AN ANALYSIS OF HOUSING AFFORDABILITY AND HOUSING QUALITY AMONG RURAL FEMALE-HEADED HOUSEHOLDS IN THE UNITED STATES

by

EBUNOLUWA FOLASADE ODEYEMI

(Under the Direction of Kimberly R. Skobba)

ABSTRACT

This study examined housing affordability and housing quality among female-headed households, focusing on the differences between those that lived in rural areas. This study also explored how the demographic, housing and financial characteristics of these rural householders relate to housing affordability and housing quality and compared with urban female-headed households. Existing literature on female householders does not provide a contemporary understanding of these characteristics, and the differences among rural and urban householders. This study relied on a quantitative methodology, while utilizing the 2013 American Housing Survey (AHS) data for the analyses, and grounded in the housing adjustment theory. The initial findings revealed statistically significant differences regarding housing affordability and housing quality among the rural and urban householders. The multinomial and binary logistic regression models further showed statistically significant relationships between the demographic, housing, and financial characteristics of the female-headed households in this study. The results of this research provided insight concerning the attributes of female householders, particularly those

that lived in rural areas and their relationship to housing affordability and quality. The study also contributes to the growing body of literature in the field of housing and community development.

INDEX WORDS: Female-headed Households, Housing Affordability, Housing Quality, Housing Adjustment Theory, Feminization of Poverty

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DEDICATION

I dedicate this work to God the Father, God the Son, and God the Holy Spirit. He alone deserves all the praise, honor, and adoration. You, Lord, are the Beginning, and the End, the Alpha, and Omega.

I also dedicate this work to my husband, Dr. Olushola Alfred Odeyemi. Thank you for your support, love, and sacrifice throughout this journey. To our beautiful kids, Oluwasunmisola, Oluwadamilola, Eniola, and, Ajibola Odeyemi.

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CHAPTER ONE

INTRODUCTION

Single women households, also referred to as female householders, experience significant housing and financial hardship. Past research shows that female householders mostly live in older and deteriorating housing units, experience problems with housing affordability such as cost-burden, and exhibit higher mobility rates than other households (Clampet-Lundquist, 2003; Cook, Bruin & Laux, 1994; Cook, Bruin & Winter, 1994; Spain, 1990; Stone, 2006). Women living in rural areas face a particularly wide range of economic and housing problems more than their urban counterparts. For example, research consistently shows that women in rural communities in the U.S. receive lower wages than their urban counterparts (Brown & Litcher, 2004; Smith, 2017; Smith & Glauber, 2013; Snyder & McLaughlin, 2004). Women householders living in rural areas also struggle with housing inadequacy, and tend to live "on the edge" of homelessness (Fitchen, 1992). However, both rural and urban women tend to rely on co-habitation with families and friends to meet their housing needs (Brown & Lichter, 2004; Cook et al., 2002, Skobba, 2016).

Further, female householders in rural areas are at a disadvantage due to the lack of adequate resources and services in rural communities, and so, have limited means to meet their housing needs (Pruitt, 2007). Thus, single women households in rural areas of the U.S. are prone to challenges as are urban women. Equally important, studies reveal that single women households in rural areas are vulnerable to difficult living conditions (Laux & Cook, 1994). This

is because these householders are likely to spend higher percentages of their income for housing than average U.S. households (Laux & Cook, 1994). Rural women also experience challenges with housing quality and inadequate space for families with children, and so they tend to move frequently (Cook et al., 2002). Thus, challenges with housing availability, affordability, and quality among female-headed households in rural areas add to the structural barriers that exist in rural communities.

Underlying housing hardship of single women is the financial hardship they experience. Rural female-headed households have more limited economic opportunities. For instance, research shows that single mothers in rural areas experienced higher unemployment from 2007 to 2010 than other rural women (Mattingly, Smith & Bean, 2011), which suggests that the economic well-being for these householders was lower than those of the married couples. Nevertheless, single mothers in rural areas also tend to be poorer than those in urban areas (Smith, 2017; Tickamyer & Wornell, 2017). However, research has revealed other trends within rural economies. The past Great Recession led to many employment opportunities for women in predominantly male-oriented jobs, particularly in the industrial and manufacturing sector (Tickamyer, Sherman & Warlick, 2017). But, rural women still engaged mostly in part-time, low-skilled and low-wage employment (Bentzinger & Cook, 2012; Brown & Lichter, 2004; Smith, 2017; Struthers, 2014; Wells, 2002). Despite lower wages, women in rural areas of the U.S. have been able to help make ends meet (Wells, 2002), unlike in the past where women had limited employment opportunities outside of their homes (Cohn, Livingston & Wang, 2014). At the same time, it also made it possible for women to be more independent than in the previous decade, where women were relatively dependent on men for their livelihood.

Therefore, even though rural women increasingly have more employment opportunities, they are still found to be more vulnerable to increasing poverty than men because they, on average, receive lower wages than men (Tickamyer & Wornell, 2017). In addition, studies that examined female-headed households with children found that they experienced worse economic conditions than those without children and those living alone (Snyder & McLaughlin, 2004; Snyder et al., 2006). Finally, though metro and non-metro communities in general tend to have similar poverty trends, single women in rural areas, particularly those with children have a higher poverty level (Snyder & McLaughlin, 2004). Thus, research on female-headed families in rural areas suggests that this population experiences greater challenges with limited resources than other two-parent families. More importantly, these single women households may be more likely to experience greater challenges with housing affordability and adequacy due to their low economic conditions, when compared to single women in urban areas.

Currently, there is limited research examining the economic and housing conditions among female-headed households in rural areas of the U.S. and the ways in which this population differs from its urban counterparts. Scholars have emphasized a dearth in research addressing rural housing issues (Van Zandt et al., 2008; Ziebarth, 2015). Existing research addressing rural poverty highlighted that rural female householders tend to be among the population categories that are often overlooked since they reside in places that are "out of sight and out of mind of the media and other policy makers" (Tickamyer et al., 2017, pg. 440). Therefore, this research sought to contribute to the existing knowledge on female-headed households in rural communities by exploring housing affordability and housing quality in relation to the demographic, financial, and housing characteristics of the female-headed households in rural and urban America. Further, while relying on the theoretical framework of

the housing adjustment theory, I analyzed the differences between housing affordability and housing quality among rural and urban female-headed households, which had not been done in contemporary literature. The findings from this study can further support housing analysts and researchers in developing specific policies (which would be addressed later in this study) to enhance the living conditions of female householders and rural communities in general.

Statement of Problem

Existing research suggests that female householders in rural areas experience more economic and housing challenges compared to their urban counterparts because the social safety net or the welfare program intended to reduce the economic hardship of single women tend to favor those living in urban areas more than single women in rural areas (Pruitt, 2007). Female householders in rural America have further economic challenges due to the structural barriers endemic to rural locales such as limited public transportation, spatial isolation from jobs, and limited child care choices, to mention a few. But in the urban communities, single women are likely to have better access to opportunities, resources and services in order to meet their economic needs. More importantly, since rural communities tend to be plagued with poorer housing conditions, especially boarded up, dilapidated older, and poorly-maintained housing units (Bentzinger & Cook, 2012; Ziebarth, 2015), and female householders in rural areas are more likely to live in poorer housing units.

Low-income households in rural areas and small-towns are likely to pay more than 30 percent of their monthly income for housing costs (Ziebarth, 2014), and in particular, female householders (Cook et al., 2002; Laux & Cook, 1994). Hence, single women, particularly those with children in rural areas are more likely to co-habit with families and friends, or engage in other forms of living arrangements to meet their housing and economic needs more than those

living in the urban areas (Snyder & McLaughlin, 2006). This suggest that female householders face similar difficult housing and economic challenges as their urban counterparts. However, current research that compares the conditions of female householders in rural and urban areas is lacking.

This research therefore, examined the housing situations of female-headed households in rural communities, specifically, the demographic, housing, and financial characteristics of the population, to understand how these factors relate to housing affordability and housing quality among those living in rural and urban areas. This study employed a quantitative method approach using the 2013 national American Housing Survey (AHS) data. This study explored (a) demographic characteristics: status, age, household size, education, race, geographic locations, number of non-relative in household, number of seniors aged 65 years and over, and disability status; (b) housing characteristics: tenure, type of housing, age of housing unit, and household mobility; and (c) financial characteristics: household income, public assistance, social security income, self-employment income, while the dependent variables were measures of housing affordability and housing quality.

Definitions

The following definitions were used throughout this study:

Households: according to the U.S. Census Bureau (2019), a household consists of all the people who occupy a housing unit. A household also includes family members that are related and those that are unrelated such as lodgers, foster children, wards, or any other person that shares a housing unit. A person could be living alone in a housing unit, or a group of unrelated people

sharing a housing unit such as partners or roomers are all considered as a household (U.S. Census Bureau, 2019).

Female-headed households: comprised of women living alone or living with one or more of their own children, which could result from childbearing outside of marriage or marital dissolution with the mother retaining custody of the children. The U.S. Census Bureau referred to a householder as the person in whose name the housing unit is owned or rented (maintained) (U.S. Census Bureau, 2019). Thus, female-headed households were households where the head of the house is identified as a woman that is divorced, separated, widowed, or never married (as cited in Snyder, McLaughlin & Findeis, 2006; Zhan & Sherraden, 2003).

Housing affordability: was a relative measure based on the ratio of shelter costs to household income. That is, a household with housing costs higher than 30% of its income was cost burdened and a household with housing costs higher than 50% of its income was severely cost burdened (U.S. Department of Housing and Urban Development, n.d.).

Affordable housing: was described as either subsidized or market-rate housing or and referred to housing with monthly costs no more than 30 percent of a household's income (as cited in Stone, 1993, 2006).

Housing Quality: was the physical condition of the facilities and amenities available in the housing unit, such as heating sources, plumbing facilities, and so on (Joint Center for Housing Studies, 2010; Van Zandt et al., 2008). Housing quality also showed a reduction of substandard and inadequate housing problems (Housing Assistance Council, 2012). Housing quality in this study was also regarded as housing adequacy.

Rural Areas: were countryside, and places with fewer than 2,500 people or non-metropolitan areas that are outside Metropolitan Statistical Areas (United States Department of Agriculture, 2019). This study interchanged between rural areas and non-metro areas as used in past research (Cook et al., 2002). A similar definition states that a rural area is any geographic space located outside a town or city (Urban Land Institute, 2016).

Poverty: literarily not having enough, or being poor. The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition to determine poverty based on Directive 14 of the Office of Management and Budget's (OMB) Statistical Policy. That is, when a family's total pre-tax income in a given year is less than the family's threshold, then that family, and every individual in it, is considered in poverty (U.S. Census Bureau, 2019). Put in another way, the poverty line is the income thresholds by which families or individuals whose incomes fall below are deemed to be poor (Gabe, 2013; Hoynes, Page & Stevens, 2005).

Purpose of the Study

The purpose of this study was to examine the demographic, housing, and financial characteristics of the female-headed households in relation to housing affordability and housing quality among those in rural and urban America. Also, I aimed to determine whether there existed any significant differences among rural and urban female-headed families.

The research questions for this study were as follows:

1. To what extent do female-headed households in the rural regions differed in their level of housing quality from urban female-headed households?
2. Does housing affordability for female householders in rural areas differ significantly from female householders in urban areas?

3. How do the demographics, financial, and housing characteristics of female-headed households in rural communities relate to housing affordability compared to their counterparts in urban areas?
4. How do the demographics, financial, and housing characteristics of female-headed households in rural communities relate to housing quality compared to their counterparts in urban areas?

Goal of the study

This study sought to explore the factors that relate to housing quality and housing affordability of female-headed households living in rural areas and to understand how their housing and economic conditions differed from their urban counterparts. Therefore, this study intended to add to the existing body of research of rural housing and demography with special attention to the characteristics of female-headed households in the rural communities.

Rationale for the study

Existing studies reveal that rural Americans tend to have an increase in housing affordability challenges and at the same time, employment opportunities do not match with the housing needs of the rural households. More importantly, female-headed households in rural communities have lower earning power compared to their urban counterparts, and so they tend to experience more difficult living conditions. Further, there is the general perception that rural areas in the United States have less expensive and relatively available housing units.

However, previous studies on rural housing conditions show that rural households, in particular single women households with children, often struggle to meet basic needs, and so, housing quality and affordability are of concern to these population (Cook et al., 2002; Housing Assistance Council, 2012). Also, women living in rural areas engage in part time, low wage and

low-skilled employment more than their urban counterparts, which redound to their limited economic conditions and increase in poverty rates compared to women in urban areas (Housing Assistance Council, 2014; Smith, 2017; Wells, 2002).

However, current research on rural housing conditions, specifically on housing affordability and housing quality among female-headed households in rural America is lacking. Besides, policy focusing on rural housing generally does not specifically address the living conditions of female-headed households. In fact, the welfare reform acts as a barrier to the extent these population are able to attain economic independence, which, in the long run, impacts their housing conditions.

Further, statistics tend to show that poverty rates among female-headed households continue to grow at the same rate as the population increase among these households in rural communities. For instance, data from the Department of Agriculture revealed that about 33.8 percent of rural female-headed families fell below the poverty threshold in 2017 compared to rural married couples with only 6 percent poor. Poverty rates in the female-headed households were also about 2.4 percent higher in rural areas (USDA, 2019). Further, single mothers in rural areas tend to be poorer than their urban counterparts in that one in three rural single mothers in 2013 was in poverty (Smith, 2017). These in all, further necessitated the need for a study that examined the current conditions of the female-headed households and compared differences among rural and urban single women households. Thus, this study was designed to focus on examining these characteristics to meet this gap in the literature.

Significance of the Study

The results of this study would help researchers, housing professionals, housing policy analysts and decision- makers to understand the challenges that female-headed households undergo in the United States. The results would also assist housing analysts when analyzing and developing policies that addressed rural communities. For example, housing policy makers would consider the relationship between receipt of welfare assistance and the housing conditions of households, especially those with children, to determine their overall economic and social well-being. Housing policy makers would also be able to establish better guidelines and standards that address the need of rural households, especially those headed by females.

Further, the results provided important insights for improvement in the rural housing sector, regulation and reform on rural housing and policies, and improvement in the overall rural economic development. Rural policy analysts would benefit from this research as they would have a better understanding of the specific characteristics of female-headed households in rural communities. Housing advocates and educators would benefit from new insights on the challenges that women go through in meeting the needs of their households, especially those with children. Policy makers would also benefit from this study as they anticipate necessary changes in public policy and as they work to protect the rights of single women in general. They would also gain considerable insights about rural housing conditions in relation to policies that promote or hinder the growth and sustainability of housing affordability and housing quality in rural America.

Summary

Chapter one of this study introduced the need for research exploring the characteristics of female-headed households and the extent to which their characteristics relate to housing affordability and housing quality of this population in rural communities, compared to those in urban areas. As previously mentioned, there exists no current research examining rural housing conditions of female householders, and, at the same time, research comparing differences between female-headed households in rural and urban America is lacking. This study helped to fill in this gap in the literature. Chapter two focused on the related literature in areas of feminization of poverty, growth of female-headed households and the characteristics of female-headed households in the United States. Literature on the characteristics of rural areas and housing conditions in rural and urban America were examined, and also housing challenges of female-headed households, as well as the impact of welfare reform and housing assistance programs on female householders were discussed. Chapter three provided the description of the methodology, the selected dataset (AHS), sampling procedures, the operationalization of housing affordability, housing quality, and other variables, and the initial conceptual model proposed for this study. Last, while chapter four focused on the analyses and findings, chapter five centered on discussions and concluded this study.

CHAPTER TWO

LITERATURE REVIEW

This literature review provided information on the concept of feminization of poverty, growth of female-headed households and the general characteristics of female-headed households in the United States. The characteristics of rural areas were also examined as the basis for a comparison between housing conditions in rural and urban America, with more emphasis on housing affordability and housing quality. Last, past literature on housing challenges of female-headed households was discussed, as well as welfare reform and the influences of housing assistance programs on female households in both rural and urban communities.

Feminization of Poverty

Pearce (1978, pg. 28), revealed that poverty was "rapidly becoming a female problem" and that women accounted for "an increasingly large proportion of the economically disadvantaged," a phenomenon referred to as the feminization of poverty. Pearce used the growth of the female-headed families in the 1970s as the premise and evidence for the concept of feminization of poverty. Even though women had increased employment opportunities and legislative action enhanced opportunities for women in educational institutions and the labor force, women still had a higher likelihood of living in poverty relative to men (Pearce, 1978). Pearce also reported that as of 1976, two of three poor adults were women such that the number of poor female-headed families doubled between 1950 and 1974. The author also forecasted the

possibility of an increase in female householders such that by the year 2000, nearly all the poor would be living in female-headed families (Pearce, 1978).

Researchers suggested that single parenthood contributes to the feminization of poverty (Blau & Kahn, 1992; Christopher, 2002; Elmelech & Lu, 2004; McLanahan & Kelly, 1999; Pressman, 1998; Wright, 1995). It was commonly found that women with limited education, part-time, and low-waged jobs tended to rely on federal money to support themselves and their families (Brady & Kall, 2008; Chant, 2003). Poverty was also feminized among young women, under age 25, and among elderly women, over age 65 in the 1980s (McLanahan & Kelly, 1997). However, others argued that higher education among women, as well as employment opportunities and welfare programs, reduced the effect of feminization of poverty (Chant, 2003; Rodger, 1996: Thomas, 1994; Tiamiyu & Mitchell, 2001).

Further, with respect to rural-urban dichotomy, poverty was highest among single women in rural areas (Mattingly et al., 2011; Wells, 2002) and also among those with children in nonmetro compared to central cities and suburban areas (Brown & Lichter, 2004; Snyder & McLaughlin, 2004; Snyder et al., 2006). Poverty was also found to be more pronounced among Black single women compared to Whites (Northrop, 1994). Thus, studies on feminization of poverty tend to suggest that poverty among women is not a gender issue, but rather, the economic conditions of women, especially those with children (Bianchi, 1999; Christopher, 2002; Rodgers, 1996; Stone, 1989).

More importantly, current U.S. Census data on poverty status by families in Table 1 suggests that poverty rates among single women households tend to follow the trend of the feminization of poverty. The table shows that even though poverty significantly reduced from 42.6 percent in 1959 to 24.9 percent in 2018 among female-householders, this population still

has the highest percentage of poverty compared to all family type. A similar trend is also shown among families with children, such that as poverty declined over the years for all households, female householders with children in 2018 were at 33.8 percent, compared to male households and married couples at 16.6 percent and 5.8 percent, respectively.

Table 1

Poverty Status of Families by family type: 1959 to 2018

ALL RACES - With and Without Children Under 18 Years												
Year	All Families			Married Couples			Male Householders				Female Householders	
	Total	Below Poverty		Total	Below Poverty		Total	Below Poverty		Total	Below Poverty	
		Number	%		Number	%		Number	%		Number	%
2018	83,508	7,504	9.0	61,971	2,938	4.7	6,485	824	12.7	15,052	3,742	24.9
2015	82,199	8,589	10.4	60,258	3,245	5.4	6,311	939	14.9	15,630	4,404	28.2
2010	79,559	9,400	11.8	58,667	3,681	6.3	5,649	892	15.8	15,243	4,827	31.7
2005	77,418	7,657	9.9	58,189	2,944	5.1	5,134	669	13.0	14,095	4,044	28.7
2000	73,778	6,400	8.7	56,598	2,637	4.7	4,277	485	11.3	12,903	3,278	25.4
1990	66,322	7,098	10.7	52,147	2,981	5.7	2,907	349	12.0	11,268	3,768	33.4
1980	60,309	6,217	10.3	49,294	3,032	6.2	1,933	213	11.0	9,082	2,972	32.7
1970	52,227	5,260	10.1	44,739	NA	NA	1,487	NA	NA	6,001	1,952	32.5
1960	45,435	8,243	18.1	39,624	NA	NA	1,202	NA	NA	4,609	1,955	42.4
1959	45,054	8,320	18.5	39,335	NA	NA	1,226	NA	NA	4,493	1,916	42.6

ALL RACES - With Children Under 18 Years												
Year	All Families			Married Couples			Male Householders			Female Householders		
	Total	Below Poverty		Total	Below Poverty		Total	Below Poverty		Total	Below Poverty	
		Number	%		Number	%		Number	%		Number	%
2018	37,480	5,091	13.6	25,128	1,466	5.8	3,185	530	16.6	9,167	3,095	33.8
2015	38,321	6,252	16.3	25,117	1,885	7.5	3,105	685	22.1	10,099	3,682	36.5
2010	38,654	7,145	18.5	25,687	2,309	9.0	2,789	673	24.1	10,178	4,163	40.9
2005	39,394	5,729	14.5	27,147	1,777	6.5	2,609	459	17.6	9,638	3,493	36.2
2000	38,190	4,866	12.7	27,121	1,615	6.0	2,256	345	15.3	8,813	2,906	33.0
1990	34,503	5,676	16.4	25,410	1,990	7.8	1,386	260	18.8	7,707	3,426	44.5
1980	32,773	4,822	14.7	25,671	1,974	7.7	802	144	18.0	6,299	2,703	42.9
1970	30,070	3,491	11.6	25,789	NA	NA	444	NA	NA	3,837	1,680	43.8
1960	27,102	5,328	19.7	24,164	NA	NA	319	NA	NA	2,619	1,476	56.3
1959	26,992	5,443	20.3	24,099	NA	NA	349	NA	NA	2,544	1,525	59.9

Source: U.S. Bureau of the Census, Current Population Survey, Annual Social and Economic Supplements. Retrieved December 20, 2019 from - https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-people.html

Therefore, literature tends to show that female householders are at a disadvantage due to limited economic power, especially among those in rural communities.

Growth of Female-headed Households in the United States

Female-headed households have been increasing since the 1940s. Scholars noted that figures on the growth of single parenthood in the country have been available since 1940 (Gordon &McLanahan, 1991), others revealed that in 1940, only 15 percent of American households were headed by women (Smith, 1994). The growth of female headed families has since continued on an upward trend, even in the 1970s when the U.S. started experiencing a shift in family structure (Laux & Cook, 1994; McLaughlin, Gardner & Lichter, 1999; McLaughlin & Sachs, 1988; Schmitz, 1995; Snyder, McLaughlin & Findeis, 2006; Spain, 1990; Wiesel, 1996; Zhan & Sherraden, 2003). Between 1974 and 2015, the percentage of families with children headed by a single mother nearly doubled—from 14.6 percent to 25.2 percent (Glynn, 2019). Further, according to the U.S. Census, while male-headed households had been on the rise, female-headed households were much more common (U.S. Census Bureau, 2000).

Table 2 shows that female householders continued to grow since the 1950s, both within family and nonfamily households. Even in the 1940s among the family and nonfamily households, female householders were the highest percentage at 9.8 percent and 5.3 percent respectively. The data thus point to the increasing growth of female-headed households in the United States.

Table 2

Households by Type: 1940 to Present (Number in thousands)

	Family Households				Nonfamily Households	
Year	Total Households	Male Householder	Female Householder	Married Couples	Male Householder	Female householder
2019*	128,579	6,480(5.0)	15,043(11.7)	61,959(48.2)	21,582(16.8)	23,515(18.3)

2010	117,538	5,580(4.7)	14,843(12.6)	58,410(50)	18,263(15.5)	20,442(17.4)
2000	104,705	4,028(3.8)	12,687(12.1)	55,311(53)	14,641(14.0)	18,039(17.2)
1990	93,347	2,884(3.1)	10,890(11.7)	52,317(56)	11,606(12.4)	15,651(16.8)
1980[a]	80,776	1,733(2.1)	8,705(10.8)	49,112(61)	8,807(11)	12,419(15.3)
1970	63,401	1,228(1.9)	5,500(8.7)	44,728(71)	4,063(6.4)	7,882(12.4)
1960	52,799	1,228(2.3)	4,422(8.4)	39,254(74)	2,716(5.1)	5,179(9.8)
1950	43,554	1,169(2.7)	3,594(8.3)	34,075(78)	1,668(3.8)	3,048(7.0)
1940[b]	34,949	1,510(4.3)	3,410(9.8)	26,571(76)	1,599(4.6)	1,859(5.3)

Source: U.S. Census Bureau, Current Population Survey, March and Annual Social and Economic Supplements. Retrieved December 13, 2019 from -https://www.census.gov/data/tables/time-series/demo/families/households.html
a: Data revised using population controls based on the 1980 census.
b: Based on 1940 Census
*Most recent data-2019
Values in parenthesis are percentages of householder per year, prepared by author.

Similarly, scholars suggested that the participation of women in the labor force, particularly among single women, contributed to the increasing growth of female-headed households in the U.S. (Glynn, 2016, 2019). Gordon and McLanahan (1991) identified a strong correlation (.75) between women's employment and the proportion of children living in female-headed households. Changing lifestyle trends and attitudes towards marriage and divorce have also contributed to the growing number of single women households in America (Gordon & McLanahan, 1991; Wojtkiewicz, McLanahan & Garfinkel, 1990). The U.S. Census Bureau indicated that the high rates of marital dissolution through divorce and separation clearly had an impact on the growth of female heads (Census, 1974), and this trend was also reiterated in past studies, which suggested the significantly high rates of out-of-wedlock births sparked the growth of female-headed households (Rodger, 1996). Another possible indicator on the growth of

female-headed households is the increased availability of public assistance programs (Danziger et al., 1982).

Characteristics of Female-headed Households in the United States

Female-headed households in America are not homogeneous, just as any other household type in the country. The U.S. Census Bureau clearly distinguished the main attributes of female households within the context of those that are divorced, separated, single, or widowed. Female households may also be characterized as one-person household type- living alone, with or without children, with relatives, or even with nonrelatives.

Table 3 highlights the characteristics of female householders, which shows distinctions with respect to housing tenure, family size, and the age of householder and children. Past data from the U.S. Bureau of Census revealed that female householders in the 1970s were quite young on average (U.S. Census Bureau, 1974). Current data as shown in Table 3 still reveal similar patterns. That is, as of 2019, female householders within ages 30 – 39 years have the highest population of 3,276 of the whole population of female householders, which is about 22 percent. At the same time, those from under 20 years of age to the middle age of 49 years altogether are about 9,062, which is over 60 percent of the female householder population. Thus, female householders are more common among the younger age groups.

Table 3 also shows that while very few female householders live in houses with no cash rent, more than half the female household population are renters, and the rest, homeowners. With respect to family size, female householders mainly tend to be mid-sized. That is, having between three to five members in their households. Further, the data also shows that while many older female householders from ages 55 to 75+ do not have children under the age of 18 years, there

are still quite a number of them that do have children under the age of 18 years just as the younger householders.

Table 3

Household by Tenure, Size of Family, Age of Own Children, Age of Family Members, and Age of Householder: 2019 (Number in thousands)

Female householder	Total	Age of householder							
		Under 20 years	20 – 29 years	30 – 39 years	40 – 49 years	50 – 54 years	55– 64 years	65 – 74 years	75+ years
ALL FAMILIES	15,043	253	2,378	3,276	3,155	1,405	2,095	1,341	1,141
TENURE									
Own/Buying	7,274	80	604	1,075	1,425	805	1,343	1,002	940
Rent	7,601	172	1,751	2,168	1,690	584	733	319	184
No cash rent	168	1	22	33	41	17	18	19	18
SIZE OF FAMILY									
Two members	6,983	81	952	982	1,293	706	1,288	872	808
Three – Five members	7,544	154	1,346	2,132	1,783	637	749	436	309
More than five members	517	19	80	162	79	63	58	33	25
NUMBER OF OWN CHILDREN UNDER 18 YEARS									
Without own children under 18	7,337	199	745	335	914	876	1,853	1,306	1,108
One – two own children under 18	6,277	53	1,350	2,109	1,964	512	228	32	29
Three – four own children under 18	1,429	1	283	832	278	17	12	3	4
NUMBER OF FAMILY MEMBERS 65+ YEARS									
Families without members 65+	11,665	243	2,284	3,117	2,925	1,266	1,830	-	-
One member 65+	2,932	4	80	138	195	129	243	1,166	978

Two or more members 65+	446	5	14	21	35	10	21	175	164

Source: U.S. Census Bureau, Current Population Survey, (2019) Annual Social and Economic Supplement. Retrieved December 13, 2019 from – https://www.census.gov/data/tables/2019/demo/families/cps-2019.html

However, existing literature on the characteristics of female-headed households reveal other significant conditions. Scholars show that female households with children tend to experience more economic hardship than those without children or living alone (Gabe, 2013; Snyder and McLaughlin, 2004; Snyder, McLaughlin & Findeis, 2006). Statistics also show that female-headed families with children are five times more likely to be poor than two-parent families with children (Garfinkel & McLanahan 1986; U.S. Census Bureau, 2001). Female-headed households are also more likely than either married couples or male-headed households to be poor (Brown & Lichter, 2004; Schmitz, 1995; McNamara & Lee, 2018; Snyder & McLaughlin, 2004; Smith, 2017; Tickamyer & Wornell, 2017; Tickamyer, Sherman & Warlick, 2017; Wells, 2002). Female householders in nonmetro areas have lower family income and higher rates of poverty than their counterparts in metro areas (Lichter and Jensen 2001; Smith, 2017; Smith & Glauber, 2013; Weber et al. 2002).

The Housing Assistance Council (2012) stated that out of the approximately 4.1 million single-parent families nationwide, 1.2 million live in rural areas. At the same time, female-headed households make up the largest proportion of the rural single-parent families, and that these populations often suffer the highest levels of poverty in rural America (Housing Assistance Council, 2012). However, a reduction in poverty rate and in the number of people in poverty was found between 2017 and 2018 for many demographic groups, and a large proportion of the

decline was reported among female-householder families (U.S. Census Bureau, 2019). See Figure 1.

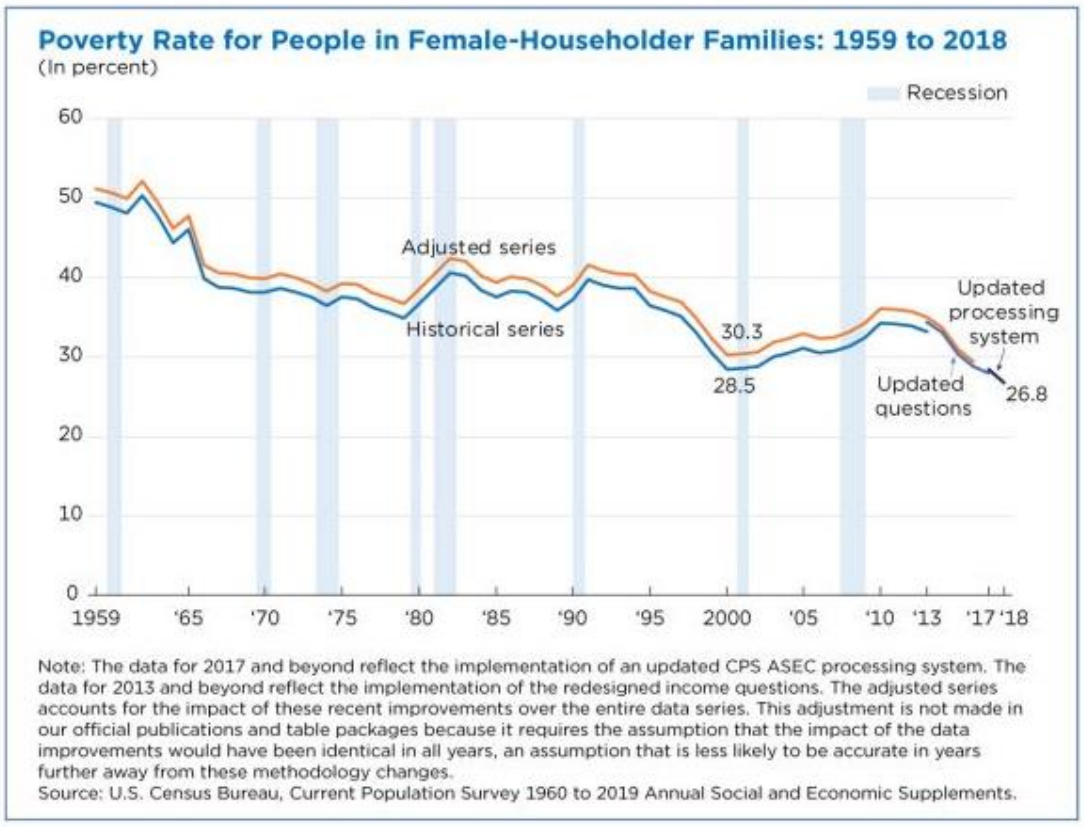

Figure 1: Historical Estimates on Poverty Rates among Female-headed Households. Source: Census Bureau, (2019). Retrieved December 13, 2019 from - https://www.census.gov/library/stories/2019/09/poverty-rate-for-people-in-female-householder-families-lowest-on-record.html.

According to the report, poverty rates for all people in all female-householder families dropped to 26.8 percent, which was the lowest rate on record for the population. Also, female-householder families were the only family type to experience a statistically significant decrease in poverty between 2017 and 2018 (Census Bureau, 2019).

Equally important, data on the racial characteristics of female householders in Table 4 shows that 65 percent of the female householders in America are White, 27 percent are Black,

while Asians and those in other races are 4 percent and 4.5 percent, respectively. Therefore, female-headed households in America are racially diverse and also have distinct characteristics just like every other household type in America.

Table 4

Race of Female-headed Households, 2019 (Number in thousands)

Race of Householder	
White alone	9,741(64.8)
Black alone	4,031(26.8)
Asian alone	597(4.0)
All remaining single races and all race combinations	674(4.5)
Total	15,043

Source: U.S. Census Bureau, Current Population Survey, (2019) Annual Social and Economic Supplement. Retrieved December 13, 2010 from – https://www.census.gov/data/tables/2019/demo/families/cps-2019.html
Values in parentheses are percentages, prepared by author

Characteristics of Rural Areas in America

Unlike urban areas with concentrated and diverse populations, rural areas in America are less populated, and more racially and ethnically homogenous (Housing Assistance Council, 2012). Yet, approximately 20 percent of the nation's population resided in rural areas as of 2010 (Housing Assistance Council, 2012). The rural landscape is also large and dynamic in that it covers more than 90 percent of the nation's landmass (Hamilton et al., 2008) and is home to over 25 percent of the nation's seniors (Pendall et al. 2016). Other distinct characteristics of the rural areas lie in the complex geographic locations of these places. For instance, Hamilton et al. (2008) examined rural communities based on the resources and amenities available in the rural regions, classifying rural areas into four major regions: amenity-rich, declining-resource dependent,

chronic poverty, and amenity-decline. According to these authors, rural areas depict a spectrum of poor to rich, where some families live in poverty, even in the amenity-rich counties, while other households with relatively high incomes reside in the poorest counties. Researchers also acknowledge the uniqueness of rural America as communities that provide significant resources for the nation, which are not limited to agricultural, manufactured and energy products (Hamilton et al., 2008; Scally et al., 2018). However, rural areas still face a diverse range of social and economic pressures that trigger growing poverty rates, particularly in the chronically poor rural communities (Hamilton et al., 2008; Housing Assistance Council, 2012).

Existing research indicates that rural areas continue to experience greater economic distress than urban areas due to federal policies and programs that provide resources disproportionately to urban areas (Adam & Duncan, 1992; Albrecht et al., 2018; Housing Assistance Council, 2012, 2014; Scally et al., 2018). Poverty is found to be more significant in rural areas as almost 20 percent of the rural population live in poverty (Housing Assistance Council, 2012, 2014; Porter, 1989; USDA, 2019). Further economic trends show that rural areas have lower earnings than urban areas. Other data also showed rural median annual earnings as consistently below $28,000 between 2007 and 2015, while urban earnings were around $32,000 (USDA ERS 2016). In all, poverty rates in rural America have been relatively high, with rates above 17 percent and with more than 10 million people living in poverty in 2012 (Housing Assistance Council, 2014). However, more recent statistics show a slight decline in rural poverty from a high of 18.5 percent in 2011 and 2013 to a low of 16.4 percent in 2017 (USDA, 2019). But notwithstanding, rural poverty has significant effects on the housing stock and overall economic viability of most rural communities in the U.S. (Housing Assistance Council, 2012).

Housing Conditions in Rural and Urban America

Research on housing conditions in the U.S. shows distinctive characteristics of the rural and urban areas. First, rural America has over 30 million housing units, which is up to 23 percent of the nation's housing stock (Housing Assistance Council, 2012). Houses in rural areas are not only larger in size, but also are more likely to be single family type, owner-occupied, and less expensive than housing in urban areas (Albrecht et al., 2018; Van Zandt et al., 2008; Yust et al., 2006). Compared to urban areas, rural communities tend to have a higher portion of manufactured/mobile homes (Van Zandt et al., 2008). In fact, mobile homes in rural areas have been on the increase. As at 1987, manufactured homes in rural areas were about 38 percent (Housing Assistance Council, 2000), which was almost doubled by 2005 with an increase to about 65 percent (Van Zandt, et al., 2008). This record of increase of mobile homes in rural areas could potentially have an association with lower home values in rural areas as compared to urban communities.

With respect to home values, the median value of owner-occupied homes in rural areas as of 2014 was at $114, 500 compared to $199, 300 in urban areas (Albrecht et al., 2018). Hence, home values in rural areas are lower, which is why there tend to be higher homeownership rates in rural areas compared to urban areas (Albrecht et al., 2018; Housing Assistance Council, 2012; Ziebarth, 2015). According to Albrecht et al., 70.8 percent of rural households lived in owner-occupied homes in 2014 compared to 61.7 percent of urban households. Mortgage-free homeownership is more common in rural areas and small towns than urban communities in America (Housing Assistance Council, 2012). The Housing Assistance Council states that about 42 percent of homeowners in rural areas of the country own their homes free and clear of mortgage debt compared to about 27 percent of urban homeowners.

Second, though housing quality in the nation generally seems to be increasing, rural areas tend to have lower quality homes compared to urban areas (Pendall et al., 2016; Scally et al., 2018). Rural housing stock are older than urban housing, and so, rural households are more likely to live in houses that lack either complete plumbing or complete kitchen facilities, and are overcrowded (Bentzinger & Cook, 2012; Pendall et al., 2016). The Housing Assistance Council showed that many rural homes in 2010 lacked complete plumbing facilities (2012). Low-income renters in rural areas also occupy substandard and inadequate housing and so, the housing quality problem is rather prevalent in rural areas (Fitchen, 1992; Golant & La Greca, 1994; Housing Assistance Council, 2000; Morton, Allen & Li, 2004; Van Zandt et al., 2008). Other housing quality issues in rural areas include structural problems such as sagging roofs, holes in roofs, sloping walls, foundation issues, and high vacancy rates (Mikesell, 2004; Van Zandt et al., 2008). Others are lack of enforcement of codes, limited lending institutions, and, fewer housing options (Fitchen 1991; Morris &Winter 1992; Skobba et al. 2019; Ziebarth et al. 1997). These in all show that in general, housing quality in rural areas differs quite substantially from urban communities.

Third, housing affordability also greatly affects both rural and urban households in America. Existing literature shows that affordability is the most significant housing challenge in both rural and urban America, especially for low-income homeowners and renters (Combs, Combs & Ziebarth, 1995; Cook et al., 2002; Fitchen, 1992; Housing Assistance Council, 2012, 2014, 2018; Kropczynski & Dyk, 2012; Ziebarth, 2015; Ziebarth, et al., 1997). Despite lower housing costs in rural areas, over seven million rural households are cost burdened; that is, three in ten households pay more than 30 percent of their monthly incomes on housing (Hamilton, et al., 2008; Housing Assistance Council, 2012; Ziebarth, 2015). Also, compared to urban areas,

existing affordable rural rental housing is aging (Scally et al., 2018), and low-income renters in rural areas have more difficulty obtaining affordable housing units due to lower incomes(Combs et al., 1995; Scally et al., 2018; Ziebarth et al., 1997).

In sum, housing affordability problems, quality inadequacies, availability and crowding may exist in conjunction with one another in both rural and urban areas in America. However, research seems to suggest that housing quality and affordability in rural areas are issues of concern among low-to-moderate income households. But at the same time, urban households are not immune from these housing challenges. The next section provides evidence on housing challenges of female-headed households in America.

Housing Challenges of Female-headed Households

Existing research on the housing needs of women began to come into the limelight only in the 1970s (Birch, 1985). Female householders experience specific challenges as they seek to meet their housing needs (Schmitz, 1995). Similarly, housing challenges among single women with or without children, or those that are elderly reflect the same issues (Laux & Cook, 1994). For instance, because single women earn lower wages than their married counterparts (Smith, 2017; Tickamyer et al., 2017; Wells, 2002), they are more likely to experience more difficultly in meeting their housing needs (Bentzinger & Cook, 2012; Laux & Cook, 1994). For example, Skobba (2016) utilized a qualitative, biographical method to understand the housing pathways of 29 low-income women with children in a large Midwestern metropolitan area. The author developed a visual timeline with the participants, which provided in-depth information that helped to understand the housing conditions of the women. The main finding was that not only did the women received low wages, but the wages were insufficient to afford low-quality and low-rental apartments (Skobba, 2016).

Similarly, since the economic conditions of single women in rural areas differ from those in urban areas, housing challenges among these householders may differ as well. For instance, single women households in rural areas have challenges with housing costs, quality, and inadequate space for indoor and outdoor activities (Cook et al., 2002). Cook et al. used semi-structured interviews to examine housing issues among 17 rural women that received welfare benefits in 1997. They found that single women in rural areas relied on government housing subsidies and informal subsidies from families and friends as the solution to their housing problems. Therefore, female householders in rural areas are likely to be exposed to more housing hardship than average American households due to limited housing options or lack of access to necessary resources and services ((Laux & Cook, 1994).

Further, research on housing challenges of female-headed households indicates that co-habitation with relatives and grandmother female-headed households with children comprised of over one-fourth of all female-headed households with children in 2000 (Snyder, et al., 2006). The authors found that the earned income from other household members helped many cohabiting and grandparental female-headed households out of poverty, as does the retirement and Social Security income for grandmother headed households. However, as far as housing affordability, female-headed households in both rural and urban areas tend to be cost-burdened (Cook & Bruin, 1994; Cook et al., 1994; Cook, et al., 1994; Laux & Cook, 1994; Lerman & Reeder, 1987; Spain, 1990; Stone, 2006).

Cook, Bruin and Winter (1994) examined housing cost burden among five subgroups of female-headed households: under 65 years with children, under 65 years without children, 65 years living alone, 65 years and over without children present, and 65 years and over who lived alone. Housing cost burden as the dependent variable was used to determine housing

affordability among the five subgroups of female households. The authors found that household size tended to reduce the housing costs, and higher education level led to increased salaries and retirement income. In the long run, these helped reduced monthly housing cost burden among the households. But with respect to the racial profile of female households, Black female householders under the age of 65 were more likely to be cost burdened than their non-Black counterparts. Black female householders are also more likely to be renters, and live in public housing than their White counterparts (Cook & Rudd, 1984), and White single mothers have better housing conditions (Cook & Bruin, 1994). At the same time, Black female headed families with children in rural areas are more likely to be poorer than their counterparts in urban and suburban areas (Snyder et al., 2006),

Lastly, sex and marital status of householders tend to influence rental value (Spain, 1990). While controlling for other factors, Spain found that male householders (married or unmarried) paid less for rental housing than female householders. Female householders are also more likely to move from nonsubsidized to subsidized housing units than their married counterparts (Spain, 1990). Thus, female-headed households do tend to have difficult housing circumstances, particularly those among the low-income category, which are characterized as a vulnerable population.

Female Householders and Welfare Reform

Welfare reform, also known as the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which was enacted in 1996, eliminated the entitlement to welfare payments or the federal Aid to Families with Dependent Children Program (AFDC). The AFDC was replaced with the Temporary Assistance for Needy Families (TANF) block grant, which significantly removed all federal eligibility and payment rules, and also gave states greater

discretion in executing their own cash public assistance programs. Welfare reform also initiated work requirements for aid recipients, funded programs that reduced non-marital births to encourage marriage, and also set a lifetime limit of 60 months on the receipt of TANF-funded aid.

A large body of research has examined the impact of the welfare reform as a form of social safety nets for female householders in both rural and urban areas (Blank, 2002; Brandon, 2000; Edin, Lein, & Jencks, 1997; Lerman, McKernan & Pindus, 2001; Litcher & Graefe, 2011; Lichter & Jayakody, 2002; Litcher & Jensen, 2001; Litt, Gaddis, Fletcher & Winter, 2001; McKernan et al., 2000; Pruitt, 2007; Swenson, White, & Murdock, 2001; Weber, Duncan & Whitener, 2001; Whitener, Gibbs & Kusmin, 2003; Whitener, Weber & Duncan, 2002). A relatively high decline in welfare caseloads was associated with increase in work; a lessened reliance on welfare thus enabled single women to move from welfare to work at a high rate (Blank, 2002; Brandon, 2000; Lichter & Jayakody, 2002). Hence, the welfare-to-work system increased the paid work of single mothers and reduced their reliance on welfare generally (Litcher & Graefe, 2011).

In addition, differences in economic growth, job availability, wage levels, access to public transportation, and child care in both rural and urban areas benefitted single women differently (McKernan et al., 2000). Women in rural areas have limited access to these resources due to the geographical isolation of some rural areas. For instance, single women living in the isolated and remote rural areas of the South have lower employment growth and also fewer support services, which adds to their challenges on the welfare-to-work requirement and lead to limited job opportunities and work support services (Weber et al., 2001; Whitener et al., 2003). Therefore, lower wages and lower skilled jobs among female-headed households in rural areas

both remove them from welfare and keep them at a disadvantage when compared to women in urban areas (Brown & Lichter, 2004; Lerman et al., 2001; Lichter & Jensen, 2001; McKernan et al., 2000; Sorensen, 1994; Tickamyer & Wornell, 2017; Weber, Duncan & Whitener, 2001; Wells, 2002). However, others found that welfare reform helped female householders navigate into employment both in rural and urban areas (McKernan et al., 2000).

Further, the weak labor markets in rural areas act as a setback for women in general. TANF participants in rural areas are unable to find adequate work to support self-sufficiency (Pruitt, 2007). In fact, nonmetro single mothers are more likely to be at risk of being taken off welfare rolls for failing to comply with mandated work requirements (Swenson, White, & Murdock 2001). Therefore, welfare reform did not provide enough economic safety net for single women in rural areas compared to their urban counterparts. However, other existing studies reported that most female householders that benefit from welfare program, especially the TANF, also received housing assistance (Barcus, 2002; Cook et al., 1994; Cook et al., 2002; Corcoran & Heflin, 2003; Harkness & Newman, 2006; Kingsley, 1997; Newman, Holupka & Harkness, 2009).

Housing Assistance for Female-headed Households

Female-headed households constitute one of the largest populations in most housing assistance programs and subsidized housing units (Garfinkel & McLanahan, 1986; Kalil & Ryan, 2010; Kingsley, 1997; Newman & Schnare, 1993; Shroder, 2002; Waldfogel, Garfinkel & Kelly, 2005). Single-mother households are more likely to experience hardship and received housing assistance than two-parent households (Berger et al., 2008; Cook et al., 1994; Kingsley, 1997; Newman & Schnare, 1993). Therefore, receiving housing assistance helps alleviate housing challenges of female householders, such as increasing the likelihood of housing adequacy among

both metro and nonmetro single women (Cook et al., 2002). More specifically, housing assistance helps to lower housing costs more among the metro single mothers than the nonmetro households (Berger et al., 2008; Cook et al., 1994; Kalil & Ryan, 2010). The public housing and Section 8 vouchers programs also help to offset housing costs for many single mother families (Waldfogel et al., 2005). At the same time, housing assistance improves physical conditions and housing stability for these households, particularly for those with children (Cook et al., 1994; Newman & Schnare, 1993; Skobba, 2016), and increases the likelihood of living in less crowded housing units (Berger et al., 2008; Cook & Bruin, 1994). With respect to race, families headed by single women of color are more likely to predominate subsidized housing than single women of other races (Kingsley, 1997; Newman & Schnare, 1993). While female householders tend to rely on housing assistance to help improve housing affordability and quality both in rural and urban areas, there are still disparities in accessing housing assistance.

However, female householders in urban areas have more options and better chances of receiving housing assistance than their rural counterparts. Even though HUD provides over 4.5 million units of assisted housing through the Section 8 Housing Choice Vouchers, public housing, and multi-family rental assistance programs, about 611,484 units, that is, only 13 percent, are located outside of metropolitan areas (Ziebarth, 2015). Data on the USDA Rural Housing Service such as the USDA Section 515 and 514 properties as of June 2016, served 687,869 residents, and 285,338, which is about 40 percent, were female-headed households (Scally & Lipsetz, 2017). Hence, female-headed households in rural areas tend to benefit more from USDA's Rural Services program. Rural communities have more challenges accessing housing assistance program like the project-based program since it is designed towards deconcentrating poverty and the expansion of housing and economic opportunities mostly in

urban areas (Scally et al., 2018). Therefore, female-headed households in rural areas are more likely to have limited access to housing assistance programs compared to their urban counterparts.

In sum, though the body of literature examining the housing conditions of female-headed households is quite large, there is limited current research that specifically examines and also compares the demographic, housing and financial characteristics of female-headed households in rural and urban America. This study will add to contemporary literature by exploring how the demographic, financial and housing characteristics of female-headed households relate to housing affordability and housing quality of rural householders compared to single women households in urban areas.

Theoretical Framework

This section provides information on the Housing Adjustment Theory (Morris & Winter, 1975), which was used in this study to investigate housing affordability and housing quality among female-headed households in the United States. The theory basically describes housing norms as a key factor that households use when considering their housing situations.

A Theory of Housing Adjustment

Housing adjustment theory (Morris & Winter, 1975) provides a framework that helps to understand how different household characteristics influence their housing conditions. The theorists developed the housing adjustment theory to describe the complex processes that American families use to make decisions about their housing. The theory has been used extensively in housing research to investigate residential satisfaction, housing preferences, and

housing decisions, such as residential mobility (Cook et al., 1994; Lee, Parrott & Ahn, 2012; Skobba, Bruin & Carswell, 2013; Steggell et al., 2003; Winter & Morris, 1982).

The basic premise of the theory was that housing norms and constraints were the main influential forces that households used to evaluate their housing conditions. That is, households often tend to rely on housing norms, which are societal standards, to gauge or shape their housing. While these standards also indicate the socially acceptable and appropriate housing conditions for families, constraints tend to influence the decision making process of households as well as their overall housing situations. Thus, the housing norms are the characteristics of societies that exert social pressures on individuals and households to live in housing with certain prescribed characteristics (Morris & Winter, 1998). Constraints, on the other hand, cause families to compromise or relax the norms and so, responded to their housing needs differently than the expected cultural norm. In short, family constraints would likely limit the type and quality of housing that families can occupy.

Morris and Winter (1975) defined housing norms to include tenure status – homeownership; structure type - single-family units; housing space - sufficient numbers of rooms for household members of each age and sex category; housing quality; and neighborhood and location norms. They also highlighted constraints to include (1) resources (income, wealth, information, skills time); (2) family organization (household's ability to make and implement decisions about its housing); (3) housing market (prices, supplies of housing, building materials, mortgage money); (4) predispositions (psychological characteristics of the household – apathy, ambition, etc.); and, (5) discrimination (due to race, ethnicity, sex, age, disability, social class) (Morris & Winter, 1998).

The theory also assumed that households continuously evaluate their housing conditions to determine whether their current housing conditions were up to par with the standards; in the event of any deficit, dissatisfaction sets in, and families might seek to change their housing situation (Morris & Winter, 1978). That is, when households live in non-normative housing, dissatisfaction occurs, and the family could either move or make alterations. Therefore, families that live in dwellings that do not meet either the cultural norms or family norms are expected to be more dissatisfied than families in housing that meets the norms (Winter & Morris, 1982). But, existing constraints and values of the households could also prevent moving or making alterations, and so, households would have to adapt to the housing situations. Thus, housing norms and constraints are influential forces when households need to evaluate housing conditions (Lee et al., 2012). These could lead to housing adjustment or housing adaptation, so as to reduce deficits and problems, or even continued dissatisfaction if no change is made (Morris & Winter, 1975, 1978, 1998). In short, housing norms, current housing conditions and existing constraints all combine to determine housing preferences of all households (Winter & Morris, 1982).

Empirical Analysis of the Theory

In an example of the use of housing adjustment theory, Lee et al. (2012) examined housing conditions of low-income minorities in the South. They developed a model that hypothesized a relationship between demographic and housing characteristics, and housing adequacy level of the respondents. The tenets of housing adjustment theory were supported by their findings in that family income, geographic location, housing subsidies, neighborhood rating, structure size, and structure type were statistically significantly related with housing

adequacy levels of the minorities in the South. Thus, housing norms of the low-income minorities in the study related to their levels of housing adequacy.

In another study, Winter and Morris (1982) investigated the differences between housing conditions, preferences, and norms for single-family homeownership between female-headed households and married couples. The authors argued that the constraints of female-headed households, such as age, income, education and the number of persons in the households, influenced the differences in structure-type norms, preferences and housing conditions of female-headed households compared to those who were married. They found that not only were the female-headed households less likely to live in a single-family dwelling or to own their dwelling, but were also more likely to live in housing that did not meet their reported norms for tenure or structure type than married families. These findings thus support the housing adjustment theory in that the female-headed households developed unconventional preferences by living in non-normative housing units. Other scholars also reported similar patterns that due to income constraints, many female householders tend to live in low quality housing units (Cook et al., 2002), particularly those in the rural areas (Laux & Cook, 1994).

Lee and Parrott (2010) also used housing adjustment theory to examine the demographic, housing, and neighborhood characteristics as well as housing satisfaction of Asian and Pacific Island elders. The authors found that lower income and education were the constraints that led to lower housing satisfaction levels among the population. Others found an association between the socioeconomic characteristics of rural households and their adjustment decisions (Lodl & Combs, 1989). That is, young single women families in rural areas were more likely to engage in housing mobility as their preferred adjustment behavior, while the older folks chose to remain and adjust to their housing. Others found that the low-income working families receiving the

Housing Choice Voucher had stable housing conditions after experiencing housing mobility (Skobba et al., 2013).

This study therefore utilizes the housing adjustment theory on the basis that demographic, financial and housing characteristics of female-headed households have particularly challenging relationships with housing affordability and housing quality of female-headed households in the United States.

CHAPTER THREE

METHODOLOGY

This study explored the factors that relate to housing quality and housing affordability among female headed households in order to understand the housing conditions of this unique population, as well as investigated the differences in rural and urban households. This was done using the 2013 national American Housing Survey (AHS) data and two regression models. This chapter outlined the research questions and hypotheses, described the research framework, provided a description of the data and sample, defined the dependent and independent variables with the coding, and also explained the statistical procedures for the study.

Research Questions

The following research questions were developed to direct this study:

1 To what extent do female-headed households in the rural regions differed in their level of housing quality from urban female-headed households?

2 Does housing affordability for female householders in rural areas differ significantly from female householders in urban areas?

3 How do the demographic, financial, and housing characteristics of female-headed households in rural communities relate to housing affordability compared to their counterparts in urban areas?

4 How do the demographic, financial, and housing characteristics of female-headed households in rural communities relate to housing quality compared to their counterparts in urban areas?

Research Hypotheses

H_{01}: There was no difference in the level of housing quality among female-headed households in rural and urban regions.

H_{a1}: There was a difference in the level of housing quality among female-headed households in rural and urban regions.

H_{02}: There was no statistical significant difference between the mean housing affordability for female-headed households in rural and urban areas.

H_{a2}: The mean housing affordability for rural and urban female householders was different.

H_{03}: The demographics, financial, and housing characteristics of female-headed households in rural communities did not relate to housing affordability compared to those in urban areas.

H_{a3}: The demographics, financial, and housing characteristics of female-headed families in rural communities relate to housing affordability compared to those in urban areas.

H_{04}: The demographic, financial and housing characteristics of female headed households in rural communities did not relate to housing quality compared to those in urban communities.

H_{a4}: The demographics, financial, and housing characteristics of female-headed households in rural communities relate to housing quality compared to those in urban communities.

Research Framework

Based on the theory of housing adjustment (Morris & Winter, 1975, 1978), previous research, and literature, the research framework for this study was to examine and compare how the demographic, financial and housing characteristics of female householders relate to housing quality and housing affordability of those in rural areas as compared to those in urban areas.

The research framework was shown in Figure 2. Housing affordability and housing quality, as shown in literature, were vital in the housing conditions of female householders in the United States. Therefore, housing affordability and housing quality were selected as the dependent variables in this study. The framework focused on revealing how the demographic, housing, and financial variables (Independent Variables) relate to housing affordability and housing quality (Dependent Variables) of female headed households in the United States.

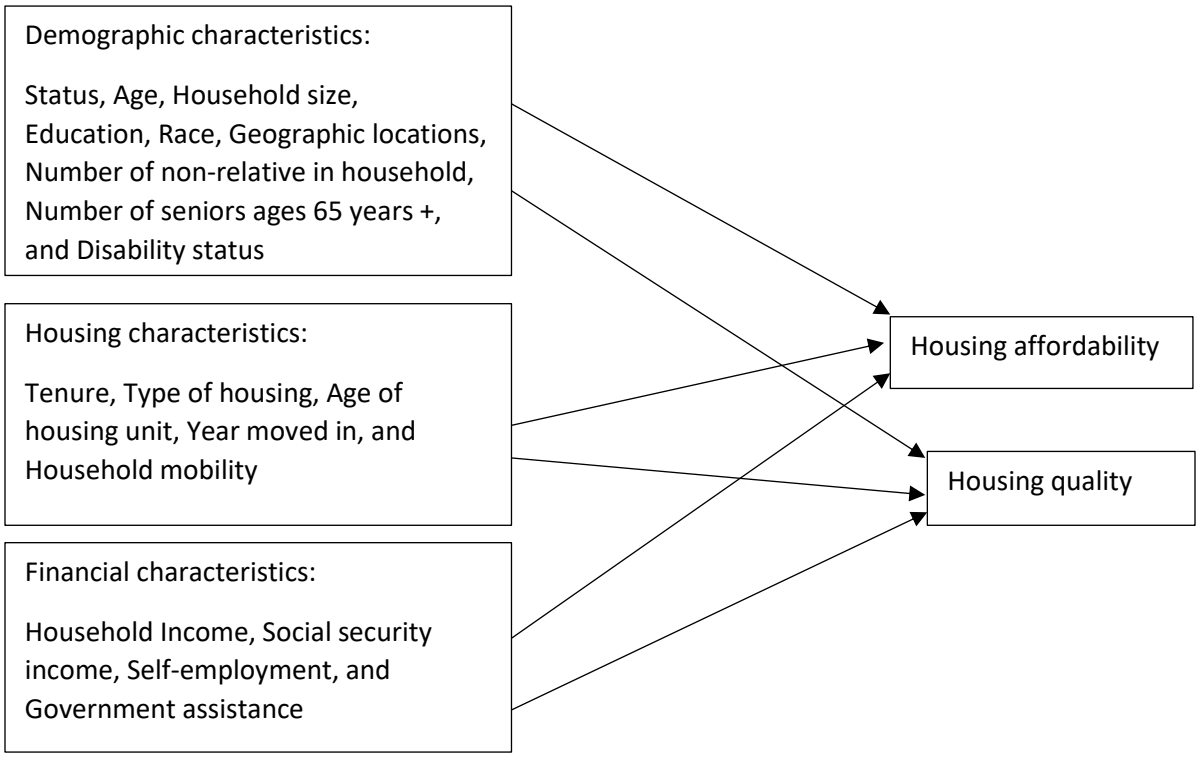

Figure 2: A research framework focusing on female headed households in 2013.

According to the housing adjustment theory, income was a main constraint that prevented people from living in normative housing conditions. Scholars found that low-income households in some cases do not live in housing that meets shared norms (Lee & Parrott, 2010), also that low-income families tend to spend more than 25 percent or 30 percent of their income on housing with little left to meet other basic needs (Combs et al., 1995). More specifically, housing affordability and housing quality are problems among female headed households (Laux & Cook, 1994; Spain, 1990). Thus, for the purpose of this study, the dependent variables for this study were two-fold: (a) housing affordability and (b) housing quality of female-headed households. The independent variables that were related to the dependent variables in this study included:

(a) Demographic variables:

Status, Age, Household size, Education, Race, Geographic locations, Number of non-relative in household, Number of seniors ages 65 years +, and Disability status;

(b) Housing variables:

Tenure, Type of housing, Age of housing unit, Year moved in, and Household mobility;

(c) Financial variables:

Household Income, Social security income, Self-employment, and Government assistance.

Data

The American Housing Survey (AHS) was chosen for this study because it had specific questions that addressed housing problems and also variables on housing costs and adequacy that paired well with housing quality. Also, other variables deemed important by theory and empirical literature, such as the socioeconomic characteristics of female householders, number of children in family or household size, household income, and household mobility measures, were featured. The AHS was conducted first in 1973, under the name of the Annual Housing Survey, with a sample size of 60,000 housing units, and was conducted on an annual basis from 1973 to 1981. It was later changed to a biennial survey, and the name also changed to the American Housing Survey (AHS). The AHS was designed to include two samples, the National Sample and the independent Metropolitan Area Sample, and from 1973 to 2005, these two samples were collected independently of one another. The National survey was enumerated every other odd-numbered year, while the Metropolitan survey occurred in selected areas on a rotating basis. Starting in 2007, the National and Metropolitan surveys were conducted in the same time-period to reduce costs.

The housing units participating in the AHS were scientifically selected to represent all housing units in the United States. Each housing unit in the AHS national sample was weighted and represented between 450 and 4000 other housing units in the United States. A household respondent must be a knowledgeable household member 16 years of age or over that provided information about the unit, household composition, and income. The person was referred to as the reference person or spouse of the household respondent. The total respondents in the 2013 data was about 85,000 samples. This study used data from the 2013 wave of the AHS, and the samples selected were those that identified as female head of households. The AHS was ideal for this study because of its large sample size and comprehensive data on both housing quality and affordability of households. The AHS is one of the national data sets known to provide detailed information regarding housing conditions of the respondents nationwide. The data had been chosen because it included variables of interest as motivated by theory and literature.

Methods

This study explored how the demographic, housing, and financial characteristics of female householders relate to housing affordability and housing quality of the identified households. First, existing research on housing affordability and quality of this specific population is lacking. At the same time, this study aimed to determine whether housing affordability and housing quality differed among female headed households in rural communities compared to urban areas. Second, studies found wide variations among rural families and communities in that while some rural communities have families with adequate incomes, others have a predominance of poor people (Hamilton et al., 2008). Thus, this study is timely and necessary to address the housing needs of female householders in rural communities.

Selection of Sample

This study focused on female-headed households in the AHS national sample of 2013. To select the sample for this population from the AHS national sample, sex and marital status of the head of household were used to determine eligibility for the study. Within the AHS data coding, the variables that indicated sex and marital status of head of household had been named as HHSEX and HHMAR. From AHS 2013, I selected those that responded as females and were widowed, divorced, separated, or, never married.

Variables of this Study and Coding

The variables for the analysis were selected following the research questions and conceptual model. The selected variables and data coding for data analysis are provided below.

Variables

Variables included in the model for this study and their variable names are shown in Table 5.

Table 5

Variables used in the study.

Variables labels		Construct	Label	Variable name in AHS data
Dependent variables:	Housing affordability	Cost burden	Affordability	—
	Housing quality	Adequacy	Quality	ZADEQ
Independent variables	Demographic characteristics			
	Status	Marital status	Householder status	HHMAR
	Race/Ethnicity	Race	Race of householder	HHRACE

Geographical locations	Regions	Region	REGION
	Urban/Rural	Metro/Nonmetro	METRO3
Age	Age	Age of householder	HHAGE
Education	Education	Education level of householder	HHGRAD
Household size	Children in household	Number of householder's children	HHLDKID
Nonrelative	Non relatives	Number of nonrelative in household	NONREL
Number of senior in household	Seniors	Number of people 65 years and older	ELDER
Disability status	Disability	Household has a disabled person	HDSB
Housing characteristics			
Tenure	Tenure	Housing tenure	TENURE
Type of housing unit	Type of housing unit	Housing unit type	NUNIT2
Age of housing unit	Year housing built	Year housing built	BUILT
Year moved in	Year moved	Year householder moved in	HHMOVE
Household mobility	Mobility	Householder mobility measure	__
Financial characteristics			
Household income	Income	Household income	ZINC2
Government assistance	_____	Receive government assistance	_____
Social Security	Pension	Receive social security	QSS
Self-employment income	Self employed	Receive self-employment income	QSELF

Variable Coding

Dependent Variables

Housing affordability: In this study, housing affordability was according to HUD's standard, which states that households should spend not more than 30 percent of income on housing costs, which was also regarded as housing cost burden. Extant studies on housing affordability also have used this measure (Combs et al., 1995; Freeman, 2002; Harkness & Newman, 2005; Hulchanski, 2005; Jewkes & Delgadillo, 2010; Kutty, 2005; McConnell, 2013; Stone, 1993; Winter et al., 1994). Housing affordability was also regarded as housing cost burden, which was the percent of income spent on housing. It was an ordered variable and was calculated by dividing monthly housing costs/expenses by the total monthly household income.

Housing quality: The AHS data has a question on housing adequacy that was used to describe the extent of physical deficiencies in housing units, which also represented housing quality. Other scholars have also used variable-housing adequacy as a measure of housing quality (Golant & La Greca, 1994; Lee, Parrott & Ahn, 2012). The measure provided three hierarchical levels that includes 1 – Adequate, 2 – Moderately inadequate, and 3 – Severely inadequate. These measures were recoded into a binary form where '1' – adequate, and, since moderately inadequate and severely inadequate indicated an extent of adequacy, these two variables were together recoded '0'. The method of recoding housing adequacy variable as a binary form had also been applied in a previous study (Lee, et al., 2012).

Independent Variables

Status of female householder: In this study, female head of household was determined from the sex and the marital status of the householder. The variables used to represent the status of female

householder were coded as follows 1 - Widowed, 2 - Divorced, 3 - Separated, and 4 - Never married, which was a categorical variable.

Race/ethnicity: Race in this study was the racial identification of the householder, which was a categorical variable. The AHS showed different racial profiles of all households, and I recoded the variables to represent 1 - White only, 2 - Black only, 3 - Asian only, and 4 - Two or more races.

Geographic locations: To measure location, two categorical variables are used: Metro/Nonmetro and Regions. The different regions were used to represent the geographical locations in the country. That is, 1 – Northeast, 2 – Midwest, 3 – South, and 4 – West. I also relied on specific variables to identify the urban and rural communities. In the codebook, the variable is shown as METRO3, as described in table 1, and I coded the variable as 1 – central city MSA, 2 - Inside MSA, not central city – urban, 3 - Inside MSA-Rural, 4 - Outside MSA – urban, and 5 - Outside MSA – Rural. I recoded this variable as 1 – Rural, and 0 - Urban.

Age: Age in this study implied age of head of household, which was a continuous variable. It ranged from 14 to 93.

Household size: In this study, the number of householder's children represented the household size. It was a continuous variable and ranged from 0 – 10.

Education: Education represented the educational level of head of household. The value labels were re-grouped differently from the code in the AHS codebook. The AHS consisted of 17-noncontinous categories of unequal numbers of years of education. In this study, I recoded the levels to represent five categories, which included 1 - High school, no diploma, 2 - High school diploma/ Some college, 3 – Associate/Bachelors, 4 – Graduate degrees.

Number of non-relatives in household: The number of non-relatives living with the householder was a continuous variable, and it ranged from 0 – 7.

Number of seniors above 65 years: To further identify the factors of the housing conditions of female headed households, the variable that indicated the number of seniors above 65 years living in the household was considered relevant based on existing literature. It was a continuous variable, and it ranged from 0 – 6.

Disability status: It was a categorical variable that indicated whether the household had a disabled person. In this study, I coded the variable to represent 1 – Yes, 2 – No, and 3 – Not applicable.

Tenure: Tenure implied owner/renter status of unit. This variable was a categorical variable, which consisted of three values: 1 - Owner, 2 – Renter, and 3 – Occupy without paying rent.

Type of housing unit: From the codebook, housing unit type was represented in two different ways, and for this study, the variable housing living quarters was chosen to represent the housing unit type. The variable was categorical and coded 1 -Single family detached, 2 - Single family attached, 3 – Multi-family apartment, and 4 - Mobile/manufactured home.

Year housing built: In this study, year the housing was built represented the age of the house. It was continuous, and the oldest house was built in 1919, and the newest in 2013.

Year household moved in: In this study, year household moved in was a continuous variable that indicated the specific year the householder moved in. The minimum year was 1919 and the most recent year householder moved in was 2013.

Household mobility: In this study, household mobility included the variables that described the different reasons for households to move, which were Moved for lower rent/maintenance: a categorical variable that stated whether a household moved for a less expensive rent/maintenance, where 1– Yes and 0 – No; Moved for tenure: indicated whether a household moved to own not rent or vice versa. It was a categorical variable, 1 – Yes and 0 – No; Moved to be close to work/school: variable showed whether a household moved to be closer to work/school/other. It was categorical, where 1 – Yes and 0 – No; Moved due to new job/transfer: a categorical variable that showed whether the household moved for a new job or job transfer. The variable was coded as 1 – Yes and 0 – No; Moved for high quality unit: variable indicated whether a household moved to obtain higher quality housing unit. It was categorical and coded as 1 – Yes and 0 – No.

Household Income: The annual household income of female-headed households in the AHS data showed a wide range of income, where some reported negative income, and other households earned as much as $365,443 annually. Guided by literature, I used the 2013 U.S. household median income of $51,900 as the yardstick for the household income. Also, households that reported negative income, or less than $50, were recoded to have the income of $50. Therefore, household income in this study ranged from $50 - $51, 840, which was a continuous variable. Guided by literature, I recoded income data as four value labels: Less than $25,000 (1), $25,000 to $34,999 (2), $35,000 to $44,999 (3), and $45,000 to $ 51,900 (4).

Social security income: Receiving social security was categorical, where 1- Yes, 0 – No, and 2 – Not reported.

Self-employment income: Receiving self-employment income was also categorical, 1 – Yes, 0 – No, and 2 – Not reported.

Government assistance: The variable showed whether a household received public assistance, housing subsidy, received a voucher to pay rent, or food stamps. Receiving public assistance and food stamps were combined to form public assistance, and so, all forms of assistance included public assistance, housing subsidy and vouchers. The variable is coded as 3 – if receiving all three forms of assistance, 2- if receiving two of the assistance, and 1 – if receiving one of the assistance.

Table 6

Variable Coding for the Models

Variables	Variable description
Dependent	
Housing affordability	Percent of income spent on housing. An ordered variable where 1 – affordable, 2 – cost-burdened, and 3 – severely cost-burdened.
Housing quality	Coded as 1 if housing was reported as adequate, 2 – moderately inadequate, and 3 – severely inadequate.
Independent	
Status of householder	Never married, divorced, separated, and widowed are coded as categorical variable with never married as the reference group.
Race/ethnicity	White only, Black only, Asian only, and two or more race are coded as categorical variables with White as the reference group.
Geographic Regions	Northeast, Midwest, South, and West each coded as categorical variables with Northeast as the reference group.
Location	Rural and urban areas coded as dummy variable with urban as the reference area
Education	High school/no diploma, high school diploma/ some college, associate/bachelors, and graduate degree each coded as categorical variables with high school/no diploma as the reference group.
Disability status	Disabled person in the house coded as 1, otherwise 0.

Tenure	Owner, renter, and occupying without paying rent each coded as categorical variables with owner as the reference group
Type of housing unit	Single family detached, single family attached, multi-family apartment, and mobile/manufactured home each coded as categorical variables with single family detached as the reference group.
Household mobility	Household has moved for one of the stated reasons: lower rents, close to work, tenure reasons, housing quality or job transfer coded as 1, otherwise 0
Social security income	Social security income coded as 1, otherwise 0.
Household size	Number of children in household, continuous
Age	Age of householder, continuous
Number of non-relative in household	Number of non-relative in the household, continuous
Number of seniors above 65 years	Number of seniors in the household, continuous
Year housing built	Year the housing unit was built, continuous
Household Income	Household income, coded as Less than $25,000 -1, $25,000 to $34,999 -2, $35,000 to $44,999 -3, and $45,000 to $ 51,900 -4 with the lowest income category as the reference group
Year household moved in	Year household moved in, continuous
Self-employment income	Self-employment income coded as 1, otherwise 0.
Government assistance	Receiving government assistance coded as 3 if receiving all assistance, 2 if receiving two, and 1 if receiving only 1, and 0 if not receiving any assistance, which also is the reference group

Data Examination

Prior to empirical analysis, the data was screened for outliers and missing data. Hair, Black, Babin, and Anderson (2010) defined outliers as observations with unique characteristics, which are judged as having unusually low or high values. The authors suggested assessing outliers based on practical and substantive considerations. From a practical point of view,

samples spending less than $30 on monthly housing costs, and those with the percentage of housing affordability higher than 100% were potential outliers, which were taken out from the study.

Scholars argued that missing data reduces the statistical power of a study and also produces biased estimates that lead to invalid conclusions (Bennett, 2001; Kang, 2013). Bennett (2001) posits the presence of bias when the amount of missing data is higher than 10 percent. Thus, missing data was investigated on a case by case basis in this study. Table 7 shows the number of missing values for each variable, and the variable with a high percentage of missing data were not be included in the models.

Table 7

Missing Variable Analysis

Variable	Missing	Sample Population	% Missing
Housing quality	0	12217	0.00%
Housing affordability	0	12217	0.00%
Race	0	12217	0.00%
Geographical regions	0	12217	0.00%
Locations	0	12217	0.00%
Age of householder	0	12217	0.00%
Education	0	12217	0.00%
Household size	0	12217	0.00%
Nonrelative	0	12217	0.00%
Number of senior in household	0	12217	0.00%
Disability status	119	12098	0.97%
Tenure	0	12217	0.00%
Type of housing unit	0	12217	0.00%

Year housing built	0	12217	0.00%
Year moved in	0	12217	0.00%
Household mobility*	9005	3212	73.7%
Household income	0	12217	0.00%
Government assistance	0	12217	0.00%
Social Security	0	12217	0.00%
Self-employment income	0	12217	0.00%

* variable excluded from the models due to the large missing samples

Data Analysis Procedure

The Statistical Package for the Social Sciences (SPSS) version 25 was used to describe and analyze data for this study. Mainly, descriptive statistics (frequencies, percentages, and means) was employed to provide profiles of female-headed households' demographic, housing and financial characteristics. Pearson correlation showed the bivariate associations among continuous variables, and crosstabs to investigate the association between categorical variables. Chi-square tests was also used to determine whether a significant association between the categorical variables. To answer the research question one, Chi-square analysis was employed to determine the differences in housing quality among rural and urban female householders. The T-test analysis was used to address research question 2. The multinomial logistic regression model was used for research question 3, and binary logistic regression model for research question 4.

These analytical methods were deemed appropriate for this research for several reasons. First, the chi-square test of independence was necessary to explore the differences in the level of housing quality between rural and urban female householders. The independent sample T-test compared the mean percentage of housing affordability for the rural and urban householders as well as to determine whether a statistically significant difference existed between these two

groups. The regression models were extensions of correlation, and they were appropriate in this study to explore the predictive abilities of the set of independent variables on the ordered dependent variable (housing affordability – multinomial logistic regression), and the binary outcome (housing quality – logistic regression).

Multinomial Logistic Regression Models:

The model for research question 3 was presented as equation 1:

$$\ln\left(\frac{P(3)}{P(1)}\right) = \beta 0 + \beta 11X11i + \beta 12X12i + \beta 13X13i + \ldots + \beta 1nX1ni + e$$

$$\ln\left(\frac{P(2)}{P(1)}\right) = \beta 0 + \beta 21X21i + \beta 22X22i + \beta 23X23i + \ldots + \beta 2nX2ni + e$$

Where $\ln\left(\frac{P(3)}{P(1)}\right)$ and $\ln\left(\frac{P(2)}{P(1)}\right)$ were the logit form of the dependent variable (housing affordability), β_0 is the constant, $X_{11i,}$ X_{12i}…X_{ni} represents the independent variables, and *e* was the prediction error. The log odd of the dependent variable was modeled as a linear combination of the independent variables.

The model for research question 4 was presented as equation 2:

$$\ln\left(\frac{Y}{1-Y}\right) = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \cdots + \beta nXn + e$$

Where $\ln\left(\frac{Y}{1-Y}\right)$ was the log odds (logit) of the dependent variable (housing quality), Xi…, Xn represents the independent variables, and β0 was the constant, β is the logistic regression coefficient.

Several assumptions were underlying the use of an independent sample T-test and the regressions in this research. The outcome variable for the T-test was on a continuous scale and normally distributed. The T-test must have two independent and categorical groups. There was

also an assumption of homogeneity of variance for each of the groups. The multinomial logistic regression assumed that the independent variables did not exhibit any form of multicollinearity. The dependent variable in multinomial logistic regression had more than two categories. The logistic regression assumed that the dependent variable must be binary. The independent variables must be independent of each other, which must not also exhibit any multicollinearity. Last, the independent variables were linearly related to the log odds.

Design Validity Concerns

There was the possibility for results to be generalized to other populations when using the AHS data. External validity was strengthened as the AHS is a nationally representative dataset with a large sample size. For instance, the 2013 AHS data has approximately 85,000 households; the results were thus valid for female householders. Therefore, internal validity was also strengthened as AHS featured a variety of variables that theoretically belonged in the models used to answer the research questions.

CHAPTER FOUR

ANALYSES AND FINDINGS

This chapter contains the data analyses and findings of my study. First, I presented the descriptive analyses to provide an understanding of the demographic, housing and financial characteristics of the sample selected for the study. Second, I used a Pearson correlation to show the bivariate relationships among continuous variables and crosstabs to investigate the association between categorical variables. Third, I employed the Chi-square analysis to determine the differences in housing quality among rural and urban female householders for research question 1, and addressed research question 2 using a T-test analysis as well as the multinomial and binary logistic regression models for research questions 3 and 4. Last, I presented the results of the hypotheses and the overall results at the end of the section.

This study sampled female-headed households, selected from the 2013 American Housing Surveys (AHS). It totaled 12,217 households, that is, those in the rural communities were 2086, which was 17.1 percent, and the urban households were 10,131 which was 82.9 percent of the female householders. When analyzing data and reporting results, I treated some responses as missing data if a respondent did not respond to a question or if the response indicated not applicable.

Descriptive Analyses

Tables 8 through 14 presented the descriptive statistics with categorical and continuous variables shown separately.

Dependent variables

In this study, housing affordability and housing quality were the dependent variables, and Tables 8 & 9 showed the descriptive statistics of the dependent variables.

Table 8

Descriptive statistics: Dependent variables. (N = 12,217)

Variables	N	%	Rural		Urban	
Housing affordability			N	%	N	%
Affordable	5030	41.2	1067	51.2	3963	39.1
Cost burdened	3929	32.2	575	27.6	3354	33.1
Severely cost burdened	3258	26.7	444	21.3	2814	27.8

More than half of the rural female householders in the study had affordable housing units, while 39% of the householders in urban areas had affordable units. Similarly, approximately 28% of female householders in rural areas were cost burdened, and 21%, severely cost burdened, while 33% and 28% of urban female householders were cost burdened and severely cost burdened respectively.

Table 9

Descriptive statistics: Dependent variables. (N = 12,217)

Variables	N	%	Rural		Urban	
Housing quality[a]			N	%	N	%
Adequate	11280	92.3	1961	94.0	9319	92.0
Inadequate	937	7.7	125	6.0	812	8.0

a:housing quality is measured as housing adequacy

Majority of the female-headed households in the study considered their housing units adequate, which revealed general trends of improvements in housing quality in the country.

However, less than 10% of the sample, both in the rural and urban areas, indicated that their housing units were inadequate. More specifically, approximately 6% of the rural households had inadequate housing, and 8% of urban households had inadequate housing units.

Independent variables

Demographic characteristics:

Demographic characteristics include status of household head, location, race, education, geographic regions, age of householder, and household size - number of children in household, number of non-relatives in household, and disabled person in the house. Descriptive statistics for demographic characteristics were summarized in Table 10 (for categorical variables) and Table 11 (for continuous variables).

The distribution of the sample was such that urban households were about 83%, and rural households were about 17%. The status of the head of household living in rural areas showed that 40% were widowed, over 30% were divorced, 21% never married, and less than 5% separated. Among those living in urban areas, 40% never married, while the least were those separated with about 7%. For the regional distribution of households, 48% were located in the rural South, 29% in the urban Midwest, and South, and 26% in rural Midwest, while the urban and rural West were approximately 16% and 10% respectively. The education profile of the sample showed that over 50% of the female householders had high school diploma and some college degree, and about 5% of both rural and urban households possessed graduate degrees.

Table 10

Descriptive statistics: Demographic characteristics – Categorical.

Variables	Rural		Urban	
	N	%	N	%

Locations						
Rural/Urban	12217	100	2,086	17.1	10,131	82.9
Status						
Divorced	3,525	28.9	649	31.1	2,876	28.4
Separated	780	6.4	96	4.6	684	6.8
Widowed	3,706	30.3	910	43.6	2,796	27.6
Never married	4,206	34.4	431	20.7	3,775	37.3
Regions						
Northeast	2,956	24.2	329	15.8	2,627	25.9
Midwest	3,513	28.8	543	26.0	2,970	29.3
South	3,930	32.2	1,008	48.3	2,922	28.8
West	1,818	14.9	206	9.9	1,612	15.9
Education						
High school/No diploma	2,549	20.9	421	20.2	2,128	21.0
Diploma/Some College	6,655	54.5	1,175	56.3	5,480	54.1
Associate / Bachelors	2,387	19.5	385	18.5	2,002	19.8
Graduate degree	626	5.1	105	5.0	521	5.1
Race						
White	8,394	68.7	1773	85.0	6,621	65.4
Black	3,203	26.2	236	11.3	2,967	29.3
Asian	263	2.2	11	0.5	252	2.5
Two or more race	357	2.9	66	3.2	291	2.9
Disability status (N= 12098)						
Yes	3,628	29.7	637	30.5	2,991	29.5
No	8,470	69.3	1,435	68.8	7,035	69.4

Approximately 70% of the households in the study were White. About 85% of the householders living in rural areas were White, and 65% in those living in urban areas were White. Black householders in urban areas were 29%, and 11% in rural areas, while Asians and other races were approximately 10% in both rural and urban areas. Last, approximately 30% of the householders had a disabled person residing in their houses. From Table 11, the average age of female householders in the study was 56 years, and the minimum age of the rural householder was 17 years, while for the urban householder was 14 years of age. The number of children in the households ranged from 0 to 6, and the number of nonrelatives or seniors in the households ranged from 0 to 3.

Table 11

Descriptive statistics: Demographic characteristics – Continuous.

Variables	Min.	Max.	M	SD
Age of householder	14	93	56.02	20.227
Household size	0	6	.62	1.018
Number of nonrelatives	0	3	.09	.310
Number of seniors above 65years	0	3	.41	.511
Rural households				
Age of householder	17	93	60.23	19.135
Household size	0	6	.53	.939
Number of nonrelatives	0	3	.08	.296
Number of seniors above 65years	0	2	.49	.530
Urban households				
Age of householder	14	93	55.16	20.338
Household size	0	6	.64	1.032
Number of nonrelatives	0	3	.09	.312
Number of seniors above 65years	0	3	.39	.505

Housing characteristics

Housing characteristics include household tenure, type of housing, year house was built, household mobility, and year household moved in. Descriptive statistics for housing characteristics were summarized in Table 12 (for categorical variables) and Table 13 (for continuous variables).

Table 12

Descriptive statistics: Housing characteristics – Categorical.

Variables			Rural		Urban	
	N	%	N	%	N	%
Tenure						
Owner	4,855	39.7	1,391	66.7	3,464	34.2
Renter	7,272	59.5	662	31.7	6,610	65.2
Occupy without paying rent	90	.7	33	1.6	57	.6
Type of housing unit						
Single family detached	4,633	37.9	1,318	63.2	3,315	32.7
Condo	1,133	9.3	90	4.3	1,043	10.3
Multi-family apartment	5,911	48.4	374	17.9	5,537	54.7
Mobile/manufactured home	540	4.4	304	14.6	236	2.3

Household mobility:						
Moved for lower rent/maintenance						
Yes	287	2.3	39	1.9	248	2.4
No	2,925	23.9	354	17.0	2,571	25.4
Moved for tenure						
Yes	83	.7	11	.5	72	.7
No	3,129	25.6	382	18.3	2,747	27.1
Moved to be close to work/school						
Yes	294	2.4	27	1.3	267	2.6
No	2,918	23.9	366	17.5	2,552	25.2
Moved due to new job/transfer						
Yes	191	1.6	25	1.2	166	1.6
No	3,021	24.7	368	17.6	2,653	26.2
Moved for high quality unit						
Yes	320	2.6	32	1.5	288	2.8
No	2,892	23.7	361	17.3	2,531	25.0

The housing characteristics of the female householders in the study showed that approximately 67% of the householders that were homeowners resided in rural areas. This high percentage of homeownership among the rural female householders supported past findings that rural areas have higher homeownership than urban areas (Albrecht et al., 2018). On the other hand, while 65% of the urban householders were renters, 32% of those in rural areas were the same, and less than 4% of these householders occupied their houses without paying rent in both rural and urban areas. Concerning housing tenure, 63% of the rural householders lived in single-family units, which was the highest of the housing tenure, while urban householders were 33%, and those living in multifamily units in urban areas were about 55% with less than 20% in rural areas. At the same time, 15% of those in rural areas lived in mobile/manufactured homes, and only 2% of urban households lived in mobile homes. These characteristics also blended with past studies on housing conditions in rural areas (Housing Assistance Council, 2012). However, a small percentage of female-headed households in the study had a form of household mobility.

Table 13

Descriptive statistics: Housing characteristics – Continuous.

Variables	Min.	Max.	M	SD
Year housing built	1919	2013	1964.55	24.701
Year household moved in	1923	2013	2000.61	15.081
Rural	Min.	Max.	M	SD
Year housing built	1919	2012	1969.40	25.677
Year household moved in	1923	2013	1995.57	17.486
Urban	Min.	Max.	M	SD
Year housing built	1919	2013	1963.55	24.377
Year household moved in	1928	2013	2001.65	14.318

The average year that a housing unit was in the study was 1964, and the earliest year that the rural households moved into their houses was 1923, and 1928 in urban, respectively. This coincided with past literature that rural communities in general have older housing stocks than urban areas.

Financial characteristics

Financial characteristics include household income, government/public assistance, social security income, and self-employment income. I summarized the descriptive statistics for financial characteristics in Table 14 (categorical variables).

Table 14

Descriptive statistics: Financial characteristics – Categorical.

Variables			Rural		Urban	
	N	%	N	%	N	%
Household income						
Less than $25,000	7,271	59.5	1,225	58.7	6,046	59.7
$25,000 to $34,999	2,405	19.7	416	19.9	1,989	19.6
$35,000 to $44,999	1,663	13.6	294	14.1	1,369	13.5
$45,000 to $51,900	878	7.2	151	7.2	727	7.2
Government assistance						
Receives no assistance	7,804	63.9	1,635	78.4	6,169	60.9
Receives one assistance	2,178	17.8	287	13.8	1,891	18.7
Receives two assistance	1,565	12.8	121	5.8	1,444	14.3

Receives more than two assistance	670	5.5	43	2.1	627	6.2
Social security income						
Yes	5,082	41.6	1,083	51.9	3,999	39.5
No	7,135	58.4	1,003	48.1	6,132	60.5
Self-employment income						
Yes	449	3.7	86	4.1	363	3.6
No	11,768	96.3	2,000	95.9	9,768	96.4

Approximately 60% of the female-headed households had income below $25,000, which tended to align with the concept of feminization (Pearce, 1978) that categorized female householders as being poor. About 7% of the householders earned $45,000 to $51,900 yearly. However, with respect to government assistance, 78% of the rural households did not receive any assistance, 61% of urban households did not receive any assistance. Rural householders that received social security income were 52%, and approximately 4% of all female householders in the study received self-employment income.

Bivariate Analysis

Pearson correlation showed bivariate associations among continuous variables, and crosstabs to investigate the association between categorical variables. I employed the Chi-square tests to determine the statistical association between the categorical variables. The continuous variables selected for the Pearson correlation comprised all the continuous independent variables (age of householder, household size, number of nonrelatives, number of seniors above 65years, year housing was built, and year household moved in). The Pearson correlation matrix was provided in Table 15.

There was a strong significant correlation between age of a householder and the number of persons age 65 years or more ($r = .796$, $p < 0.01$), which revealed the association that older

householders would likely have older persons aged 65 years or more living with them than younger householders. The year a household moved in to a house, which explained the length of tenure had a moderate and negative correlation with the age of a householder ($r = -.529$, $p < 0.01$). That is, older householders were more likely to stay longer in their houses, while the younger householders were more likely to move more often, which was found to be a consistent pattern in past research on female householders. Further, length of tenure also had a moderate correlation with the number of seniors 65 years or more in household ($r = -.464$, $p < 0.01$), and size of a household showed a moderate and negative correlation with age of householder ($r = -.424$, $p < 0.01$). That is, as the female householders advanced in age, the children that lived in their houses also reduced. Further, a weak association was found between household size and the number of seniors in households ($r = -.346$, $p < 0.01$). That is, with more children in a household, the number of seniors aged 65 years and older reduced. Size of a household correlated weakly with housing affordability ($r = .075$, $p < 0.01$), which revealed that having more children in the house leads to possible increasing issues with housing affordability. Though a weak association, this finding was consistent with existing studies on housing cost burden and single women with children. Similarly, number of persons 65 years or more in household correlated with housing affordability ($r = -.067$, $p < 0.01$) as well as age of the householder ($r = -.066$, $p < 0.01$), which showed that households with more seniors, and older female head of household would likely have lesser issues with housing affordability. In all, these correlations explained the relationships between the variables, and not causation. The regression models also further revealed other underlying relationship between these variables.

Table 15

Pearson Correlation Matrix for Relationships between Two Continuous Variables.

	Afforda-bility	Year house was built	Number of seniors age 65 years or more	Age of household head	Number of children by head of household	Year moved in	Number of non-relative
Affordability	1						
Year house was built	-0.007	1					
Number of seniors age 65 years or more	-.067**	0.003	1				
Age of household head	-.066**	-0.006	.796**	1			
Number of children by head of household	.075**	-0.008	-.346**	-.424**	1		
Year moved in	.097**	.262**	-.464**	-.529**	.196**	1	
Number of nonrelative	-0.012	-.032**	-.143**	-.240**	.029**	.123**	1

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

Crosstabs helped to investigate the association and statistical significance between two categorical variables. The variables included housing quality, education, race, regions, disability status, tenure, type of housing, household mobility, household income, pension, self-employment, and government assistance. The association between these variables housing quality*race (rural), education*race (rural), race*housing tenure (rural), race*type of housing unit (rural), race*income (rural), race*self-employment income (rural), race*government assistance (rural), housing tenure*government assistance (rural), and housing tenure*mobility

(rural) were omitted due to limited sample sizes regarding the expected frequency distribution. As one of the assumptions of the Chi square analysis require that the frequency distribution to not exceed 20% of the expected counts, or not less than five, and all individual expected counts to be greater than or equal to one (Yates, Moore & McCabe, 1999, p. 734),

However, there existed a significant relationship between housing quality and education level of female householders in both rural and urban areas: ($X^2(3 = 10.160, p = .017$) for urban and, ($X^2(3 = 7.999, p = .046$) for rural. The result showed that compared to other education levels, those without high school diplomas in both urban and rural areas reported having inadequate housing quality. Hence, all of those having at least a high school diploma reported having adequate housing quality. The relationship between housing quality and race among urban households was significant ($X^2(3 = 40.328, p < .000$). Compared to all other races, while about 86% of Black households reported having adequate housing quality, 93% of White households reported having adequate housing quality. Housing quality and regions showed a significant relationship among both urban and rural households ($X^2(3 = 19.815, p < .000$) for urban, (X2(3 = 9.837, p = .020) for rural. Approximately 10% of the urban households in the Northeast reported having inadequate housing quality, while about 8% of the rural households in the South had inadequate housing quality. Conversely, 94% of the urban householders in the West reported having housing adequacy, while 96% of the rural Midwest households reported adequate housing quality. There was also a significant association between housing quality and housing tenure among urban female householders ($X^2(2 = 98.636, p < .000$), and 10% of the renters reported inadequate housing quality, while 96% of the homeowners reported having adequate housing quality.

Similarly, there was a significant relationship between householders living in urban areas and the type of housing units ($X^2(3 = 115.895, p < .000$). The households that lived in multifamily apartments had the highest percentage of those that reported having inadequate housing quality, while those in single family homes had the highest adequate housing quality. This finding was not surprising as it echoed the trends in the housing adjustment theory as well as the general perceptions regarding single family homes in the United States. Housing quality also had a significant association with urban female householders and income levels ($X^2(3 = 9.551, p = .023$). A little above 8% of the low-income female households that earned less than $25,000, and from $25,000 to $34,999 reported having inadequate housing quality, while 94% of households that earned from $45,000 to $51,900 had adequate housing quality, which was not a surprise. Further, housing quality and receiving pension showed a significant relationship among urban households ($X^2(1 = 40.031, p < .000$). Nine percent of the households that did not received pension reported inadequate housing quality, while 94% of those that received indicated adequate housing quality. The relationship between receiving government assistance and housing quality was significant for both rural and urban female householders ($X^2(3 = 55.834, p < .000$) for urban, and ($X^2(3 = 12.844, p = .005$) for rural. About 13% of the households in urban areas that received two or more forms of government assistance reported inadequate housing quality, while about 11% of the rural households that received only one form of public assistance had inadequate housing quality. On the other hand, 94% of urban households that did not receive government assistance reported adequate housing assistance, and 95% of the rural households that receive two or more forms of government assistance reported having adequate housing quality. Thus, government assistance seemed to play a significant role in the level of housing adequacy among both rural and urban female householder as shown in these analyses.

Research Question One

The first analysis determined the extent to which housing quality differed among female-headed households in both rural and urban locations. Table 16 provided the cross tabulation of the analysis, and Figures 3a & 3b showed the differences with respect to the status of the householders.

Table 16

Differences in Housing Quality among Rural-Urban Female Householders

Housing quality	Rural	Urban
Adequate Count	1961	9319
Expected count	1926.0	9354.0
%	94.0	92.0
Inadequate Count	125	812
Expected count	160	777
%	6.0	8.0

The Pearson Chi-Square analysis revealed a statistical significantly difference between housing quality among rural and urban female households in the study ($X^2(1 = 9.994, p < .002$). The result showed that 94% of the rural female householders indicated adequate housing conditions, compared to 92% of urban householders. Thus, rural female householders were more likely to have adequate housing units than their urban counterparts. The effect size of the analysis from the Phi result indicated a significant but weak strength of association of .029, ($p = .002$). Therefore, I rejected the null hypothesis for research question one in favor of the alternative that there existed a difference in the level of housing quality among female-headed households in rural and urban regions.

Further, Figures 3a & 3b revealed the status of household heads and how their level of housing quality differed. Female householders who lived in urban areas, and were never married had the highest count on housing quality than those who were widowed, divorced or separated.

On the other hand, female householders in rural areas who were widowed had the highest count on quality housing units than those who were divorced, separated or never married.

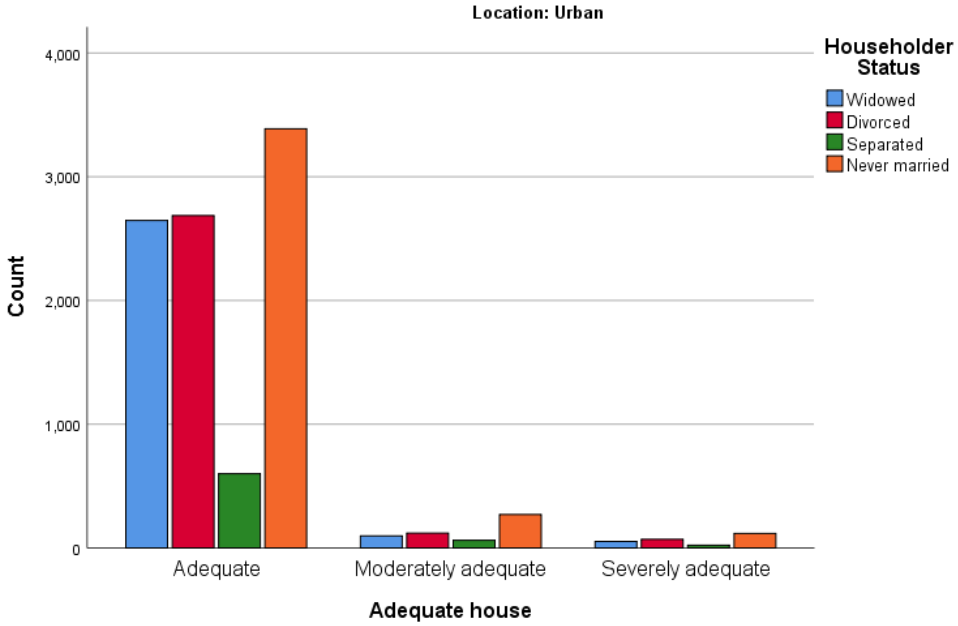

FIGURE 3a: Distribution of housing quality among urban female-headed householders

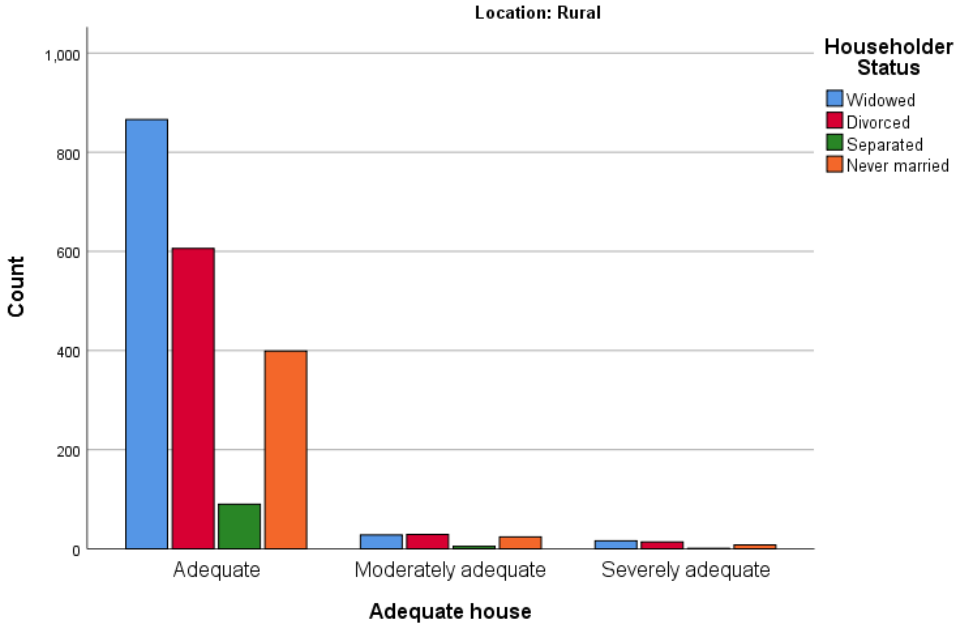

FIGURE 3b: Distribution of housing quality among rural female-headed householders

Research Question Two

The second analysis addressed the existence of significant difference in housing affordability among both the rural and urban female householders. Table 17 showed the group mean statistics where the mean housing affordability for rural female householders was 33.13%, and urban female householders had an average housing affordability of 38.04%. Table 18 showed the Levene's Test for Equality of Variances with a p-value of .205, which revealed an insignificant value. Thus, I did not reject the null of Levene's test, hence, an equal variance was assumed. Second, the t-test for Equality of Means provided the results for the actual Independent Samples t Test. The result showed a significant p-value ($p < .001$), which rejected the null in favor of the alternate hypothesis that the mean housing affordability for rural and urban female householders was significantly different. That is, housing affordability among female householders that lived in rural areas was lower ($M = 33.13$, $SD = 19.951$) than their counterparts in urban areas ($M = 38.04$, $SD = 20.277$). This finding was expected as it tend to highlight the general perception that rural housing is rather less expensive than urban. Results pertaining to the implications on housing affordability for these householders will be discussed later in the next chapter.

Table 17

Independent T-test showing group statistics

	Location	N	Mean	Std. Deviation	Std. Error Mean
Affordability	Rural	2086	33.13	19.951	.437
	Urban	10131	38.04	20.277	.201

Table 18

Independent T-test on mean of housing affordability among female householders

Levene's test of Equality	t-test for Equality of Means

	F.	Sig,	t	df	Sig. (2-tailed)	Mean Diff.	Std. error Diff	99% Confidence Interval of the Difference	
								Lower	Upper
Equal variance assumed	1.607	.205	-10.088	12215	.000	-4.905	.486	-6.158	-3.652
Equal variance not assumed			-10.197	3037.985	.000	-4.905	.481	-6.145	-3.665

The effect size provided the magnitude of the differences between rural and urban female householders (not just whether the differences occurred by chance). The commonly used effect size is the independent t-test - Eta squared, which ranges from 0 to 1, represents the proportion of variance in housing affordability that are explained by the independent groups – rural and urban householders (Meyers et al., 2013; Pallant, 2001). Eta squared = $t^2 / (t^2 + \text{degrees of freedom})$; t = -10.088, degree of freedom = 12215. That is $-10.088^2 / (-10.088^2 + 12215) = 101.768 / (101.768 + 12215) = .008$. Cohen (1988), as cited in (Meyers et al. 2013; Pallant, 2001), interprets the strength of effect of the Eta square values of .01, .06, and .14 as small, medium, and large, respectively. Therefore, the effect size of housing affordability among the rural and urban female householders in this study was .008; a rather small effect size. That is, the magnitude of the difference in the mean housing affordability of female-headed households in rural and urban areas was only 0.8 percent. Thus, I rejected the null hypothesis for research question two in favor of the alternative that the mean housing affordability for rural and urban female householders was statistically different.

Research Question Three

Housing affordability was recoded into three levels: affordable – level 1, cost-burdened – level 2, and severely cost-burdened – level 3, before addressing research question 3. Due to this manner of ordering, the ordered logistic regression was deemed appropriate for the analysis. However, the initial result violated the assumption required for the analysis, which was the test of parallel lines/ proportional odds. This was the function that described how the probability of being in a more burdened category (higher ordered category in the data) changed across the independent variables. Put in another way, it meant that the relationship of the independent variables to the dependent variable – housing affordability was different depending on the probability of being affordable, cost burdened or probability of being severely cost burdened. Hence, I utilized the multinomial logistic regression to answer research question 3. The question examined the relationship of the demographics, financial, and housing characteristics of female-headed households to housing affordability in both rural and urban areas.

Prior to running the analyses, I used the Variance Inflation Factor (VIF) and Pearson Correlation Coefficients to examine multicollinearity. The VIF test for multicollinearity reveals the correlation between two or more of the independent variables on a moderate to high level. In such cases, the parameter estimates lead to misleading results and the inflation of the standard errors of the estimates (Mendenhall & Sincich, 2003). The results of the VIF and the Pearson Correlation Coefficients indicated that the models did not have any problems with collinearity. The tables of the results were provided in the appendices.

Table 19 provided the results of the multinomial logistic model that estimated how the demographic, financial, and housing characteristics of the female householders relate to housing affordability. The Model Fitting Information contained the Likelihood Ratio chi-square test that

compared the full model (containing all the predictors) against a null (or intercept only model: no predictors). The statistical significance revealed that the full model represented a significant improvement in fit over the null model, $p < .001$. Similarly, the Goodness of Fit that contained the Deviance and Pearson chi-square tests further determined whether the model exhibited a good fit for the data. But in this case, non-significant test results were the indications needed to show that the model fitted the data, and the test results showed the Pearson chi-square ($p = .231$), and the Deviance chi-square ($p = .999$) for the rural model both fitted the model. For the urban areas, the Pearson chi-square ($p = .284$), and Deviance chi-square ($p = .135$) also both showed well-fit model. The predicted probability plots shown in the appendix further revealed the accuracy of the results in the models.

Table 19

Multinomial Logistic Regression Results Estimation the Probability of Having Affordable housing or Being Cost Burden (reference category - Severely Cost Burdened)

	Affordable housing Rural			Affordable housing Urban		
Variables	B	Odds Ratio	P-value	B	Odds Ratio	P-value
Demographic characteristics						
Status of householder						
Widowed	-.122	.885	.635	-.146	.864	.132
Divorced	-.591	.554	.004**	-.274	.760	.000**
Separated	-.083	.921	.804	-.418	.658	.000**
Never married[a]						
Race						
Black	-.031	.969	.886	-.162	.850	.012*
Asian	.130	1.138	.868	-.206	.814	.235
Two or more race	.859	2.361	.024*	.189	1.208	.246
White[a]						
Education level						
Graduate degree	-.280	.755	.426	-.522	.594	.000**
Associate/Bachelors	-.186	.830	.400	-.142	.868	.115
High School/Some college	-.040	.961	.808	.070	1.073	.312
High school, no diploma[a]						

Number of person in household 65 years or older	.348	1.417	.135	.179	1.197	.073
Age of householder	.009	1.009	.232	.007	1.007	.015*
Number of householder's children	-.220	.802	.005**	-.182	.834	.000**
Disabled person in house						
No	-.082	.921	.578	.049	1.050	.451
Yes[a]						
Region						
West	.923	2.517	.000**	.440	1.553	.000**
South	1.152	3.163	.000**	.815	2.259	.000**
Midwest	1.245	3.474	.000**	.799	2.223	.000**
Northeast[a]						
Number of nonrelative in household	.208	1.231	.394	-.144	.866	.121
Housing characteristics						
Year housing built	-.006	.994	.052	-.002	.998	.041*
Year household moved in	-.005	.995	.345	-.013	.987	.000**
Type of Housing Unit						
Mobile/Manufactured	.733	2.082	.000**	.587	1.798	.001**
Multifamily apartment	1.048	2.852	.000**	.404	1.498	.000**
Condo	-.093	.912	.776	.167	1.181	.101
Single family[a]						
Tenure[b]						
Renter	-.964	.381	.000**	-.382	.682	.000**
Owner[a]						
Financial characteristics						
Income						
$45,000 to $51,900	2.833	16.994	.000**	3.182	24.102	.000**
$35,000 to $44,999	2.566	13.010	.000**	2.652	14.178	.000**
$25,000 to $34,999	1.603	4.967	.000**	1.698	5.465	.000**
Less than $25,000[a]						
Pension						
No	.201	1.223	.346	-.055	.947	.532
Yes[a]						
Self-employment income						
No	.334	1.396	.306	.246	1.279	.087
Yes[a]						
Government assistance						
Receives 1 assistance	-.112	.894	.561	.781	2.183	.000**
Receives 2 assistance	.530	1.698	.079	1.637	5.140	.000**
Receives more than 2 assistance	1.298	3.661	.004**	1.864	6.451	.000**
Receives no assistance[a]						
		Cost Burden			Cost Burden	

	Rural			Urban		
Variables	B	Odds Ratio	P-value	B	Odds Ratio	P-value
Demographic characteristics						
Status of householder						
Widowed	-.038	.963	.888	-.134	.875	.164
Divorced	-.334	.716	.111	-.101	.904	.175
Separated	.124	1.132	.701	-.142	.868	.184
Never married[a]						
Race						
Black	.078	1.081	.725	.000	1.000	.999
Asian	-.170	.843	.839	-.056	.945	.733
Two or more race	.305	1.357	.446	.132	1.141	.413
White[a]						
Education level						
Graduate degree	.328	1.389	.366	-.359	.699	.009**
Associate/Bachelors	.413	1.512	.069	-.056	.945	.517
High School/Some college	.128	1.136	.466	.014	1.015	.833
High school, no diploma[a]						
Number of person in household 65 years or older	-.046	.955	.854	.087	1.090	.385
Age of householder	.010	1.010	.206	.004	1.004	.130
Number of householder's children	-.013	.987	.861	-.105	.900	.000**
Disabled person in house						
No	-.161	.851	.295	.062	1.064	.334
Yes[a]						
Region						
West	.393	1.481	.124	.199	1.221	.019*
South	.273	1.314	.143	.299	1.348	.000**
Midwest	.514	1.672	.010**	.363	1.437	.000**
Northeast[a]						
Number of nonrelative in household	.078	1.081	.760	-.109	.897	.227
Housing characteristics						
Year housing built	-.001	.999	.827	.001	1.001	.672
Year household moved in	-.003	.997	.635	-.005	.995	.062
Type of Housing Unit						
Mobile/Manufactured	.407	1.502	.052	-.055	.947	.773
Multifamily apartment	.752	2.120	.001**	.159	1.173	.048*
Condo	.334	1.396	.265	.002	1.002	.987
Single family[a]						
Tenure[b]						
Renter	-.432	.649	.030*	.030	1.030	.735

Owner[a]						
Financial characteristics						
Income						
$45,000 to $51,900	.868	2.382	.032*	1.428	4.172	.000**
$35,000 to $44,999	.898	2.455	.001**	1.358	3.887	.000**
$25,000 to $34,999	.689	1.992	.000**	.982	2.669	.000**
Less than $25,000[a]						
Pension						
No	.204	1.226	.350	.043	1.044	.617
Yes[a]						
Self-employment income						
No	-.002	1.002	.995	.268	1.308	.058
Yes[a]						
Government assistance						
Receives 1 assistance	-.100	.904	.602	.066	1.068	.392
Receives 2 assistance	.361	1.435	.212	.541	1.718	.000**
Receives more than 2 assistance	.325	1.384	.486	.718	2.051	.000**
Receives no assistance[a]						

Significance level * 0.05, ** 0.01; a: represents the reference category for the variables.
b – the variable occupy without paying rent was merged with owner to accommodate limited sample size for category at severely cost burden among rural households

The results of the models showed that some of the demographic, housing, and financial characteristics of the female householders had significant relationships with housing affordability. The demographic characteristics that were significant when modeling housing affordability with being severely cost burdened included status of householders, race, education, age of householder, number of children, and region. The housing and financial characteristics significant at this level were year a house was built, year household moved in, type of housing unit, tenure, household income, and government assistance. The demographic variables that were significant at being cost burdened as opposed to severely cost burdened were education, number of children, and region. The housing and financial characteristics included type of housing unit, tenure, household income, and government assistance.

Demographic characteristics

The coefficients of the regression models for the status of householders showed all four categories as negative, which meant that these householders had lower odds of being in the affordable housing category as opposed to cost burdened. However, among the rural householders, those who were divorced had a significant relationship with housing affordability compared to the never married, while holding all other factors constant. At the same time, among the urban householders, those who were divorced and those separated had a significant relationship with housing affordability compared to the never married, holding all other factors constant. Thus supporting the finding in research question two that the female householders were cost burdened. With respect to race, Black householders in urban areas had 15% lower odds of affordable housing units compared to White householders, holding all else constant., whereas, the two or more races in the rural areas had 2.361 times higher odds of affordable housing units than White householders, as opposed to being cost burdened.

Contrary to the general expectation regarding graduate degree holders, female householders in urban areas with graduate degrees had 41% lower odds of having affordable housing as opposed to cost burdened than those with no high school diploma, while holding all other factors constant. At the same time, these householders had 30% lower odds of being cost burdened as opposed to severely cost burdened compared to those with no high school diploma, while holding all else constant. Furthermore, age of the householders in urban areas was positively significant with housing affordability. That is, for an additional one year in the age of the householder, there was 0.7% more likelihood to have access to affordable housing as opposed to being cost burdened, while holding all other factors constant. Thus suggesting that the older householders in urban areas were less likely to be cost burdened, as shown in the

Pearson correlation. Intuitively, the number of children by the householder had a negative relationship with housing affordability in both the rural and urban areas. That is, for every one child added to a household, the odds of having an affordable housing unit reduced by 20% among rural householders, and by 17% among urban householders, holding all else constant. The more children a householder had, the higher the likelihood of not having enough money left after spending on housing costs, leading to being cost burdened. This finding aligned with existing research that female-headed households with more children experienced housing hardship and worse economic conditions than those without children (Cook et al., 1994; Gabe, 2013; Skobba, 2016; Snyder & McLaughlin, 2004; Snyder et al., 2006).

Holding all else equal, regional differences had a positive and significant relationship with housing affordability in both the rural and urban areas. The results revealed that female householders in rural West compared to those in the rural Northeast had 2.517 times higher odds of having affordable housing, as opposed to cost burdened. Those in the rural South and rural Midwest were 3.163 times and 3.474 times more likely to have affordable housing as opposed to cost burden, compared to rural Northeast, holding all else constant, respectively. Households in the urban areas also showed similar patterns, while holding all other factors constant. Concerning the relationship between being cost burdened as opposed to severely cost burdened, a positive and significant relationship existed among all the regions except rural West and rural South, holding all else constant.

Housing characteristics

Age of a house showed a negative significant relationship with housing affordability among urban householders, holding all else constant. That is, for an additional year that a house was built, the householders had 0.2% lower odds of having affordable housing units as opposed

to being cost burdened. In short, those that lived in older housing in urban areas were more likely to be cost burdened, which was consistent with past research. Similarly, the year a household moved in also showed a negative and significant relationship with housing affordability among urban female householders, holding all else constant. That is, the householders that were recent movers tended to reduce housing cost burden, all else being equal. This finding aligned with past studies that associated housing mobility with the reduction in housing costs among low-income households (Goetz, Skobba & Yuen, 2010; Skobba, Bruin & Carswell, 2013). Others also revealed that single women households tend to move frequently in search of affordable housing options (Cook et al., 2012; Skobba, 2016). Taking a cue from housing adjustment theory, families resort to housing mobility in response to their housing needs (Morris & Winter, 1978), which in this case was to reduce cost burden.

Type of housing unit, on the other hand showed a positive relationship with housing affordability in both rural and urban areas. The female householders in rural areas that lived in mobile homes or multifamily apartments compared to those in the single family units had 108% or 185% higher odds of having affordable housing units, holding all else constant, respectively. At the same time, those that lived in multifamily units in the rural areas had 112% higher odds of being cost burdened as opposed to severely cost burdened. This finding suggested that mobile homes and multifamily homes were important sources of affordable housing for rural householders, yet research showed that these are not readily available in rural areas (Ziebarth, 2015; Scally et al., 2018). Last, female householders that rent their homes were more likely to be cost burdened in both the rural and urban areas compared to homeowners, while holding all else constant. Furthermore, those in the rural areas had 35% lower odds of being cost burdened as opposed to severely cost burdened compared to homeowners, holding all other factors constant.

This finding supported housing adjustment theory as the housing norm favored homeownership, but the theory does not address issues relating to housing cost burden.

Financial characteristics

Household income of female householders in both rural and urban areas was positively significant with housing affordability, holding all else constant. First, rural female householders in the income category $45,000 - $51,900 were 16.994 times more likely to be in the affordable housing category compared to those in the lowest income category of less than $25,000, holding all else equal, while their urban counterparts were 24.102 times more likely of being in the affordable housing category. Second, rural female householders with income category $35,000 - $44,999 were 13.010 times more likely to have affordable housing, and their urban counterparts were 14.178 times more likely of having affordable housing than those in the lowest income of less than $25,000. Third, rural female householders with income $25,000 - $34,999 were 4.967 time more likely to have affordable housing, and their urban counterparts were 5.465 times more likely to have affordable housing than those having income less than $25,000, holding all else constant.

Similarly, the relationship between being cost burdened and severely cost burdened was positively significant with all the income categories of these householders. Among both rural and urban householders, those in the higher income groups had higher odds of being in the cost burden category than severely cost burdened. Thus, those with relative high income were less likely to be cost burdened, holding all else constant. This result is quite compelling and practical since having more income meant that a householder was able to afford all housing expenses and still have enough to spend on other necessities. Further, with respect to receiving government assistance, there was a positive and significant relationship with housing affordability among

urban householders. However, those that received two or more forms of government assistance among rural householders had a positive and significant relationship with housing affordability, while holding all else constant. These householders were 3.661 times more likely to have affordable housing compared to those not receiving any government assistance, holding all else constant. Meanwhile, female householders in urban locations that received government assistance, be it one, two or more than two forms of assistance all had higher likelihood of having affordable housing than those not receiving any, holding all else equal. Thus suggesting that access to government assistance reduced cost burden among female householders in urban areas than those in rural areas. This result aligned with existing studies regarding government assistance and female householders, and more discussions on government assistance will be provided in the discussion section. Therefore, to answer research question three, the null hypothesis was rejected in favor of the alternate that the demographics, financial, and housing characteristics of female-headed families relate to housing affordability.

Research Question Four

Table 20 provided the results of the binary logistic model that estimated how the demographic, financial, and housing characteristics of the female householders related to housing quality. The Likelihood Ratio test that compared the fitted model against the intercept-only showed a significant result ($p < .001$) for both rural and urban output, which revealed a good model fit. Similarly, the Goodness of fit with the Deviance and Pearson Chi-square revealed insignificant values of 0.422 and 0.955 for rural, and .528 and .976 for urban, respectively. The Test of Models Effects, which tested the overall contribution of each of the independent variables to the model, showed that year housing was built, and race were

significant results in rural location, while status of householder, type pf housing unit, disability status, year housing was built, and race were all significant in urban locations.

Table 20

Binary Logistic Regression Results Estimation on the Probability of Housing Quality

	Rural female householders			Urban female householders		
Variables	B	Odds Ratio	P-value	B	Odds Ratio	P-value
Demographic characteristics						
Status of householder						
Widowed	.821	2.272	.024*	.161	1.175	.256
Divorced	.074	1.077	.793	.169	1.184	.115
Separated	.490	1.633	.316	-.247	.781	.069
Never married[a]						
Race						
Black	-.631	.532	.018*	-.218	.804	.010**
Asian & Two or more race	.784	2.191	.290	.186	1.204	.294
White[a]						
Education level						
Graduate degree	.183	1.200	.714	.284	1.329	.186
Associate/Bachelors	.463	1.589	.172	.078	1.081	.527
High School/Some college	.302	1.353	.201	.126	1.135	.185
High school, no diploma[a]						
Number of person in household 65 years or older	.116	1.123	.734	.205	1.227	.157
Age of householder	-.018	.982	.104	.007	1.007	.056
Number of householder's children	-.021	.979	.854	.002	1.002	.966
Disabled person in house						
No	.218	1.243	.320	.362	1.437	.000**
Yes[a]						
Region						
West	-.478	.620	.263	.168	1.183	.189
South	-.636	.530	.049*	-.060	.942	.571
Midwest	-.007	.993	.984	.155	1.168	.132
Northeast[a]						
Number of nonrelative in household	-.523	.593	.068	-.057	.945	.629
Housing characteristics						
Year housing built	.016	1.016	.000**	.013	1.013	.000**
Year household moved in	.013	1.013	.094	.007	1.007	.062
Type of Housing Unit						
Mobile/Manufactured	-.369	.691	.199	-.892	.410	.001**
Multifamily apartment	.321	1.379	.347	-.719	.487	.000**

Condo	.818	2.265	.199	.099	1.104	.570
Single family[a]						
Tenure						
Occupy without paying rent	-.844	.430	.144	-.031	.970	.960
Renter	-.542	.582	.063	-.279	.756	.047*
Owner[a]						
Financial characteristics						
Income						
$45,000 to $51,900	-.275	.759	.493	.048	1.049	.792
$35,000 to $44,999	.106	1.111	.753	-.027	.973	.839
$25,000 to $34,999	-.037	.964	.894	-.201	.818	.060
Less than $25,000[a]						
Pension						
No	-.379	.684	.230	-.045	.956	.721
Yes[a]						
Self-employment income						
No	.100	1.105	.837	.062	1.064	.752
Yes[a]						
Government assistance						
Receives 1 assistance	-.494	.610	.071	-.120	.887	.273
Receives 2 assistance	-.384	.681	.388	-.143	.866	.250
Receives more than 2 assistance	.254	1.290	.745	-.296	.744	.056
Receives no assistance[a]						

Significance level * 0.05, ** 0.01, a represents the reference category for each of the variables.
Asian and Two or more race is combined into one variable because the percentage of Asian in rural area is low.

The results of the model showed that the demographic, and housing characteristics of female householders relate to housing quality for both rural and urban householders, while the financial characteristics were not significant.

Demographic characteristics

Status of the householders had positive coefficients, except for those who were separated in urban locations. Only the widowed in rural locations had a significant relationship with housing quality compared to the never married, holding all else constant. That is, female householders who were widowed and lived in rural areas were 2.272 time more likely to have

quality housing compared to those who were never married in rural areas, holding all else constant. The result was somewhat insightful because it highlighted the economic benefit of having a spouse as the widowed could inherit their houses, and so, have higher likelihood of adequate housing unit than the never married.

Black female householders had lower odds of having quality housing units both in rural and urban location, holding all else constant. The model showed that Black householders in rural areas had 47% lower odds of having quality housing compared to White householders, while those in urban areas had 20% lower odds of quality housing units. This result was consistent with previous research in two ways; first, poverty is more pronounced among Black single women than Whites (Northrop, 1994; Snyder et al., 2006), which translates into lower housing quality. Second, Black female householders are more likely to be renters, and live in public housing than their White counterparts (Cook & Rudd, 1984), and White single mothers have better housing conditions (Cook & Bruin, 1994). Other significant demographic characteristics showed that householders in urban areas without a disabled person in the house had a positive relationship with housing quality, holding all else constant. Last, concerning regional characteristics, female householders in the rural South were more likely to have lower housing quality than those in the rural Northeast. More precisely, those who lived in the rural South had 47% lower odds of having quality housing than householders in rural Northeast. This was consistent with housing literature that rural South tend to have lower quality housing units (Pink-Harper, 2018).

Housing characteristics

Age of a house was positively significant with housing quality for the householders in both rural and urban locations. That is, householders that lived in newer housing units were more likely to have quality housing than those that lived in older units. Put in another way, for an

additional year that a household was built, there was .02% higher odds of quality housing for rural householders, and .01% higher odds for urban householders, while holding all else constant. Concerning type of housing unit, urban female householders that lived in mobile/manufactured homes were more likely to have lower quality homes compared to those that lived in single family units, while holding all other factors constant. More precisely, those in the urban areas who lived in mobile/manufacture homes had 59% lower odds of having quality housing units compared to those that lived in the single family houses, holding all other factors constant. At the same time, those in urban areas that lived in the multifamily units also has 51% lower odds of quality housing than those living in single family units, while holding all else constant. This result provided insight to the housing adjustment theory on single family homes being the societal norm regarding structure type. Similarly, householders that rented in urban areas were more likely to have lower housing quality compared to homeowners. The model also showed that renters had 24% lower odds of quality housing than homeowners in urban areas, which aligned with housing adjustment theory regarding homeownership norm in the United States.

Therefore, to answer research question four, the demographic, and housing characteristics of female householders in both rural and urban areas had significant relationship with housing quality, while there was not enough evidence for the financial characteristics of female householders in this study in relation to housing quality.

Summary of results

The results from the analyses showed that not only was there a difference in housing quality among female-headed households in rural and urban areas, but also, the demographic, housing, and financial characteristics of these households had significant relationships with

housing affordability. Similarly, there was statistical significant difference in the average housing affordability among female householders in rural and urban areas. At the same time, the demographic and housing characteristics of these householders had significant relationships with housing quality, except in relation to the financial characteristics of the sample. A more in-depth discussion of the implications of these findings was explored in the next section.

CHAPTER FIVE

DISCUSSIONS AND CONCLUSION

The purpose of this study was to examine how the demographic, housing, and financial characteristics of female-headed households in rural and urban areas relate to housing affordability and housing quality. First, the differences in housing quality among rural and urban female householders were established using Chi-square analysis. Second, the statistical difference in housing affordability among these population was investigated using a T-test analysis. Next, the relationships between the demographic, housing and financial characteristics of these householders with housing affordability were investigated using a multinomial logistic regression model. Last, the relationships between the demographic, housing and financial characteristics and housing quality were examined using a binary logistic regression model.

This chapter provides a discussion of the results and highlights the relevance of the results to theory and previous empirical work. This is followed by a discussion of the limitations and strengths of the study and implications in light of the findings were drawn regarding housing affordability and housing quality of female-headed households in the rural areas of the United States. The section also provides contributions to the overall body of literature as well as suggestions for future research.

Housing quality among female householders

Differences in housing quality among rural and urban female householders

Prior studies on rural housing conditions highlight the presence of poor-quality homes in rural areas as part of the distinctive challenges in rural areas of the U.S (Housing Assistance Council, 2012; Scally et al., 2018). However, contrary to these past findings, the result showed that 94% of female householders in rural areas had adequate housing conditions, while 92% of those in urban areas reported the same. Thus suggesting that female householders that lived in rural areas were more likely to have adequate housing units than their urban counterparts. This finding could be due to several possible explanations. One, the frequency distribution showed that there were more homeowners in rural areas than urban, and so, the higher percentage of homeowners among the rural female householder may contribute to higher housing quality. Past research associated homeownership with better housing quality (Kutty, 1999), and the housing adjustment theory also revealed a similar pattern concerning owner-occupied homes and quality housing (Morris & Winter, 1975). Two, the distribution showed that there were more Whites householders among the rural households, and so, the higher likelihood of quality housing in rural areas that urban areas (Housing Assistance Council, 2012). In addition, a past empirical study found that female householders in nonmetropolitan areas experienced fewer challenges with housing quality (Laux & Cook, 1994). Thus, my finding is consistent with past research on differences in housing quality among rural and urban female householders. At the same time, rural householders who were widowed had the highest count on housing quality compared to those in the urban areas. This further aligns with discussion on homeownership because these widowed were more likely to be homeowners, thus suggesting the economic benefits of marriage among the rural female householders. In addition, the measure of housing adequacy in this study only examined the overall condition of the housing unit as opposed to the individual components of the house. As a result, this finding did not provide evidence for structural, plumbing, and other

inadequacies found in rural areas in previous research (Bentzinger & Cook, 2012; Housing Assistance Council, 2012; Pendall et al., 2016).

The characteristics of the female householders and housing quality

Regarding race of householders, I found that Black female householders had lower housing quality compared to their White counterparts in both rural and urban areas. More precisely, Black rural householders had higher odds of having inadequate homes, which is consistent with existing studies on rural poverty that Black rural communities largely were at economic disadvantage, and so, had lower quality of life and inadequate housing structures (Grover, Franklin & Horent, 2018 Kutty, 1999). Similarly, female householders that lived in rural South had a negative significant relationship with housing quality. This result aligns with previous studies on the predominance of low quality housing structures in the rural South (Grover et al., 2018; Lee et al., 2012; Pink-Harper, 2018). Other categorization of rural communities ranged from amenity-rich communities to chronically poor rural communities, and some part of the rural South falls into the chronically poor category (Hamilton et al., 2008), which further reinforces the existence of lower quality housing in the rural South.

Furthermore, age of a house has a strong positive significant relationship with housing quality for female householders in both rural and urban areas. The result was intuitive and plausible as newly constructed housing units typically have higher quality than older structures. Past studies also showed that age of a building had significant effects on housing adequacy (Kutty, 1999). Surprisingly, housing tenure did not have a significant relationship with housing quality among the rural householders. This finding is inconsistent with past research, which revealed that renters in rural areas occupied substandard and inadequate housing so, housing quality remained a prevailing problem in rural areas (Fitchen, 1992; Golant & La Greca, 1994;

Housing Assistance Council, 2000; Morton, Allen & Li, 2004; Van Zandt et al., 2008). These in all revealed the demographics and housing characteristics of female-headed households in the rural areas that relate to housing quality.

Housing affordability among female-headed householders

Differences in housing affordability among rural and urban female householders

The average percentage of housing costs relative to income for rural female householders is lower than for urban householders. This result suggests several insights into the housing situations of these householders. First, a sizeable portion of female householders both in rural and urban areas are cost burdened. This result is consistent with past research concerning housing challenges of female-headed households (Cook & Bruin, 1994; Cook et al., 1994; Cook, et al., 1994; Laux & Cook, 1994; Skobba, 2016; Spain, 1990; Stone, 2006). Second, fewer cost-burdened households among female householders in rural areas is concomitant with lower home values and housing costs in rural areas than in urban (Albrecht et al., 2018; Bentzinger & Cook, 2012). In addition, rural areas also have more manufactured homes, which is a more affordable housing option. Past studies found more manufactured homes in rural areas (Van Zandt et al., 2008), which also help households living in them to save almost 50 percent in housing costs (Dyar, Lim & Skidmore, 2018). In all, there is evidence found female householders in rural areas are cost burdened, despite lower housing costs in rural areas than urban areas.

The characteristics of female householders and housing affordability

The result that the female householders are cost burdened aligns with the concept of feminization of poverty. As Pearce (1978) revealed that women, despite having increased opportunities in higher educational institutions and labor force, still had a higher likelihood of

living in poverty relative to men. Unexpectedly, the result of education and housing affordability showed that female householders with higher levels of educational degrees had a higher likelihood of living in unaffordable housing in both rural and urban locations than those with lower levels of education. This may reflect the difficulty in paying for housing cost on a single income. However, this was not expected in that past studies attributed higher education among women to better employment opportunities and a reduction in the effect of feminization of poverty (Chant, 2003; Rodger, 1996: Thomas, 1994; Tiamiyu & Mitchell, 2001). Others specified that a higher education degree among single women translates into better employment opportunities (Mattingly et al., 2011). Higher education was also associated with the likelihood of increased salaries and retirement benefits leading to reduced housing cost burden among female householders (Cook et al., 1994). However, another contrasting finding reveals that higher level of educational degree did not benefit rural women as they are crowded in lower-paying occupations and industries than their urban counterparts (Smith & Glauber, 2013). Notwithstanding, one would not expect those with graduate degree to be equally cost burdened, but these householders could also have incurred other financial obligations due to the number of years spent in obtaining their degrees. There are existing research on higher education and the willingness for young people to take on more debt (Dwyer, Hodson & McCloud, 2013; Lim, Lee & Kim, 2019). This could reflect the increasing mismatch between housing and incomes that also would be exacerbated by households living on a single income. However, these financial constraints are beyond the scope of this study. But from this perspective, it is plausible for those with graduate degrees to be cost burdened or even severely cost burdened than those without high school diploma.

The study findings, that Black householders are more likely to live in housing that is not affordable, are consistent with previous research. However, this was not the case for rural Black householders. One explanation for this is that there are relatively few Black householders in rural areas in this study. Nevertheless, householders who identified as two or more races in the rural areas were 136% more likely of having affordable housing compared to White households. Little wonder the housing adjustment theory highlighted discrimination based on race as one of the constraints households face as they seek to meet their housing needs (Morris & Winter, 1998). Further, McConnell (2013) expressed challenges of Black householders in relation to the concentration of subprime loans and foreclosures that impacts minority borrowers and minority neighborhoods and their higher unemployment rates relative to Whites.

Regarding the relationship between being cost burdened and severely cost burdened, there was a positive and significant relationship among rural householders that lived in mobile homes or multifamily. This finding has important policy implications as rural communities often lack the capacity to develop affordable housing. On the other hand, developers may not be interested in rural communities, partly because developing multifamily units in rural areas is quite challenging and participating in the LIHTC program is costly and difficult (Housing Assistance Council, 2018; Scally et al., 2018). The findings also dispel the perception that rural communities are affordable as householders who rent their homes were more likely to be cost burdened than homeowners. Similar to the difficulty in developing multifamily units in rural areas, previous research emphasized highly competitive nature of obtaining public investments in rural rental housing (Ziebarth, 2015), which adds to the recurring lack of rural rental housing (Housing Assistance Council, 2013, 2018; Scally et al., 2018).

In addition, rural single women in the study received lower income than their urban counterparts, which is a consistent finding in past research concerning the economic conditions of women in rural communities (Brown & Litcher, 2004; Pruitt, 2007; Smith, 2017; Smith & Glauber, 2013; Snyder & McLaughlin, 2004). This finding also supports the understanding that single women in rural areas tend to be poorer than those in urban areas (Smith, 2017; Tickamyer & Wornell, 2017). Unsurprisingly, there was a strong positive relationship between income and housing affordability. As income increases, it becomes easier for householders to cover all housing expenses, and still had enough left to carry out all other necessary financial obligations. Nonetheless, as the income of these rural householders increased, so did their ability to meet their housing costs.

Concerning government assistance, past research on female householders reveal that housing assistance helps lower housing costs for the householders (Berger et al., 2008; Cook et al., 1994; Kalil & Ryan, 2010). However, government assistance benefited female householders in rural and urban areas differently in this study. Those that received any form of government assistance in urban areas were likely to have affordable housing. But among rural householders, those that received more than two forms were the only group likely to have affordable housing. This finding concurs with past research that rural female householders have limited means of participating in the welfare program that can help alleviate their economic challenges (Tickamyer et al., 2017; Warlick, 2017). For example, scholars emphasized insufficient public transportation in rural America as a major drawback in accessing government assistance (Warlick, 2017). This study also suggests insight that those householders in urban locations had easier physical access to these programs and resources, and so, received more benefits than their rural counterparts. Besides, in principle, housing assistance programs are designed to favor urban

areas as the focus centers on deconcentrating poverty and expanding housing and economic opportunities in urban areas (Scally et al., 2018). Policy implications concerning government assistance programs and housing affordability for female householders has to do with providing equal access for both urban and rural householders. Therefore, female householders in rural areas are more likely to be at a disadvantage with respect to housing assistance programs than their urban counterparts.

Limitations and Strengths

This study is not devoid of some limitations. First, the study relied on a cross-sectional data set, which only captured a snapshot of the data collected at one point in time. Using such a dataset had consequential results as the findings from this study reflect the responses from the female-headed households in 2013. The research is limited in that the findings cannot explain the associations established over time.

Second, this study only demonstrates the existence of significant associations and relationships between the dependent and independent variables. These are housing affordability and housing quality, and the independent variables include the demographic, housing, and financial characteristics of female householders. Therefore, the findings from this research cannot establish causality. More work would be needed to build causal relationships, and the need for longitudinal data to track respondents over time, which helps to discover the changes or patterns necessary for the analysis.

The third limitation of the study is the sample size of female householders in rural areas when conducting the bivariate analysis. Some of the variables had quite small sample sizes, which led to the omission of some cross tabulation as they were below the expected threshold.

However, beyond these limitations, the results provide a contemporary understanding of the characteristics of female-headed households that relate to housing affordability and housing quality of those in rural and urban locations in the U.S.

Strengths of the Study

Despite these limitations, there are some valid strengths of this research. First, the research question is relevant because female householders in the United States are common and these householders are cost burdened. Second, this study used a national data set, the American Housing Survey (AHS), which allows generalized results to all female-headed households in the United States, for the year of analysis. Third, the selection of variables of interest was driven by theory and existing literature on housing conditions of female-headed households, which also help to explain results and provide discussion. Lastly, this study used an appropriate data set known to include both detailed information on housing affordability and housing quality variables for female-headed households.

Contributions to the Literature

This study contributes to the literature in that it represents the contemporary research that compared housing affordability and housing quality among female-headed householders in rural and urban areas. This comparison helps to give more perspectives to the underlying differences among female householders in rural and urban locations regarding the specific characteristics that relate to having affordable housing as well as quality housing units. Despite lower housing costs in rural areas, female householders in the study are cost burdened. Second, the study uses the multivariate analysis procedures to explore the relationship between the demographic, housing, and financial characteristics of female householders with housing quality and

affordability. This provides insight into the current existing conditions of rural householders compared to those in urban areas within the literature. Third, it gives more understanding to the existing conditions of rural female householders regarding adequate and affordable housing. Therefore, rural housing researchers and rural housing professionals need to be exposed to the characteristics of these householders. This work contributes to the growing body of literature in housing and community development, as researchers explore the patterns of behavior of households as described in the housing adjustment theory, particularly among the rural female-headed households.

Policy Implications

Findings from this study have policy implications. As previously discussed, the results show that female householders both in rural and urban locations are cost burdened. But, at the same time, housing assistance programs that should alleviate housing costs for these householders tend to benefit those in urban than rural areas. Therefore, there should be more options for female householders in rural areas regarding access to housing assistance programs, particularly for those with children.

Income is highly significant and positively relates to housing affordability among female householders in rural areas. However, single women in rural areas earn lower income than their urban counterparts. Thus, efforts to improve job opportunities for these women cannot be overemphasized. At the same time, employment opportunities and support services in rural areas go hand-in-hand. Therefore, there is the need to increase support services such as child care services, public transportation, and other resources that would boost economic activities and job opportunities for female householders in rural areas.

Third, more work is needed regarding the provision of rental housing to rural communities, particularly female householders. However, a one-size-fits-all approach to rural rental housing assistance in the attempt to promote housing affordability and quality may not produce intended outcomes.

Suggestion for future research

The results of this study are expansive and are relevant to a large proportion of female householders in the United States. Future research would also benefit by utilizing time-series data as it helps to track the patterns and trends among female householders. Particularly concerning the mobility measures, the use of time series also helps to identify particular times that the householders moved. This process will expand the literature base and provides more guidance for rural housing analysts to understand the behaviors of female householders in meeting their housing needs. Future research may also be improved by further comparing different household characteristics such as single-parent households, those with or without children, and married households with children and those without children. An examination of these households will shed more light on the changing family patterns and how these can have significant effects on housing costs and quality. Last, housing cost burden among female householders with higher educational degrees reflects a greater willingness to take on housing debt among people with higher levels of education. It also mirrors the increasing mismatch between housing and income, which could be exacerbated by households living on a single income. This distinctive pattern among female householders is also a good area to explore in future research.

Conclusion

This research empirically examines the relationship between the demographic, housing, and financial characteristics of female householders with housing affordability and housing quality. The findings provide insight into how these characteristics in both rural and urban locations significantly relate to adequate and affordable housing. That said, female-headed householders in rural areas are cost-burdened, particularly those with children. At the same time, householders in rural areas have more adequate housing quality than their urban counterparts. The results also show that female householders in urban areas tend to benefit from government assistance more than their rural counterparts. Policy implication identified for the rural householders lies in the access to rental assistance, support services, and economic opportunities to improve housing affordability.

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APPENDIX

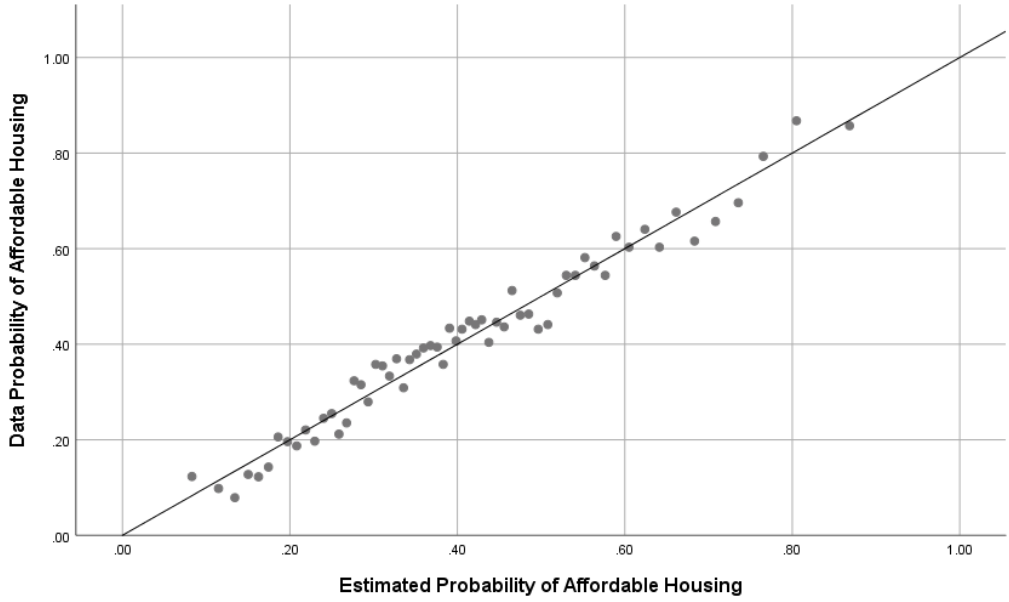

Figure 4: Predicted Probability Plot 1

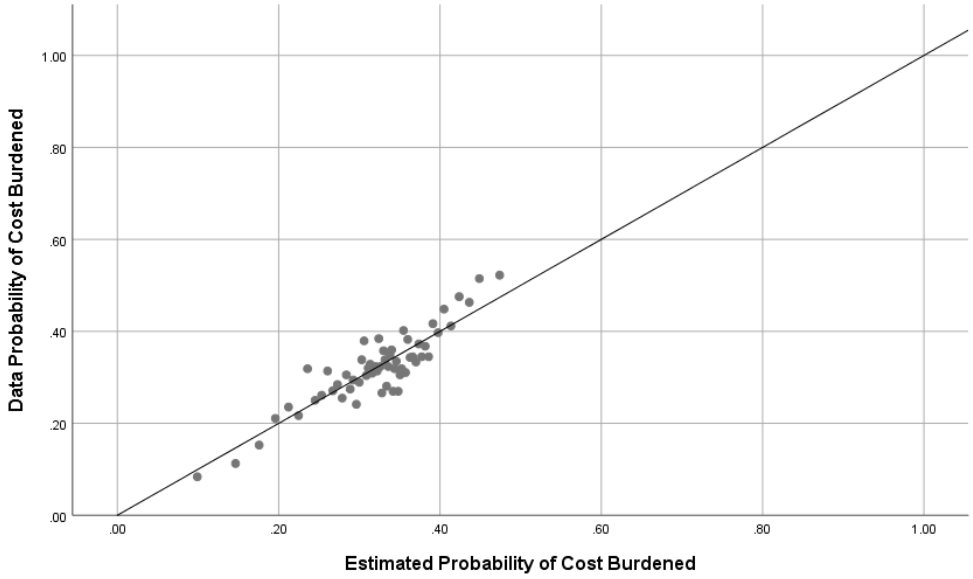

Figure 5: Predicted Probability Plot 2

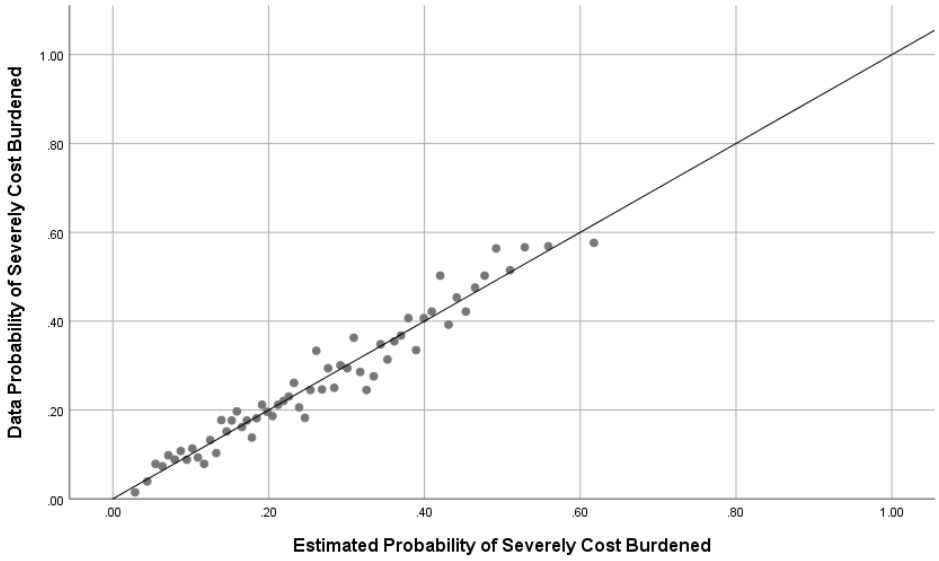

Figure 6: Predicted Probability Plot 3

Table 21: Multicollinearity Results

		Collinearity Statistics
Variables	Tolerance	VIF
Year housing built	.788	1.269
Number of person in household 65 years or more	.282	3.546
Age of householder	.209	4.786
Number of householder's children	.708	1.412
Year household moved in	.492	2.034
Number of nonrelative in household	.891	1.122
Rural –Urban locations	.826	1.211
Widowed	.350	2.861
Divorced	.577	1.734
Separated	.850	1.176
High school diploma/Some College	.560	1.785
Associate / Bachelors	.548	1.824
Graduate degree	.761	1.314
Disability Status - Yes	.804	1.243
Black	.798	1.254
Asian	.967	1.034
Two or more race	.969	1.032
Single family	.422	2.369

Condo	.820	1.220
Mobile/manufactured home	.744	1.345
Self-employment income -Yes	.981	1.020
Social Security -Yes	.370	2.700
Owner	.376	2.663
Occupy without paying rent	.957	1.045
Northeast	.634	1.578
Midwest	.693	1.443
West	.736	1.358
Receives 1 assistance	.714	1.400
Receives 2 assistance	.646	1.549
Receives more than 2 assistance	.764	1.309
$25,000 to $34,999	.778	1.286
$35,000 to $44,999	.776	1.289
$45,000 to $ 51,900	.823	1.215