^2(6, n = 1,007) = 213.691, p < .05$ ): The most influential cell was that those who were not eligible for Food Stamps lived in one-unit buildings, detached from any other building. The cell had more observed frequencies than expected, indicating that those who were ineligible for Food Stamps were more likely to live in single family homes.
- Tenure status ( $\chi^2(4, n = 1,007) = 236.063, p < .05$ ): The most influential cell was that those who were not eligible for Food Stamps owned or were buying their house. The cell had more observed frequencies than expected, indicating that those who were ineligible for Food Stamps were more likely to have homeownership.

(b) SSI/TANF/AFDC/Welfare by:

- Education levels ( $\chi^2(3, N = 1,039) = 36.783, p < .05$ ): The most influential cell was that those receiving SSI/TANF/AFDC/Welfare had less than a high school education. The cell had more observed frequencies than expected, indicating that those receiving SSI/TANF/AFDC/Welfare were more likely to have less than a high school education.
- Family income ( $\chi^2(4, N = 1,039) = 74.233, p < .05$ ): There were two relatively influential cells: that those who did not receive SSI/TANF/AFDC/Welfare had income less than \$25,000 (The cell had less observed frequencies than expected) and that those who received SSI/TANF/AFDC/Welfare had income less than \$25,000 (the cell had more observed frequencies than expected). That means that those who

did not receive SSI/TANF/AFDC/Welfare were less likely to have income less than \$25,000 and that those having SSI/TANF/AFDC/Welfare benefit were more likely to have income less than \$25,000.

- Geographical location (central city/suburban) ( $\chi^2(2, N = 1,039) = 11.061, p < .05$ ): There were two influential cells: that those who did not receive SSI/TANF/AFDC/Welfare lived in urban areas (The cell had less observed frequencies than expected) and that those who received SSI/TANF/AFDC/Welfare lived in urban areas (the cell had more observed frequencies). This implies that those who did not receive SSI/TANF/AFDC/Welfare were less likely to live in urban areas and that those receiving SSI/TANF/AFDC/Welfare were more likely to live in urban areas.
- Structure type ( $\chi^2(3, N = 1,039) = 107.684, p < .05$ ): The most influential cell was those who did not receive SSI/TANF/Welfare lived in one-unit buildings, detached from any other building. The cell had more observed frequencies than expected, indicating that those who did not receive SSI/TANF/AFDC/Welfare were more likely to live in single family homes.
- Tenure status ( $\chi^2(2, N = 1,039) = 160.289, p < .05$ ): The relatively influential cells were that those who did not receive SSI/TANF/AFDC/Welfare owned or were buying their house (the cell had more observed frequencies than expected) and those receiving SSI/TANF/AFDC/Welfare owned or were buying their house (the cell had less observed frequencies than expected). This implies that those who did not receive SSI/TANF/AFDC/Welfare were more likely to have homeownership, and those having SSI/TANF/AFDC/Welfare were less likely to have homeownership.

(c) Education by:

- Family income ( $\chi^2(12, N = 1,039) = 90.025, p < .05$ ): The most influential cell was that those who had less than a high school education had income less than \$25,000. The cell had more observed frequencies than expected, indicating that those who had less than a high school education were more likely to have income less than \$25,000.
- Geographical location (central city/suburban) ( $\chi^2(6, N = 1,039) = 20.866, p < .05$ ): The most influential cells were that those who had some college or associate degree lived in urban areas. The cell had less observed frequencies than expected, indicating that those who had some college or associate degree were less likely to live in urban

areas.

- Geographical location (Census region) ( $\chi^2(9, N = 1,039) = 41.806, p < .05$ ): The most influential cell was that those who had less than a high school education lived in the Northeast. The cell had more observed frequencies than expected, indicating that those who had less than a high school education were more likely to live in the Northeast.
  - Marital status ( $\chi^2(3, N = 1,039) = 17.506, p < .05$ ): The relatively more influential cells were that those who had a Bachelor's degree or more were not married (The cell had less observed frequencies than expected) and that those who had a Bachelor's degree or more were married (The cell had more observed frequencies than expected). That means that those who had a Bachelor's degree or more were less likely to be not married (i.e., those who had a Bachelor's degree or more were more likely to be married).
  - Sex ( $\chi^2(3, N = 1,039) = 39.286, p < .05$ ): The most influential cell was that those who had a Bachelor's degree were male. The cell had more observed frequencies than expected, indicating that those who had a Bachelor's degree were more likely to be male.
  - Structure type ( $\chi^2(9, N = 1,039) = 82.408, p < .05$ ): The most influential cell was that those who had less than a high school education lived in one-unit buildings, detached from any other building. The cell had less observed frequencies than expected, indicating that those who had less than a high school education were less likely to live in single family homes.
  - Tenure status ( $\chi^2(6, N = 1,039) = 88.529, p < .05$ ): The most influential cell was that those who had less than a high school education owned or were buying their house. The cell had less observed frequencies than expected, indicating that those who had less than a high school education were less likely to own or buy their house.
- (d) Family income by:
- Geographical location (Census region) ( $\chi^2(12, N = 1,039) = 22.762, p < .05$ ): Two cells were important: that those who had income with \$50,000 to \$74,999 lived in the West (the cell had less observed frequencies than expected) and that those having income less than \$25,000 lived in the Northeast (The cell had more observed

frequencies than expected). That indicates that those having income with \$50,000 to \$74,999 were less likely to live the West, and those who had income less than \$25,000 were more likely to live in the Northeast.

- Marital status ( $\chi^2(4, N = 1,039) = 85.298, p < .05$ ): The most influential cell was that those who had income less than \$25,000 were not married. The cell had more observed frequencies than expected, indicating that those who had income less than \$25,000 were more likely to be not married.
  - Sex ( $\chi^2(4, N = 1,039) = 54.236, p < .05$ ): The most influential cell was that those who had income less than \$25,000 were female. The cell had more observed frequencies than expected, indicating that those who had income less than \$25,000 were more likely to be female.
  - Structure type ( $\chi^2(12, N = 1,039) = 210.358, p < .05$ ): The most influential cell was that those who had income less than \$25,000 lived in buildings with two or more apartments. The cell had more observed frequencies than expected, indicating that those who had income less than \$25,000 were more likely to live in buildings with two or more apartments.
  - Tenure status ( $\chi^2(8, N = 1,039) = 212.281, p < .05$ ): The most influential cell was that those who had income less than \$25,000 owned or were buying their house. The cell had less observed than expected. Flowingly, the second influential cell was that those who had income less than \$25,000 rented for cash. The cell had more observed frequencies than expected. That means that those who had income less than \$25,000 were less likely to own or buy their house and that those who had income less than \$25,000 were more likely to rent for cash.
- (e) Geographical location (central city/suburban) by:
- Geographical location (Census region) ( $\chi^2(6, N = 1,039) = 35.826, p < .05$ ): The most influential cell was that those in urban areas lived in the South. The cell had less observed frequencies than expected, indicating that those in urban areas were less likely to live in the South.
  - Sex ( $\chi^2(2, N = 1,039) = 6.671, p < .05$ ): The most influential cell was that those in suburban areas were male. The cell had more observed frequencies than expected, indicating that those in suburban areas were more likely to be male.

- Structure type ( $\chi^2(6, N = 1,039) = 24.638, p < .05$ ): The most influential cell was that those in urban areas lived in one-unit buildings, detached from any other building. The cell had less observed frequencies than expected. The second influential cell was that those in urban areas lived in buildings with two or more apartments. The cell had more observed frequencies than expected. This implies that those in urban areas were less likely to live in single family homes and were more likely to live in buildings with two more apartments.
- (f) Geographical location (Census region) by:
- Marital status ( $\chi^2(3, N = 1,039) = 8.973, p < .05$ ): The most influential cell was that those in the West were not married. The cell had less observed frequencies than expected. This implies that those in the West were less likely to be not married (those in the West were more likely to be married).
  - Structure type ( $\chi^2(9, N = 1,039) = 81.146, p < .05$ ): The most influential cell was that those in the Northeast lived in one-unit buildings, detached from any other building. The cell had less observed frequencies than expected, indicating that those in the Northeast were less likely to live in single family homes.
  - Tenure status ( $\chi^2(6, N = 1,039) = 18.559, p < .05$ ): The most influential cell was that those in the Northeast rented for cash. The cell had more observed frequencies than expected, indicating that those in the Northeast were more likely to rent for cash.
- (g) Marital status by:
- Sex ( $\chi^2(1, N = 1,039) = 364.929, p < .05$ ): All cells had equally meaningful negative or positive residuals (observed frequencies – expected frequencies). Married people were more likely to be male; Non-married people were more likely to be female.
  - Structure type ( $\chi^2(3, N = 1,039) = 40.415, p < .05$ ): Two cells were meaningful: that those who were not married lived in one-unit buildings, detached from any other building (The cell had less observed frequencies) and that those who were married lived in one-unit buildings, detached from any other building (The cell had more observed frequencies). This implies that those who were not married were less likely to live in single family homes and that those who were married were more likely to live in single family homes.
  - Tenure status ( $\chi^2(2, N = 1,039) = 28.243, p < .05$ ): Two equally influential cells were

that those who were married rented for cash (the cell had less observed frequencies than expected) and that those who were not married rented for cash (more observed). This implies that those who were married were less likely to rent for cash (i.e., those who were not married were more likely to rent for cash).

(h) Sex by:

- Structure type ( $\chi^2(3, N = 1,039) = 24.351, p < .05$ ): Based on the four meaningful cells, males were less likely to live in apartments, and females were more likely to live in apartments. In addition, males were more likely to live in single family homes and females were less likely to live in single family homes.
- Tenure status ( $\chi^2(2, N = 1,039) = 12.766, p < .05$ ): Four cells were meaningful. The cells imply that females were less likely to have homeownership and more likely to live in apartments than males.

(i) Structure type by:

- Tenure status ( $\chi^2(6, N = 1,039) = 611.970, p < .05$ ): The most influential cell was that one-unit buildings, detached from any other building (single family homes) were rented for cash. The cell had less observed frequencies than expected, indicating that single family homes were less likely to be rented for cash.

In summary, most categorical variables selected were statistically significantly associated with each other, except the relationships of Food Stamps – central city/suburban; SSI/AFDC/TANF/Welfare – Census region; SSI/AFDC/TANF/Welfare – marital status; SSI/TANF/Welfare – sex; family income – central city/suburban; central city/suburban – marital status; central city/suburban – tenure status; and Census region – sex. Significant findings from Chi-square were follows as:

(a) Government assistance:

- Those who were not eligible for Food Stamps were less likely to receive SSI/TANF/AFDC/Welfare, were less likely to have less than a high school education, less likely to have income less than \$25,000, were more likely to be married and male, to live in single family homes and to have homeownership.

- Those who did not receive Food Stamps were more likely to live in the West; more likely to have income less than \$25,000 (implying that many low income people seemed not to receive Food Stamps).
- Those receiving SSI/TANF/AFDC/Welfare were more likely to have less than a high school education and, to have income less than \$25,000 and to live in urban areas.
- Those who did not receive SSI/TANF/AFDC/Welfare were less likely to have income less than \$25,000 and to live in urban areas, and were more likely to live in single family homes and to have homeownership.

(b) Education:

- Those who had some college or associate degree were less likely to live in urban areas.
- Those who had a Bachelor's degree or more were more likely to be married and male.
- Those who had less than a high school education were more likely to have their

(c) Family income:

- Income less than \$25,000 and to live in the Northeast, and were less likely to live in single family homes and to have homeownership.
- Those who had income less than \$25,000 were more likely to live in the Northeast, to not be married, to be female, to live in a building with two or more apartments, and rent for cash.
- Those having income of \$50,000 to \$74,999 were less likely to live the West.

(d) Geographic location:

- Those in urban areas were less likely to live in the South and to live in single family homes, and were more likely to live in buildings with two more apartments.
- Those in suburban areas were more likely to be male.
- Those in the West were more likely to be married.
- Those in the Northeast were less likely to live in single family homes and more likely to rent for cash.

(e) Marital status and sex:

- Those who were married were more likely to be males.
- Those who were married were more likely to live in single family homes and less likely to rent for cash. .
- Males were more likely to live in single family homes, and females were more likely

to live in apartments.

- Females were less likely to have homeownership and more likely to live in apartments than males.

(f) Structure type:

- Single family homes were less likely to be rented for cash.

### *Summary of Bivariate Relationships among Variables*

To detect bivariate relationships among variables, three statistical methods were used: Pearson correlation, one-way ANOVA, and crosstabs. Some highlights from the analyses included:

(a) Pearson correlation analyses:

- Asian and Pacific Island household heads aged 65+ who had higher housing satisfaction score were likely to have a lower household size, more adequate housing quality, to have larger structure size, and to express higher satisfaction level in their neighborhood rating.
- Neighborhood rating was the most influential factor on housing satisfaction score.
- The structure size was positively related to family income, household size, and housing quality. Age was negatively related with family income, household size, and structure size. Family income was positively related with household size, housing quality, and structure size. Housing quality was positively related with structure size and neighborhood rating.

(b) One-way ANOVA:

- There was a statistically significant difference in housing satisfaction score by each grouping variable including Food Stamps, SSI/TANF/AFDC/Welfare, education, geographical location, marital status, sex, structure type, and tenure status. This means that if people received government assistance, were less educated, were married, were male, lived in urban areas and Northeast, lived in buildings with two or more apartments or a manufactured home, or rented for cash, they were likely to express lower housing satisfaction.

(c) Crosstabs:

- People receiving government assistance were more likely to have income less than \$25,000 and less than a high school education, and were less likely to live in single family homes and to have homeownership. However, even though people had less than \$25,000, they still tended to be less likely to obtain Food Stamps. Those receiving Food Stamps were more likely to live in the West. Those receiving SSI/TANF/AFDC/Welfare were more likely to live urban areas.
- More educated people tended to be married and male and less likely to live in urban areas. People having less than a high school education were more likely to have their income less than \$25,000 and to live in the Northeast, and were less likely to live in single family homes and to have homeownership.
- People having income less than \$25,000 were more likely to live in the Northeast, to be not married and female, to live in buildings with two or more apartments, and to rent for cash.
- People in the Northeast were less likely to live in single family homes and more likely to rent for cash. People in the West were more likely to be married. Those having income with \$50,000 to \$74,999 were less likely to live the West.
- People living in urban areas were less likely to live in the South and to live in single family homes, and were more likely to live in buildings with two more apartments. People in suburban areas were more likely to be male.
- Married people were more likely to be males, and to live in single family homes and less likely to rent for cash.
- Males were more likely to live in single family homes. Females were less likely to have homeownership and more likely to live in apartments.
- Single family homes were less likely to be rented for cash.

### Tests of Hypotheses

Five null hypotheses were proposed for this study. For testing hypotheses, simultaneous multiple regression was employed for  $H_01$  and  $H_02$ ; hierarchical multiple regression was employed for,  $H_03$  and  $H_05$ ; simple regression was used for  $H_01$  and  $H_04$ . From the results of one-way ANOVA analysis (See “Trends over Time from 1995 to 2007”), cohorts are not a

significant factor to explain the variability of housing satisfaction because there is not much difference on housing satisfaction among cohorts. To pursue the parsimonious model, I dropped the cohort indicator variables, pooled the cohorts, and treated as a single group. Therefore, when conducting regression analyses, there is no adjustment for multiple cohorts (i.e., cohort effects).

### *Hypothesis 1*

*H<sub>01</sub>*: There is no relationship between receipt of government assistance and housing satisfaction among eligible Asian and Pacific Island elders.

A simultaneous multiple regression and simple regression was used to assess whether or not there was a relationship of housing satisfaction of eligible Asian and Pacific Island elders and government assistance (Food Stamps and SSI/TANF/AFDC/Welfare). This hypothesis was focused on the eligibility of the government assistance. Therefore, the sample was divided into two groups comprising a low income group (family income  $\leq$  \$25,000) and high income group (family income  $>$  \$25,000). Each group was analyzed with simultaneous multiple regression and simple regression respectively. Also, when regressing on the dependent variable (housing satisfaction score) on the independent variables, casewise diagnostics of the SPSS software were conducted to reduce an error.

When analyzing the low income group, two categorical variables (Food Stamps and SSI/TANF/AFDC/Welfare) and one continuous variable (family income) were used as independent variables, and housing satisfaction score was used as the dependent variable. The two categorical variables were needed to be converted into dummy variables for regression analyses (See footnotes in Table 35). For analyzing the high income group, family income was used as the independent variable, and housing satisfaction score was used as the dependent variable.

Table 35 shows the results of the regression analysis for Hypothesis 1. For the low income group, housing satisfaction was regressed on Food Stamps, SSI/TANF/AFDC/Welfare, and family income. About 2.2% of total variance in housing satisfaction was accounted for by Food Stamps, SSI/TANF/AFDC/ Welfare, and family income ( $R^2 = .022$ ,  $F(3, 471) = 3.499$ ,  $p < .05$ ). Based on the standardized regression coefficient ( $\beta$ ) of each variable, the effect of Food

Stamps was statistically significant ( $\beta = -.100, p < .05$ ), and those who obtained Food Stamps scored, on average, .518 points lower on housing satisfaction scale than those who did not obtain such government assistance, when controlling for other variables.

Standardized regression coefficients ( $\beta$ ) can allow explanation of strength of effects. As a general rule for judging the magnitude of effects on outcomes,  $\beta$ 's below .05 are considered too small to be considered meaningful influences;  $\beta$ 's above .05 are considered small and meaningful;  $\beta$ 's above .10 are considered moderate;  $\beta$ 's above .25 are considered large (Keith, 2005). Based on this interpretation, Food Stamps had a small to moderate effect on housing satisfaction. However, the effects of SSI/TANF/AFDC/Welfare and family income were not statistically significant, based on the standardized regression coefficients ( $\beta$ ):

SSI/TANF/AFDC/Welfare,  $\beta = -.084, p > .05$  and family income,  $\beta = -.033, p > .05$ .

For the high income group, housing satisfaction score was regressed on family income. The variance of the model was not significant ( $R^2 = .003, F(1, 465) = 1.202, p > .05$ ), indicating that family income was not statistically significantly associated with housing satisfaction of high income people.

Not focusing on income levels (i.e., not separating low and high income and considering family income), another simultaneous multiple regression was conducted to detect the relationship between receipt of government assistance and housing satisfaction of Asian and Pacific Island elders. The reason can be that when asking a variable of SSI/TANF/AFDC/Welfare in the AHS, the income level of \$25,000 is not a consideration.

Table 36 shows the results of the regression analysis. Housing satisfaction was regressed on Food Stamps and SSI/TANF/AFDC/Welfare. About 2.2% of total variance in housing satisfaction was accounted for by Food Stamps and SSI/TANF/AFDC/Welfare ( $R^2 = .022, F(3, 966) = 7.346, p < .05$ ). Based on the standardized regression coefficient of each variable, the effect of SSI/TANF/AFDC/Welfare was statistically significant ( $\beta = -.099, p < .05$ ), and those who obtained SSI/TANF/AFDC/Welfare scored, on average, .482 points lower on housing satisfaction scale than those who did not obtain such government assistance, when controlling other variables. The effect of Food Stamps was not statistically significant, based on the standardized regression coefficients ( $\beta$ ): (a) Food Stamps (D1),  $\beta = -.047, p > .05$  and (b) Food Stamps (D2),  $\beta = .054, p > .05$ .

Table 35

*Simultaneous Multiple Regression and Simple Regression for Hypothesis 1*

Family Income ≤ \$25,000 (n = 476)				Family Income > \$25,000 (n = 467)			
Model 1 Variable	B	SE B	β	Model 1 Variable	B	SE B	β
Constant	8.476	.635		Constant	6.837	1.197	
Food Stamps (D1) <sup>a</sup>	-.518	.248	-.100*	Family Income	.276	.252	.051
SSI/TANF/AFDC/Welfare (D1) <sup>b</sup>	-.337	.193	-.084				
Family Income	-.114	.158	-.033				
R <sup>2</sup>	.022			R <sup>2</sup>	.003		
F	3.499* (df 3 and 472)			F	1.202 (df 1 and 465)		

Note. Dependent variable: Housing satisfaction score.

<sup>a</sup> A value label, *Yes* (recipients who received Food Stamps) was coded 1; and *No* (those who did not receive Food Stamps) was coded 0 (a reference group).

<sup>b</sup> A value label, *Yes* (recipients who received SSI/TANF/AFDC/Welfare) was coded 1, and *No* (those who did not receive SSI/TANF/AFDC/Welfare) was coded 0 (a reference group).

\*  $p < .05$ .

Table 36

*Simultaneous Multiple Regression for Additional Explanation for Hypothesis 1 (n = 970)*

Model 1 Variable	B	SE B	β
Constant	7.965	.083	
SSI/TANF/AFDC/Welfare (D1) <sup>a</sup>	-.482	.167	-.099*
Food Stamps (D1) <sup>b</sup>	-.329	.237	-.047
Food Stamps (D2) <sup>c</sup>	.178	.110	.054
R <sup>2</sup>	.022		
F	7.346* (df 3 and 966)		

Note. Dependent variable: Housing satisfaction score.

<sup>a</sup> A value label, *Yes* (recipients who received SSI/TANF/AFDC/Welfare) was coded 1, and *No* (those who did not receive SSI/TANF/AFDC/Welfare) was coded 0 (a reference group).

<sup>b</sup> A value label, *Yes* (recipients who received Food Stamps) was coded 1; and *Not eligible* (those who were not applicable because their income was over \$25,000) and *No* (those who did not receive Food Stamps) were coded 0. *No* was a reference group.

<sup>c</sup> A value label, *Not eligible* (those who were not applicable because their income was over \$25,000) was coded 1, and *Yes* (recipients who received Food Stamps) and *No* (those who did not receive Food Stamps) were coded 0. *No* was a reference group.

\*  $p < .05$ .

Briefly,  $H_01$  was rejected and it was concluded that there was a significant relationship between receipt of government assistance and housing satisfaction of eligible Asian and Pacific Island elders. Among the low income respondents (family income  $\leq$  \$25,000), those obtaining Food Stamps had lower housing satisfaction than those who did not obtain the Food Stamps; the SSI/TANF/AFDC/Welfare program and family income were not statistically significantly associated with housing satisfaction when controlling for Food Stamps (Table 35). For the high income people (family income  $>$  \$25,000), family income was not statistically significantly associated with housing satisfaction (Table 35).

Also, when a sample was not divided into the low and high income groups, SSI/TANF/AFDC/Welfare was statistically significantly associated with housing satisfaction score when controlling for Food Stamps (Table 36).

### *Hypothesis 2*

$H_02$ : There is no relationship between demographic characteristics and housing satisfaction of Asian and Pacific Island elders.

A simultaneous multiple regression was employed to assess whether or not there was a relationship of housing satisfaction of Asian and Pacific Island elders 65 + and demographic characteristics. Seven variables included age, education, family income, geographic location (central city/suburban and Census region), household size, marital status, and sex. Categorical variables (education, central city/suburban, Census region, marital status, and sex) were transformed into dummy variables. For education, three dummy variables were developed; for central city/suburban, two dummy variables; for Census region, three dummy variables; for marital status, one dummy variable; for sex, one dummy variable (see footnotes in Table 37).

Table 37 provides results of the multiple regression analysis for hypothesis 2. About 6.2% of total variance of housing satisfaction was accounted for by the demographic variables ( $R^2 = .062$ ,  $p < .05$ ). The regression model was statistically significant with  $F(13, 947) = 4.816$ ,  $p < .05$ .

Table 37

*Simultaneous Multiple Regression for Hypothesis 2 (n = 961)*

Model 1 Variable	<i>B</i>	<i>SE B</i>	$\beta$
Constant	8.504	.992	
Age	-.008	.008	-.032
Education (D1) <sup>a</sup>	.207	.145	.053
Education (D2) <sup>b</sup>	.292	.164	.066
Education (D3) <sup>c</sup>	.498	.140	.140*
Family income	.219	.102	.075*
Central city/Suburban (D1) <sup>d</sup>	-.555	.618	-.083
Central city/Suburban (D2) <sup>e</sup>	.025	.649	.003
Census region (D1) <sup>f</sup>	-.546	.157	-.114*
Census region (D2) <sup>g</sup>	.046	.188	.008
Census region (D3) <sup>h</sup>	-.146	.179	-.027
Household size	-.092	.044	-.076*
Marital status (D1) <sup>i</sup>	.189	.141	.056
Sex (D1) <sup>j</sup>	.253	.137	.074
<i>R</i> <sup>2</sup>	.062		
<i>F</i>	4.816* ( <i>df</i> 13 and 947)		

Note. Dependent variable: Housing satisfaction score.

<sup>a</sup> A value label, *High school graduate*, was coded 1, and other value labels were coded 0. *Less than high school* was a reference group.

<sup>b</sup> A value label, *Some college or associate degree*, was coded 1, and other value labels were coded 0. *Less than high school* was a reference group.

<sup>c</sup> A value label, *Bachelor's degree or more*, was coded 1, and other value labels were coded 0. *Less than high school* was a reference group.

<sup>d</sup> A value label, *Urban*, was coded 1, and other value labels were coded 0. *Rural* was a reference group.

<sup>e</sup> A value label, *Suburban*, was coded 1, and other value labels were coded 0. *Rural* was a reference group.

<sup>f</sup> A value label, *Northeast*, was coded 1, and other value labels were coded 0. *West* was a reference group.

<sup>g</sup> A value label, *Midwest*, was coded 1, and other value labels were coded 0. *West* was a reference group.

<sup>h</sup> A value label, *South*, was coded 1, and other value labels were coded 0. *West* was a reference group.

<sup>i</sup> A value label, *Not married*, was coded 1, and *Married* was coded 0. *Married* was a reference group.

<sup>j</sup> A value label, *Female*, was coded 1, and *Male* was coded 0. *Male* was the reference group.

\*  $p < .05$ .

Based on the standardized regression coefficients ( $\beta$ ), education (D3), family income, Census region (D1), household size ( $\beta = .140, .075, -.114, \text{ and } -.076$  respectively,  $p < .05$ ) were statistically significantly associated with housing satisfaction scores when other variables were controlled. In terms of education, a group, Bachelor's degree and more, scored, on average, .498 points higher on housing satisfaction scale than reference group, less than high school, when controlling for other variables. This effect of education (D3) can be considered a moderate effect. A group, Northeast, scored, on average, .546 points lower on housing satisfaction scale than those living in the West, when controlling for other variables. This effect of Census region (D1) can be considered a small to moderate effect.

Housing satisfaction score was predicted to increase .219 per one unit in family income when controlling for other variables and to decrease .092 per one unit in household size when controlling for other variables. The effects of family income and household size can be considered a small effect. However, the effects of age, central city/suburban, marital status, and sex were not statistically significantly associated with housing satisfaction score when other variables were controlled.

Briefly,  $H_{02}$  was rejected and it was concluded that there was a significant relationship between demographic characteristics and housing satisfaction of Asian and Pacific Island elders. In particular, education, family income, Census region, and household size were statistically significantly associated with housing satisfaction when controlling for age, central city/suburban, marital status, and sex. Those having higher income were likely to express higher satisfaction, but those having larger household size were likely to have lower satisfaction. Those having Bachelor's degree or more had higher housing satisfaction than those who had education level as less than high school. Those living in the Northeast had lower housing satisfaction than those living in the West. However, age, central city/suburban, marital status, and sex were not statistically significantly associated with housing satisfaction when other demographic variables were controlled.

### *Hypothesis 3*

$H_{03}$ : There is no relationship between housing characteristics and housing satisfaction of Asian and Pacific Island elders.

Hierarchical multiple regression was employed to assess the relationships of housing satisfaction of Asian and Pacific Island elders and the four housing related variables (housing quality, structure size, structure type, and tenure status). In general, hierarchical multiple regressions are used in data analysis in which the independent variables are entered into the equation according to the order based on theoretical grounds (Pallant, 2007). For this hypothesis, the main question was whether or not the other housing related variables (structure type and tenure status) were still able to explain a significant amount of the variance in housing satisfaction score while controlling for the possible effect of housing quality and structure size on

their housing satisfaction score. There were three models; (a) Model 1 was the first stage in the hierarchy when only housing quality was used as a predictor, (b) Model 2 referred to the second stage when both housing quality and structure size were employed as predictors, and (c) Model 3 referred to the final model including housing quality, structure size, structure type, and tenure status.

The housing variables included categorical variables of structure type (having four value labels) and tenure status (having three value labels), and therefore, those were converted into three dummies for structure type (D1, D2, D3) and two dummies for tenure status (D1 and D2) (see footnotes in Table 38). Table 38 shows the results of the hierarchical multiple regression for hypothesis 3.

When housing quality was entered in Model 1, 1.4% of the variance in housing satisfaction was accounted for by this predictor ( $R^2 = .014, p < .05$ ). When entering housing quality and structure size in Model 2, the previous variance increased to 4.2% of the variance in housing satisfaction ( $\Delta R^2 = .028, p < .05$ ). For the final model, when adding structure type and tenure status, the previous variance in Model 2 increased to 5.0% of the variance in housing satisfaction, which was not significant ( $\Delta R^2 = .008, p > .05$ ). Therefore, the Model 2 having predictors of housing quality ( $\beta = .087, p < .05$ ) and structure size ( $\beta = .170, p < .05$ ) was selected as the best fitting model,  $F(2, 983) = 21.435, p < .05$ .

The two variables showed positive relationships with housing satisfaction score. Housing satisfaction score was predicted to increase .381 per one unit in housing quality when controlling for other variables and to increase .219 per one unit in structure size when controlling for other variables. Based on standardized regression coefficients ( $\beta$ ), structure size ( $\beta = .170, p < .05$ , a moderate effect) was likely to have more impact on housing satisfaction score than housing quality ( $\beta = .087, p < .05$ , a small effect).

Briefly,  $H_{03}$  was rejected and it was concluded that there was a significant relationship between housing characteristics and housing satisfaction of Asian and Pacific Island elders. In specific, there were effects of housing quality and structure size on housing satisfaction, indicating that those having more adequate housing and larger structure size are were likely to express higher housing satisfaction levels. However, structure type and tenure status on housing satisfaction were not statistically significantly associated with housing satisfaction when housing quality and structure size were controlled.

Table 38

*Hierarchical Multiple Regression for Hypothesis 3 (n = 986)*

	<i>B</i>	<i>SE B</i>	$\beta$
<i>Step 1</i>			
Constant	6.983	.270	
Housing quality	.516	.139	.118*
<i>Step 2</i>			
Constant	6.674	.273	
Housing quality	.381	.139	.087*
Structure size	.219	.041	.170*
<i>Step 3</i>			
Constant	7.078	.723	
Housing quality	.354	.140	.081*
Structure size	.111	.063	.086
Structure type (D1) <sup>a</sup>	.523	.519	.158
Structure type (D2) <sup>b</sup>	.338	.555	.050
Structure type (D3) <sup>c</sup>	.396	.534	.116
Tenure (D1) <sup>d</sup>	-.430	.414	-.129
Tenure (D2) <sup>e</sup>	-.705	.417	-.210

Note.  $R^2 = .014$  for Step 1 ( $p < .05$ );  $\Delta R^2 = .028$  for Step 2 ( $p < .05$ );  $\Delta R^2 = .008$  for Step 3 ( $p > .05$ ).

Dependent variable: Housing satisfaction score.

<sup>a</sup> A value label, *one-unit building*, detached from any other building, was coded 1; other value labels were coded 0. *Manufactured (mobile) home* was a reference group.

<sup>b</sup> A value label, *one-unit building*, attached to one or more buildings, was coded 1; other value labels were coded 0. *Manufactured (mobile) home* was a reference group.

<sup>c</sup> A value label, *building with two or more apartments*, was coded 1; other value labels were coded 0. *Manufactured (mobile) home* was a reference group.

<sup>d</sup> A value label, *own or buying-regular*, was coded 1; and other value labels were coded 0. *No cash rent* was a reference group.

<sup>e</sup> A value label, *rent for cash*, was coded 1; and other value labels were coded 0. *No cash rent* was a reference group.

\*  $p < .05$ .

*Hypothesis 4*

*H<sub>04</sub>*: There is no relationship between neighborhood rating and housing satisfaction of Asian and Pacific Island elders.

A simple regression was used to assess the relationship of neighborhood rating and housing satisfaction. Table 39 shows the results of the regression analysis for hypothesis 4. About 47.5% of total variance of housing satisfaction was accounted for by neighborhood rating ( $R^2 = .475$ ,  $p < .05$ ). The regression was statistically significant with  $F(1, 978) = 885.430$ ,  $p < .05$ .

Table 39

*Simple Regression for Hypothesis 4 (n = 980)*

Model 1 Variable	<i>B</i>	<i>SE B</i>	$\beta$
Constant	2.682	.182	
Neighborhood rating	.667	.022	.689*
$R^2$	.475		
<i>F</i>	885.430* ( <i>df</i> 1 and 978)		

Note. Dependent variable: Housing satisfaction score.

\* $p < .05$ .

The neighborhood rating and housing satisfaction had a strong positive relationship ( $\beta = .689, p < .05$ ). Housing satisfaction score was predicted to increase .667 per one unit in neighborhood rating.

Briefly,  $H_04$  was rejected and it was concluded that there was a significant relationship between neighborhood rating and housing satisfaction of Asian and Pacific Island elders. Neighborhood rating was statistically significantly associated with housing satisfaction. Those who showed higher neighborhood rating were likely to express higher housing satisfaction.

#### *Hypothesis 5*

$H_05$ : Government assistance and, demographic, housing, and neighborhood characteristics as a whole are not related with Asian and Pacific Island elders' housing satisfaction in the United States.

A hierarchical multiple regression was employed to assess the relationships of housing satisfaction of Asian and Pacific Island elders and their government assistance and demographic, housing, and neighborhood variables. Based on previous hypotheses tests in this study, the larger variance in relation to housing satisfaction was provided in relation to neighborhood rating ( $R^2 = .475, p < .05$ ), followed by demographic related variables ( $R^2 = .062, p < .05$ ), housing related variables ( $R^2 = .042, p < .05$ ), and government assistance variables ( $R^2 = .022, p < .05$ ).

Based on the  $R^2$  of each hypothesis test, four models were developed: (a) Model 1 referred to the first stage in the hierarchy when neighborhood rating variable was used as a

predictor, (b) Model 2, the second stage when neighborhood rating and demographic variables were employed as predictors, (c) Model 3, the third stage when neighborhood rating, demographic, and housing variables were used as predictors, and (d) Model 4, the final stage including neighborhood rating, demographic, housing, and government assistance variables were used as predictors. The categorical variables were converted into appropriate dummy variables (see footnotes in Table 40).

Table 40 shows the results of the hierarchical multiple regression for hypothesis 5. When neighborhood rating was entered in Model 1, 46.9 % of the variance in housing satisfaction was accounted for by this predictor ( $R^2 = .469, p < .05$ ). When adding demographic variables [age, education (three dummy variables), family income, geographic location (two dummy variables of central city/suburban variable; three dummy variables of Census region), household size, marital status (one dummy variable), and sex (one dummy variable)] in Model 2, the previous variance increased to 49.2% of the variance in housing satisfaction ( $\Delta R^2 = .023, p < .05$ ). When adding housing variables [housing quality, structure size, structure type (three dummy variables), and tenure status (two dummy variables)] in Model 3, the previous variance increased to 50.5% of the variance in housing satisfaction ( $\Delta R^2 = .013, p < .05$ ). For the final model, when adding government assistance variables [Food Stamps (two dummy variables) and SSI/TANF/AFDC/Welfare (one dummy variable)], the variance in Model 4 increased to 50.7% of the variance in housing satisfaction, which was not significant ( $\Delta R^2 = .001, p > .05$ ). Therefore, the Model 3 having predictors of neighborhood rating, and demographic and housing variables was selected as the best fitting model,  $F(21, 920) = 44.752, p < .05$ . Government assistance variables were excluded in this model due to insignificance of  $\Delta R^2$ .

Based on standardized regression coefficients ( $\beta$ ), neighborhood rating ( $\beta = .656$ , considered a large effect), education (D2) ( $\beta = .055$ , a small effect), Census region (D1) ( $\beta = -.069$ , a small effect), household size ( $\beta = -.072$ , a small effect), structure size ( $\beta = .101$ , a medium effect), and structure type (D3) ( $\beta = .249$ , a medium to large effect) significantly affected housing satisfaction. The neighborhood rating scores and structure size were positively statistically significantly associated with housing satisfaction, but household size was negatively statistically significantly associated with housing satisfaction. Housing satisfaction score was predicted to increase .636 per one unit in neighborhood rating when controlling for other

Table 40

*Hierarchical Multiple Regression for Hypothesis 5 (n = 942)*

	<i>B</i>	<i>SE B</i>	$\beta$
<i>Step 1 (R<sup>2</sup> = .469, F(1, 940) = 831.491, p &lt; .05)</i>			
Constant	2.706	.187	
Neighborhood rating	.664	.023	.685*
<i>Step 2 (R<sup>2</sup> = .492, F(14, 927) = 64.203, p &lt; .05)</i>			
Constant	2.452	.766	
Neighborhood rating	.646	.023	.666*
Age	-.005	.006	-.021
Education (D1) <sup>a</sup>	.078	.108	.020
Education (D2) <sup>b</sup>	.316	.122	.071*
Education (D3) <sup>c</sup>	.276	.105	.078*
Family income	.142	.076	.049
Central city/Suburban (D1) <sup>d</sup>	.110	.456	.016
Central city/Suburban (D2) <sup>e</sup>	.243	.480	.033
Census region (D1) <sup>f</sup>	-.359	.117	-.075*
Census region (D2) <sup>g</sup>	.189	.141	.032
Census region (D3) <sup>h</sup>	-.052	.133	-.010
Household size	-.063	.032	-.053
Marital status (D1) <sup>i</sup>	.079	.105	.024
Sex (D1) <sup>j</sup>	.116	.102	.034
<i>Step 3 (R<sup>2</sup> = .505, F(21, 920) = 44.752, p &lt; .05)</i>			
Constant	1.944	.901	
<b>Neighborhood rating</b>	.636	.023	.656*
Age	-.004	.006	-.018
Education (D1) <sup>a</sup>	.004	.109	.001
<b>Education (D2)<sup>b</sup></b>	.246	.123	.055*
Education (D3) <sup>c</sup>	.161	.108	.045
Family income	.053	.078	.018
Central city/Suburban (D1) <sup>d</sup>	.141	.456	.021
Central city/Suburban (D2) <sup>e</sup>	.321	.479	.044
<b>Census region (D1)<sup>f</sup></b>	-.333	.121	-.069*
Census region (D2) <sup>g</sup>	.173	.140	.030
Census region (D3) <sup>h</sup>	-.064	.132	-.012
<b>Household size</b>	-.087	.033	-.072*
Marital status (D1) <sup>i</sup>	.137	.105	.041
Sex (D1) <sup>j</sup>	.082	.102	.024
Housing quality	.085	.106	.020
<b>Structure size</b>	.129	.050	.101*
Structure type (D1) <sup>k</sup>	.607	.382	.183
Structure type (D2) <sup>l</sup>	.727	.414	.107
<b>Structure type (D3)<sup>m</sup></b>	.854	.396	.249*
Tenure (D1) <sup>n</sup>	-.108	.313	-.032
Tenure (D2) <sup>o</sup>	-.384	.316	-.114
<i>Step 4 (R<sup>2</sup> = .507, F(24, 917) = 39.250, p &lt; .05)</i>			
Constant	2.183	.934	
Neighborhood rating	.635	.023	.655*
Age	-.004	.006	-.017
Education (D1) <sup>a</sup>	-.011	.109	-.003
Education (D2) <sup>b</sup>	.234	.123	.053
Education (D3) <sup>c</sup>	.148	.108	.042
Family income	.006	.098	.002
Central city/Suburban (D1) <sup>d</sup>	.149	.456	.022

*(table continues)*

Table 40 (Continued)

	B	SE B	$\beta$
Central city/Suburban (D2) <sup>e</sup>	.305	.479	.042
Census region (D1) <sup>f</sup>	-.350	.122	-.073*
Census region (D2) <sup>g</sup>	.172	.142	.030
Census region (D3) <sup>h</sup>	-.046	.133	-.009
Household size	-.083	.034	-.069*
Marital status (D1) <sup>i</sup>	.130	.106	.039
Sex (D1) <sup>j</sup>	.087	.102	.025
Housing quality	.078	.106	.018
Structure size	.121	.051	.094*
Structure type (D1) <sup>k</sup>	.612	.382	.185
Structure type (D2) <sup>l</sup>	.745	.415	.109
Structure type (D3) <sup>m</sup>	.863	.397	.252*
Tenure (D1) <sup>n</sup>	-.131	.313	-.039
Tenure (D2) <sup>o</sup>	-.364	.317	-.108
SSI/TANF/AFDC/Welfare (D1) <sup>p</sup>	-.174	.131	-.036
Food Stamps (D1) <sup>q</sup>	-.087	.178	-.013
Food Stamps (D2) <sup>r</sup>	.045	.119	.014

Note.  $R^2 = .469$  for Step 1 ( $p < .05$ );  $\Delta R^2 = .023$  for Step 2 ( $p < .05$ );  $\Delta R^2 = .013$  for Step 3 ( $p < .05$ );  $\Delta R^2 = .001$  for Step 4 ( $p > .05$ ).

Dependent variable: Housing satisfaction score.

<sup>a</sup> A value label, *High school graduate*, was coded 1, and other value labels were coded 0. *Less than high school* was a reference group.

<sup>b</sup> A value label, *Some college or associate degree*, was coded 1, and other value labels were coded 0. *Less than high school* was a reference group.

<sup>c</sup> A value label, *Bachelor's degree or more*, was coded 1, and other value labels were coded 0. *Less than high school* was a reference group.

<sup>d</sup> A value label, *Urban*, was coded 1, and other value labels were coded 0. *Rural* was a reference group.

<sup>e</sup> A value label, *Suburban*, was coded 1, and other value labels were coded 0. *Rural* was a reference group.

<sup>f</sup> A value label, *Northeast*, was coded 1, and other value labels were coded 0. *West* was a reference group.

<sup>g</sup> A value label, *Midwest*, was coded 1, and other value labels were coded 0. *West* was a reference group.

<sup>h</sup> A value label, *South*, was coded 1, and other value labels were coded 0. *West* was a reference group.

<sup>i</sup> A value label, *Not married*, was coded 1, and *Married* was coded 0. *Married* was a reference group.

<sup>j</sup> A value label, *Female*, was coded 1, and *Male* was coded 0. *Male* was a reference group.

<sup>k</sup> A value label, *one-unit building*, detached from any other building, was coded 1; other value labels were coded 0. *Manufactured (mobile) home* was a reference group.

<sup>l</sup> A value label, *one-unit building*, attached to one or more buildings, was coded 1; other value labels were coded 0. *Manufactured (mobile) home* was a reference group.

<sup>m</sup> A value label, *building with two or more apartments*, was coded 1; other value labels were coded 0. *Manufactured (mobile) home* was a reference group.

<sup>n</sup> A value label, *own or buying-regular*, was coded 1; and other value labels were coded 0. *No cash rent* was a reference group.

<sup>o</sup> A value label, *rent for cash*, was coded 1; and other value labels were coded 0. *No cash rent* was a reference group.

<sup>p</sup> A value label, *Yes* (recipients who received SSI/TANF/AFDC/Welfare) was coded 1, and *No* (those who did not receive SSI/TANF/AFDC/Welfare) was coded 0 (a reference group).

<sup>q</sup> A value label, *Yes* (recipients who received Food Stamps) was coded 1; and *Not eligible* (those who were not applicable because their income was over \$25,000) and *No* (those who did not receive Food Stamps) were coded 0. *No* was a reference group.

<sup>r</sup> A value label, *Not eligible* (those who were not applicable because their income was over \$25,000) was coded 1, and *Yes* (recipients who received Food Stamps) and *No* (those who did not receive Food Stamps) were coded 0. *No* was a reference group.

\*  $p < .05$ .

variables and .129 per one unit in structure size when controlling for other variables, and to decrease .087 per one unit in household size when controlling for other variables. A group, some college or associate degree, scored, on average, .246 points higher on housing satisfaction scale than reference group, less than high school, when controlling for other variables. A group, Northeast, scored, on average, .333 points lower on housing satisfaction scale than those living in the West, when controlling for other variables. A group living in buildings with two or more apartments, scored, on average, .854 points higher on housing satisfaction scale than those living in manufactured (mobile) homes, when controlling for other variables. Other variables including age, family income, central city/suburban, marital status, sex, housing quality, and tenure status were not statistically significantly associated with housing satisfaction when other variables were controlled.

Briefly,  $H_{05}$  was rejected. Based on coefficients, there were effects of neighborhood (neighborhood rating), demographic (education, Census region, and household size), housing (structure size and structure type) characteristics on housing satisfaction. However, there was no relationship between government assistance and housing satisfaction when demographic, housing, neighborhood characteristics were controlled.

Neighborhood rating and structure size had positive relationships with housing satisfaction while household size had a negative relationship. Those having some college or associate degree showed higher housing satisfaction scores than those having an education level as less than high school. Those living in the Northeast showed relatively lower housing satisfaction score than those living in the West; those living in buildings with two or more apartments showed higher housing satisfaction than those living in manufactured (mobile) home.

#### *Summary of Tests of Hypotheses*

The purpose of the study was to investigate housing challenges of Asian and Pacific Island elders, focusing on government assistance, and demographic, housing, and neighborhood characteristics. The results of five hypotheses tests are summarized in Table 41.

Table 41

*Summary of the Results of Hypotheses Tests*

	Null Hypotheses	Results
<i>H<sub>01</sub>:</i>	There is no relationship between receipt of government assistance and housing satisfaction among eligible Asian and Pacific Island elders.	The null hypothesis was rejected. For the low income group (family income $\leq$ \$25,000), Food Stamps was statistically significantly associated with housing satisfaction when controlling for SSI/TANF/AFDC/Welfare and family income. For the high income people (family income $>$ \$25,000), family income was not statistically significantly associated with housing satisfaction.
<i>H<sub>02</sub>:</i>	There is no relationship between demographic characteristics and housing satisfaction of Asian and Pacific Island elders.	The null hypothesis was rejected. Education, family income, Census region, household size were statistically significantly associated with housing satisfaction when controlling for age, central city/suburban, marital status, and sex.
<i>H<sub>03</sub>:</i>	There is no relationship between housing characteristics and housing satisfaction of Asian and Pacific Island elders.	The null hypothesis was rejected. Housing quality and structure size were statistically significantly associated with housing satisfaction when controlling for structure type and tenure status.
<i>H<sub>04</sub>:</i>	There is no relationship between neighborhood rating and housing satisfaction of Asian and Pacific Island elders.	The null hypothesis was rejected. The neighborhood rating was statistically significantly associated with housing satisfaction.
<i>H<sub>05</sub>:</i>	Government assistance and, demographic, housing, and neighborhood characteristics as a whole are not related with Asian and Pacific Island elders' housing satisfaction in the United States.	The null hypothesis was rejected. Neighborhood rating, education, Census region, household size, structure size, and structure type were statistically significantly associated with housing satisfaction. However, there was no relationship between government assistance and housing satisfaction when demographic, housing, neighborhood characteristics were controlled.

## CHAPTER 5 SUMMARY, DISCUSSION, AND IMPLICATION

This chapter includes summary of the research, key findings and discussions, implications, and recommendations for further research.

### Summary of the Research

The purpose of the study was to examine housing challenges of Asian and Pacific Island elders, focusing on government assistance, and demographic, housing, and neighborhood characteristics. To implement the purpose, the research framework was developed based on the theory of housing adjustment (Morris & Winter, 1975, 1978). When investigating each householder's housing challenges in the United States, housing satisfaction was considered as a representative term and therefore, regarded as a dependent variable. The sample of this study was limited to Asian and Pacific Island households with heads aged 65+, who responded to the American Housing Survey (AHS) from 1995 through 2007 in the U.S. ( $N = 1,039$ ). Asian and Pacific Island elders in this study include those who have lived in the U.S. for a long time as well as recent immigrants (i.e., not all such groups are immigrants).

The research framework for this study comprised two main parts: (a) measuring whether government assistance influenced housing satisfaction of Asian and Pacific Island elders from AHS 1995 through 2007 and (b) determining the impact of Asian and Pacific Island elders' demographic, housing, and neighborhood variables on housing satisfaction during that time. The dependent variable was housing satisfaction. Independent variables in the framework comprised: (a) government assistance variables (Food Stamps and SSI/TANF/AFDC/Welfare), (b) demographic variables [age of head of household, education level of head of household, family income, geographic location (central city/suburban and Census region), household size, marital status of head of household, and sex of head of household], (c) housing variables (housing quality, structure size, structure type, and tenure status), and (d) neighborhood variable (neighborhood rating). The data of this study included seven sets of the AHS national survey from 1995 through 2007. Five null hypotheses were proposed and tested.

Several statistical methods were employed. For preliminary data, descriptive statistics

(frequencies, percentages, means, means plots, and boxplots) were used to provide profiles of Asian and Pacific Island elders' government assistance, and demographic, housing, and neighborhood characteristics. When analyzing trends over time, one-way ANOVA and crosstabs were used to check significant differences of each variable before and after 1996; from 1995 to 2007. Besides, descriptive statistics of each variable from 1995 to 2007 were also employed to provide profiles of each variable by each year. To check bivariate relationships among variables, Pearson correlation was used to detect bivariate associations among continuous variables, crosstabs were used to investigate the association between categorical variables, and one-way ANOVA was used to detect the association between a continuous variable (which was the dependent variable, housing satisfaction score) and categorical independent variables. For hypotheses tests, hierarchical (sequential) multiple regression, simultaneous multiple regression and simple regression were employed. The Statistical Package for the Social Sciences (SPSS) version 17 was used for data analyses and a significance level of  $\alpha=.05$  was chosen as the criterion for decision on rejecting the null hypotheses.

## Findings and Discussion

In this section, key findings are summarized and concurrently related discussion follows. This section includes overall profiles of Asian and Pacific Island elders in U.S., important trends from 1995 to 2007, relationship among each profile of Asian and Pacific Island elders, discussion of hypotheses tests results, and discussion of the research framework and housing adjustment theory.

### *Overall Profiles of Asian and Pacific Island Elders in U.S.*

When conducting this research, U.S. immigrants (i.e., Asian and Pacific Island elders) were chosen as a research interest group, and a secondary dataset, AHS, was employed to analyze their housing challenges in the U.S. Using the secondary data implies that variables of this study are limited to what is available within the AHS items. In context with this limitation, when selecting a sample, from 1995 to 2001 AHS, Pacific Islanders were classified as part of a group of Asian or Pacific Islander, but since 2003 AHS, they were classified separately from the group. To keep consistency of race categorization (refer to Selection of Sample in Chapter 3), the

sample of this study also included Pacific Islanders from 2003 to 2007 AHS, even though a large percentage of Pacific Islanders are not immigrants, rather natives (80% of this population) (Harris & Jones, 2005). However, the total sample of this study still was a large percentage of immigrants (almost 71% of the sample were immigrants). Discussion for overall profiles of the sample was as follows.

### *Government Assistance*

The sample of this study had relatively lower income levels than comparably aged persons in the U.S., but only a small portion of the sample received government assistance. Even though more than half (51.9%) of the respondents reported their income less than \$25,000, only 13.4% of the sample received SSI/TANF/AFDC/Welfare and 5.8% received Food Stamps. There seemed to be a big gap between the numbers of recipients and the low income elderly group, indicating that many Asian and Pacific Island elders could struggle with living in the U.S. due to limited income and government assistance. This result can be confirmed by the poverty rate shown in the *March 2002 Current Population Survey* (Reeves & Bennett, 2003). Asian and Pacific Island elders aged 65 and older (10.2%) were more likely to be poor in the United States, compared with non-Hispanic Whites aged 65 + (8.1%). Specifically, Asian and Pacific Island males aged 65 and older (13.8%) were more likely to live in poverty than the Asian and Pacific Island females aged 65 and older (7.4%), and non-Hispanic Whites aged 65 and older (5.2% of males and 10.2% of females) (Reeves & Bennett, 2003).

### *Demographic Profile of the Sample*

The average age of the sample in this study was almost 73 years old, and most of those lived in urban areas (93.6%) and the Western region (67.4%) in the U.S. Reeves and Bennett (2003) reported similar finding: over half of the Asian and Pacific Islanders (51.1%) lived in the Western United States, and the majority (95%) lived in metropolitan areas. Comparing to all of the Asian and Pacific Island populations, more members of the sample in this study lived in the Western region and a similar portion lived in urban areas. Historically, Asian and Pacific Island elders settled in Western U.S. It may support the claim of Kim and Lauderdale (2002) in that adaptation of elderly Koreans (of Asian and Pacific Island elders) could be eased by reducing unfamiliar environmental features by living in areas with concentrations of Korean businesses

and social services.

Approximately 60% of household heads were married, and 63% were male. Average household size was two to three persons ( $M = 2.18$ ). Based on the citizenship responses ( $n = 699$ ) from 2001 AHS to 2007 AHS, almost 60% of the household heads were foreign-born (immigrant) U.S. citizens by naturalization and almost 22% of those were native, born in U.S. The numbers of naturalized citizenship in this study was much higher, compared with 34.4% of all Asian and Pacific Islanders (Reeves & Bennett, 2004). However, almost 12% of the sample that did not have citizenship were those who were not eligible for government benefits due to PRWORA of 1996.

Over half of those earned income less than \$25,000 and had less than a high school education or were only high school graduates. Barringer, Gardner, and Levin (1993) addressed that family income and education levels are likely to be associated, implying that high education means high earnings. Therefore, lower education levels of Asian and Pacific Island elders might cause lower income in the U.S.

#### *Housing Characteristics, Neighborhood, and Housing Satisfaction*

The homeownership rate of the sample in this study was almost 7% lower than the total U.S. population. Approximately 59% of the sample in this study had homeownership. In a study of Reeves and Bennett (2004), homeownership of the total U.S. population was 66.2%.

In this study, 56% of the sample lived in single family homes. Average structure size ranged two to three bedrooms ( $M = 2.58$ ). The sample in this study tended to be highly satisfied with their housing quality, neighborhood, and housing. Historically, Asian and Pacific Islanders concentrated in Western and urban areas, indicating that perceived availability of similar others had a strong relationship to community satisfaction (Kaplan, 1985). Hwang and Ziebarth (2006) suggested that the neighborhood could be co-opted as an extended family when Korean American elders use a neighborhood as resources.

Housing subsidy rates of the Asian and Pacific Island households with heads aged 65+ in this study was relatively higher than those of native household with heads aged 65+. Specifically, Camarota (2005) reported that almost 5% of native households with heads aged 65+ and 9.9% of immigrant households with heads aged 65+ received government housing subsidy. In this study, 10.5 % of the sample received government housing subsidy from 1997 to 2007. Housing subsidy

could be an important source for low income people. Yoo and Sung (1997) found 80% of Koreans living independently from their children rented public housing and had income less than \$10,000.

#### *Important Trends from 1995 to 2007*

There was no significant impact of the PRWORA of 1996 on housing satisfaction and on the government assistance, and demographic, housing, and neighborhood characteristics of Asian and Pacific Island elders since 1996. From 1995 to 2007, only SSI/TANF/AFDC/Welfare, geographical location (central city/suburban status), and household size showed statistically significant difference by time. During the period, there was not much difference on housing satisfaction among cohorts, which can be one justification of ignoring the cohort effects, which was not investigated in this study. That means that cohorts were not a significant factor to explain the variability of housing satisfaction. Therefore, pursuing the parsimonious model, I dropped the cohort indicator variable, pooled the cohorts, and treated them as a single group in this study. Discussion for descriptive data by time from 1995 to 2007 was as follows.

#### *Housing Satisfaction from 1995 to 2007*

From the descriptive statistics, some highlighted trends from 1995 to 2007 were found. Overall housing satisfaction of Asian and Pacific Island elders was relatively high during the period.

#### *Government Assistance from 1995 to 2007*

In terms of government assistance, even though 45.5% to 57.6% of the sample by each year earned less than \$25,000 family income, there were few obtaining government benefits. The percentages of both Food Stamps and SSI/TANF/AFDC/Welfare recipients in 1997 and 1999 surpassed those of other years. Borjas (2002) claimed that immigrants became citizens merely because naturalization is essential to receive welfare benefits. From this point, it might imply that there was an increase of people who obtained citizenship to be qualified for the government benefit after the PRWORA of 1996, which served to increase the numbers of government benefit recipients.

### *Demographic Profile of the Sample from 1995 to 2007*

Education level of the sample in this study was relatively lower than those of Asian and Pacific Islanders and non-Hispanic Whites. Over half of the sample in this study had less than a high school education or were only high school graduates. Reeves and Bennett (2004) reported that 31% of Asian and Pacific Island males and 38% of females, and 33% of non-Hispanic White males and 45% of females had less than a high school education or were high school graduates. However, in this study, there was also 10% increase (from 22% in 1995 to 31.3% in 2007) in Bachelor's degree or more during the period.

One important finding in terms of family income in this study was that from 1995 through 2007, almost half of the households by each year showed income less than \$25,000, even though there was no adjustment for inflation in this study, indicating that Asian and Pacific Island elders in the U.S. could have no improvements in their living condition due to possibly weak financial situation. Households in 1995 to 1999 had lower income than other years, which might allow the sample to increase the numbers of government assistance if they had citizenship.

Asian and Pacific Island elderly households in this study tended to become more dispersed in that they had moved from urban to suburban; and West to Northeast and South areas. The reason can be that as they become more assimilated, the geographical location of Asian Americans is getting similar to that of a majority of the U.S. population (Barringer et al., 1993). Also, female household heads in this study were increased almost 10% from 1995 to 2007.

Household size of 1997 in this study was relatively larger than that of other years ( $M = 2.60$ ), implying that the sample of the year might select to live with adult children to obtain financial supports. Based on the study of Yoo and Sung (1997), public welfare programs and income were important factors associated with living independently from their children. If elders lose public welfare benefits, it would be difficult for them to pursue an independent living. Also, households in 1995 to 1997 tended to have lower income than other years, which could be influenced by the PRWORA of 1996 (restricting public benefits for noncitizens).

Males of the sample in this study were more likely to be married than females, which is an opposite result to a study of Reeves and Bennett (2003) in that Asian and Pacific Island females were more likely than males to be married. Also, in this study, there was 11.6% increase of female household heads aged 65+ during the period (from 32.25% in 1995 to 43.85% in 2007).

The AHS started providing the citizenship question in 2001, and therefore, I could not

check citizenship responses before 2001. This was one limitation of this study, which could be important when comparing citizenship status and government benefits under PRWORA of 1996. Based on the responses from 2001 to 2007, the percentages of naturalized citizens by each year were higher than overall Asians and Pacific Islanders. In this study, almost 50% to 64% of the sample by each year was immigrant foreign born, US citizen by naturalization. Reeves and Bennett (2004) reported that 34.4% of Asian were foreign born, US citizen by naturalization; Harris and Jones (2005) reported that 8% of Pacific Islanders were foreign born, US citizen by naturalization.

#### *Housing Characteristics of the Sample from 1995 to 2007*

From 1995 to 2007, the numbers of those living in single family homes had increased (8% increase) while those living in apartments had decreased (10% decrease). Homeownership rate increased 4% (54.2% in 1995 to 58.2% in 2007). The structure size in 1997 was relatively larger than 1995, which might be influenced by household size increase in 1997. That means that more household size might cause them to increase their structure size at that time. Beamish, Goss, and Emmel (2006) asserted that household size greatly influences the number of bedrooms which may be required when they select housing. In 2001, people expressed the lowest score in housing quality, when the sample had the largest structure size. The reason can be coming from the fact that there was not much difference between the bedroom numbers (i.e., structure size was not statistically significantly different by each year). During the period, the lowest bedroom number was found in 1995 with 2.36 bedrooms while the highest bedroom number was found in 2001 with 2.7 bedrooms.

#### *Neighborhood Rating from 1995 to 2007*

Overall satisfaction level in neighborhood tended to be high. The lowest average neighborhood rating score was found in 2001. The rating scores from 1995 to 2001 were relatively lower than those from 2003 to 2007, which was similar with the pattern of housing satisfaction scores during the period.

### *Relationship among each Profile of Asian and Pacific Island Elders*

Morris and Winter (1975) suggest five types of housing norms in the U.S. including housing space, tenure, structure type, quality, and neighborhood and assert that norms and constraints (e.g., limited economic resources or discrimination) can be important influential forces when members of a household should decide about their housing. Such relationships of norms and constraints of Asian and Pacific Island elders were analyzed with Pearson correlation, one-way ANOVA, and crosstabs (i.e., bivariate relationships among variables).

### *Relationships Revealed from Pearson Correlation*

From the results of Pearson correlation, Asian and Pacific Island elders having higher satisfaction score were likely to have lower household size, more adequate housing quality, larger structure size, and to express higher neighborhood satisfaction levels. Neighborhood rating was the most influential factor on housing satisfaction score. This finding partially supports Hwang and Ziebarth (2006)'s study in that housing satisfaction was positively related to structure size and neighborhood and negatively related to household size, and the Coveney and Rudd (1986)'s study in that those having quality deficit (low levels of maintenance quality) and space deficit (fewer bedrooms) tend to have lower housing satisfaction. The importance of neighborhood rating in this study supports Morris and Winter (1975)'s statement that neighborhood norms are related to the location of the unit and the nature of the area and therefore, can be an important determinant of the family's satisfaction of the house.

Besides, there were several significant relationships among independent continuous variables. If the sample was getting older, their family income, household size, and structure size were likely to be decreased. If they had larger income, they tended to have larger household size and structure size and more adequate housing quality. Also, those having larger household size were likely to have many bedrooms. Structure size was also positively correlated with neighborhood rating. Respondents having higher housing quality, were likely to have larger structure size and to express higher housing satisfaction.

### *Relationships Revealed from One-Way Analysis of Variance*

The results of the relationships between categorical variables (independent variables) and housing satisfaction score (the dependent variable) showed several significant differences. Those

expressing lower housing satisfaction levels tended to receive government assistance (i.e., Food Stamps and SSI/TANF/AFDC/Welfare), to have less education levels, to be married and male, to live in urban and Northeast areas, to reside in buildings with two or more apartments and manufactured home, or to rent for cash. There was no association between housing satisfaction score and family income levels. However, family income might have indirect relationship with housing satisfaction. Liu and Crull (2006) found that housing adequacy (which can be measured by housing quality) is one of the important mediating variables between housing satisfaction and household variables. Along with this research finding, family income had a positive relationship with housing quality, which was positively correlated to housing satisfaction. That means that a person having lower income tends to likely to have lower housing quality, and then, to have lower housing satisfaction levels in their housing.

#### *Relationships Revealed from Crosstabs*

The results of crosstabs showed that most independent categorical variables were statistically significantly associated with each other. Government assistance variable (Food Stamps and SSI/TANF/AFDC/Welfare) was associated with family income, education level, geographical location (i.e., Food Stamps was associated with Census region while SSI/TANF/AFDC/Welfare was associated with central city/suburban), marital status, sex, structure type, and tenure status. Respondents receiving government assistance tended to have lower income and less education, live in apartments, and rent for cash. However, even though people had income less than \$25,000, they were still less likely to obtain Food Stamps. Those receiving Food Stamps were more likely to live in the West while those who were ineligible for Food Stamps tended to be male and married. Those receiving SSI/TANF/AFDC/Welfare were more likely to live urban areas.

Highly educated people tended to be married and males and less likely to live in urban areas. Those having less than a high school education were more likely to have less income and to live in the Northeast, and were less likely to live in single family homes and to have homeownership. Those having income less than \$25,000 were more likely to live in the Northeast, to be not married and female, to live in buildings with two or more apartments, and to rent for cash. Those in the Northeast were less likely to live in single family homes and more likely to rent for cash. Those in the West were more likely to be married. Those having income

with \$50,000 to \$74,999 were less likely to live the West. Those living in urban areas were less likely to live in the South and to live in single family homes, and were more likely to live in apartments. People in suburban areas were more likely to be male.

Marital status, sex, and structure and tenure type were associated together. Married people were more likely to be males in single family homes and were less likely to rent for cash. Single family homes were less likely to be rented for cash. Females were less likely to have homeownership and more likely to live in apartments. Even though females of the sample were more likely to live in apartments, their overall housing satisfaction was higher than that of males (having more family income and homeownership and living in single family homes). The reason can be tracked in that large portion of the respondents had income less than \$25,000 and most of the sample lived in West and urban areas in the U.S. where elderly immigrants can obtain service agencies which are familiar with their cultures. Such location could affect their housing satisfaction level. That implies that an influence of the perceived availability of similar others had strong relationship to community satisfaction (neighborhood satisfaction was strongly related to housing satisfaction) and the females were likely to be more satisfied with the community where they lived (Kaplan, 1985). Or, as poor Black families might have less opportunity to perform the mainstream values and therefore, adapt or tolerate the differences to adjust to their deprived circumstances (as cited in Stack, 1974), elderly females of Asian and Pacific Island elders might relax their values and norms, which can be *needs reduction*, one of adaptation suggested by Morris and Winter (1998). Besides, based on the one-way ANOVA (marital status and housing satisfaction), the nonmarried group had higher satisfaction than the married group. From the crosstab, the nonmarried group was more likely to be female, and therefore, their housing satisfaction could be higher than males.

#### *Discussion for Hypotheses Tests*

Five null hypotheses were proposed in this study. When conducting regression analyses in this study, there was no adjustment for multiple cohorts (i.e., cohort effects) because there was not much difference on housing satisfaction among cohorts.

#### *Discussion for Hypothesis 1*

The first null hypothesis was developed to reveal the relationship between receipt of

government assistance (Food Stamps and SSI/TANF/AFDC/Welfare) and housing satisfaction among eligible Asian and Pacific Island elders. The results revealed that there was a significant relationship between receipt of government assistance and housing satisfaction of eligible Asian and Pacific Island elders. Among the low income respondents (family income  $\leq$  \$25,000), those obtaining Food Stamps had lower housing satisfaction than those who did not obtain the Food Stamps; the SSI/TANF/AFDC/Welfare program and family income were not statistically significantly associated with housing satisfaction when controlling for Food Stamps. For the high income people (family income  $>$  \$25,000), family income was not statistically significantly associated with housing satisfaction. Also, when a sample was not divided into the low and high income groups, only SSI/TANF/AFDC/Welfare was statistically significantly associated with housing satisfaction score when controlling for Food Stamps. This result can be supported by results of the crosstab and one-way ANOVA analyses, people receiving government assistance were more likely to have income less than \$25,000, and people having lower family income had lower housing satisfaction. For the lower income group, income can be a constraint interfering with people's ability to live in normative housing conditions (Morris & Winter, 1998), which lead to lower housing satisfaction levels.

### *Discussion for Hypothesis 2*

The second null hypothesis was focused on revealing the relationship between demographic characteristics and housing satisfaction of Asian and Pacific Island elders. The results showed that there was a significant relationship between demographic characteristics and housing satisfaction of Asian and Pacific Island elders. Education, family income, Census region, and household size were statistically significantly associated with housing satisfaction when controlling for age, central city/suburban, marital status, and sex. Respondents having higher income were likely to express higher satisfaction, but those having larger household size were likely to have lower satisfaction. Those having Bachelor's degree or more tended to have higher housing satisfaction than those who had education level as less than high school. Those living in the Northeast expressed lower housing satisfaction levels than those living in the West.

### *Discussion for Hypothesis 3*

The third null hypothesis was focused on revealing the relationship between housing

characteristics and housing satisfaction of Asian and Pacific Island elders. A significant relationship was found between housing characteristics and housing satisfaction of Asian and Pacific Island elders. Housing quality and structure size were statistically significantly associated with housing satisfaction when other variables (housing quality and structure size), indicating that those having larger structure size with adequate housing were likely to express higher housing satisfaction.

#### *Discussion for Hypothesis 4*

The fourth null hypothesis was focused on revealing the relationship between neighborhood rating and housing satisfaction of Asian and Pacific Island elders. The neighborhood rating and housing satisfaction had a strong positive relationship, indicating that there was a significant association between neighborhood rating and housing satisfaction of Asian and Pacific Island elders. Those expressing higher satisfaction in neighborhood tended to express higher housing satisfaction.

#### *Discussion for Hypothesis 5*

As a final model developed based on each variance of the previous four null hypotheses, the fifth null hypothesis was developed to detect if the relationships among government assistance and demographic, housing, and neighborhood characteristics as a whole were related with Asian and Pacific Island elders' housing satisfaction in the United States. Overall, demographic, housing, and neighborhood characteristics significantly influenced Asian and Pacific Island elders' housing satisfaction in the United States. However, there was no relationship between government assistance (Food Stamps and SSI/TANF/AFDC/Welfare) and housing satisfaction when controlling for demographic, housing, and neighborhood characteristics.

In specific, there were statistically significant associations of neighborhood (neighborhood rating), demographic (education, Census region, and household size), and housing (structure size and structure type) characteristics with housing satisfaction when controlling for other variables. Positive relationships were found between housing satisfaction and neighborhood rating and structure size while a negative relationship was found between housing satisfaction and household size. Those having some college or associate degree had higher

housing satisfaction than those having an education level as less than high school. Those living in Northeast expressed relatively lower housing satisfaction than those living in West area. Also, those living in apartments showed higher housing satisfaction than those living in manufactured (mobile) homes.

#### *Discussion of the Research Framework and Housing Adjustment Theory*

This study was organized based on the theory of housing adjustment (Morris & Winter, 1975, 1978) to reveal the relationship between housing challenges (measured by housing satisfaction) of Asian and Pacific Island elders, focusing on government assistance, and demographic, housing, and neighborhood characteristics. Based on the theory, when members of a household decide housing conditions and satisfaction, housing norms (related to tenure status, structure type, housing space, and neighborhood) and constraints (e.g., economic resources) were important influential forces.

Asian and Pacific Island elders may have different cultural norms or reveal unique demographic characteristics which closely relate to their resources and constraints in the U.S. In this study, Asian and Pacific Island elders' demographic, housing, and neighborhood characteristics could be regarded as constraints and/or resources. Also, government assistance determined by PRWORA of 1996 was regarded as a factor which influences this group's income and housing satisfaction. Based on the analyses results, their relatively lower income and education levels can be constraints which led to lower housing satisfaction levels (negative relationship). Also, their limited access to government assistance related to family income can be a constraint which could be related with housing satisfaction of the elderly group having lower income in the U.S. However, the fact that the majority of Asian and Pacific Island elders live in western U.S. and urban areas (which is closely related to neighborhood) can be considered as a resource in relation to closeness with similar others and easiness to community services.

#### Implications

The results of this study have implications for researchers, educators, nonprofit organizations, and policymakers.

### *Implications for Researchers*

This study was based on Housing Adjustment Theory and showed how the theory was applied to this research by making connections between housing satisfaction and the deficits of Asian and Pacific Island elders in the United States. Therefore, the research framework in this study can be helpful when developing similar research. If researchers need to reveal people's housing challenges, the framework having each variable related to people's demographic and housing characteristics can be modified or adapted to their possible research framework. Also, statistical methods in this study can be beneficial. This study employed several statistical methods (descriptive statistics, Pearson correlation, one-way ANOVA, crosstabs, and multiple regression), which show what analysis can be selected for different analysis purposes. In addition, profiles of Asian and Pacific Island elders in the United States from 1995 to 2007 can allow expansion of research knowledge. In addition, I selected the secondary dataset, American Housing Survey 1995 to 2007, which has different coding scheme before and after 1997. Therefore, researchers can refer to how I coded and treated such different coding schemes.

### *Implications for Educators*

The results of study provided housing and demographic related profiles of Asian and Pacific Island elders aged 65+ in the United States from 1995 to 2007. Therefore, the findings of this study can be used as information for students in housing classes, social classes, and gerontology classes. Also, statistical methods of this study can be useful to show how data is treated and how secondary data can be analyzed based on my research purposes.

### *Implications for Nonprofit Organizations*

This study provides information on Asian and Pacific Island elders (as elderly immigrants) in the United States, who have obtained less government assistance past 10 years with less income. Therefore, nonprofit organizations can use the findings to be actively involved in helping elderly immigrants' living environment to better improve their quality of life. Also, Asian and Pacific Island elders in the Northeast expressed lower housing satisfaction levels than other Census regions. Therefore, this study can allow nonprofit organizations in the Northeast to have benchmark on those in other U.S. Census regions.

### *Implications for Policymakers*

This study provided information on Asian and Pacific Island elders' housing, demographic, and government assistance profiles, and explored major federal programs under PRWORA which are closely related to housing constraints and resources of immigrants. Therefore, policymakers in related areas can refer to the research results for future policies for elderly immigrants

The results of this study could suggest a significant relationship between public welfare programs (i.e, PRWORA) and housing challenges of immigrants. As previously discussed, PRWORA restricts immigrants' eligibility for government benefits and may influence their income. From the study results, over half of the sample had income less than \$25,000 and may need to have financial or government support. In addition, almost 71% of the sample were immigrants (59.2% of foreign-born, US citizen by naturalization and 11.7% of foreign-born, not a US citizen), which shows that the representation of immigrants in this data is greater than the proportion overall in the United States. That means that the sample of this study can represent elderly immigrants in the United States. From this aspect, policymakers of housing programs can administer with the public income-oriented programs together for elderly *immigrants* who may have restriction to government support due to PRWORA of 1996 and exposure to poor housing environment.

### Suggestions for Further Research

Based on the findings of this study, the following suggestions are recommended for future research.

1. The variables in this study were limited to what is available within the American Housing Survey from 1995 to 2007. For example, citizenship of the group was not provided in this study because the variable has only been included since 2001. Also, the data related to housing subsidy was not compared from year to year in this study because different subsidy questions led to changes in the data. Therefore, researchers may consider directly contacting Asian and Pacific Island elders to obtain more plentiful information to explain housing challenges and their housing environments of the group.

2. This study employed seven AHS data sets (1995, 1997, 1999, 2001, 2003, 2005, and 2007). Future research can include analyses of AHS datasets every ten years as decennial census to provide trends. Or, it might be a good idea to compare results between AHS and decennial census to detect similarities and differences.
3. The AHS uses a similar form of longitudinal interviewing in that the interviewers go back to the same housing units, and therefore household members may or may not be the same. Therefore, future researchers may need to develop a longitudinal study and interview people to know housing and demographic trends of Asian and Pacific Island elders (i.e., interviews need to track the people not housing units).
4. This study targeted Asian and Pacific Island elders. In future, this research framework and methodology can be applied into other ethnic and immigrants in the United States.
5. Historically, the majority of Asian and Pacific Island elders have lived in Western U.S. Future research may investigate what factors still affect their living location and whether and what the groups gain from the community. Maybe, relationship among the group, community, government assistance can be investigated together.
6. In this study, it was difficult to detect how filial piety has directly affected Asian and Pacific Island elders' housing environment and supportive income. Therefore, a qualitative research (e.g., interview methods) needs to be considered to obtain more meaningful knowledge about relationships between Asian cultures and their U.S. housing and demographic profiles.
7. This study found that for the low income group (family income  $\leq$  \$25,000), Food Stamps was statistically significantly associated with housing satisfaction when controlling for SSI/TANF/AFDC/Welfare and family income. Future study may add household size into this model, and analyze the model to further provide meaningful relationship with housing satisfaction of Asian and Pacific Island elders.
8. Based on the results of the crosstab and Chi-square analyses, females were more likely to live in apartments, and males were more likely to live in single family home. Therefore, interactions between demographic characteristics (e.g., gender) and housing characteristics (e.g., structure type) can be further investigated in future study.

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