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An Assessment of Housing Affordability in Cache County, Utah

Melanie Jewkes
Utah State University

AN ASSESSMENT OF HOUSING AFFORDABILITY

IN CACHE COUNTY, UTAH

by

Melanie D. Jewkes

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Approved:

_____	_____
Lucy M. Delgadillo Major Professor	Randall M. Jones Committee Member
_____	_____
Jean M. Lown Committee Member	Byron R. Burnham Dean of Graduate Studies

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ABSTRACT

An Assessment of Housing Affordability

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Melanie D. Jewkes, Master of Science

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Major Professor: Dr. Lucy M. Delgadillo
Department: Family, Consumer, Human Development

Multiple housing affordability indexes are used to measure and assess housing affordability. Each index has its own definition of affordability, causing varying viewpoints on what is to be considered affordable or unaffordable. Four indexes were used in this study: two from the Department of Housing and Urban Development (HUD), one from the National Association of Realtors (NAR), and the last from the National Low Income Housing Coalition. The indexes were applied to Census data to assess the housing affordability situation of both homeowners and renters in the census tracts of Cache County, Utah. The measures together show distinct differences in the housing markets throughout the county. The study provides implications for housing counselors, educators, lenders, and policy makers, and provides suggestions for preventing housing crisis, including the benefits of the residual income approach for determining housing affordability. (64 pages)

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Melanie D. Jewkes

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CHAPTER I

INTRODUCTION

Housing affordability is currently a prominent concern in the United States, because housing costs have increased more than incomes over the last few years. "Nationally, the median household income grew by about 60 percent from 1990 to 2006, roughly matching inflation. At the same time, the median home value…more than doubled" (Associated Press, 2007, p. A2). Due to the rapid increase in home values and prices, and the lack of increase in income at a similar rate, "homeowners… are spending significantly bigger shares of their incomes on housing costs" (Associated Press).

Perhaps one reason for the increase in housing prices is the increased emphasis on becoming a homeowner. The United States Government has been encouraging people to become home owners over the last few decades. Many programs have been established in order to help lower-income households afford homeownership, such as down payment and closing cost assistance, partially subsidized interest rates on some types of government sponsored loans, and other housing programs administered at local levels (Schwartz, 2006). These programs have helped increase the national homeownership rate to roughly 68% (U.S. Census Bureau, 2007b).

Along with the increased encouragement to become homeowners, the qualifying guidelines for mortgages have become more lenient. The traditional front-end qualifying ratio represents the maximum proportion of income that should be spent on housing, and the back-end ratio represents the maximum income that should be allocated to both housing and total consumer debt payments. Until recently, the qualifying guidelines for a FHA and conventional mortgage were 29/41 and 28/36, respectively. Within the last few

years the guidelines were increased to 31/43 and 28/38, respectively, meaning that a household with what was once considered "too much debt" could now qualify for a mortgage and borrowers are now qualified for larger mortgages. Lenders also began approving borrowers regardless of ability to pay the loan and subprime lending has increased (Rushton, 2007). At the same time, the nation as a whole experienced negative savings rate (Bureau of Economic Analysis, 2008) and increased levels of debt—a notorious combination for housing instability. Currently, the housing and financial markets are in the process of correcting for the large amount of subprime lending and corresponding foreclosures.

The issue of housing affordability goes beyond the scope of increasing homeownership; it deals with sustainability—with maintaining homeownership. A household experiencing housing affordability problems is more likely to default on mortgage payments and more likely to lose the home due to foreclosure (Delgadillo & Pimentel, 2007). An increased number of foreclosures correlate with depreciation in neighborhood property values (Immergluck & Smith, 2006).

Households buying more house than they can afford can lead to reduced housing sustainability as consumers are forced to sell or lose their homes because they are unable to make the monthly payment. Problems of housing affordability and sustainability are increasing as more consumers are affected by questionable loans that were not necessarily approved based on their ability to pay (Eakes, 2007). Loans such as adjustable rate mortgages, jumbo loans, and other "alternative" subprime lending seem to be hindering sustainable homeownership by leading consumers into default and foreclosure. The Center for Responsible Lending has addressed this issue, and posits that

one solution to the growth in subprime lending would be a clearer standard of the borrower's ability to pay (Eakes).

Given the fact that house prices are rising more quickly than income, that qualifying ratios have been raised, that the nation is experiencing a subprime market failure and foreclosure crisis, and that there is no clear standard of a borrower's ability to pay, it is no surprise that affordability is a prominent housing problem. In order to more fully address the issue of housing affordability, this study seeks to provide information on housing affordability measurements as applied to a local housing market. This information will be of value to housing counselors, educators, lenders, and policy makers. The purpose of this study is to provide a picture of a local housing market based on existing housing affordability indicators.

Today, there are many ways in which a lender may "qualify" a borrower for a loan. Some base qualifications on standard ratios set by Government Sponsored Enterprises. Others are based on undocumented income, and yet others have their own unique way of qualifying. There is not an across-the-board standard for qualifying, nor is there a universally accepted standard for measuring housing affordability.

In order for the issue of housing affordability to be addressed adequately, there needs to be a clearer link between what a household can afford and the loan amount for which a household can qualify. A variety of housing affordability indexes exist which act as "measuring sticks" for determining a person's ability to pay for housing (Van Vliet, 1998). Yet, the housing affordability measurements are "incapable of catering for the wide variety of circumstances among tenants" (Yip & Lau, 2002, p. 409). Each measurement is unique and is calculated in a variety of ways, depending on the users of

the measurements, just as lenders are qualifying households according to diverse standards.

The literature shows that there are several indexes for measuring housing affordability (Stone, 1993; Van Vliet, 1998; Yip & Lau, 2002), some of which are better known and more frequently used. For example, the U.S. Department of Housing and Urban Development's standard of 30% (housing is considered affordable if no more than 30% of gross income is applied to housing expenses) is commonly used, often because of the ease of calculation (Bogdon & Can, 1997; Linneman & Megbolugbe, 1992). The indexes are appropriate for certain situations, but one point of view (Stone, 1993) holds that some measurements tend to underestimate affordability problems for larger households that have higher living expenses than smaller households.

Given that housing costs and stock vary greatly from one part of the country to the other, even from one part of the state to another, housing should be studied on a local level, with appropriate measurements. However, there is a lack of an affordability measurement to assess a borrower's ability to afford housing costs, which is widely used by both consumer advocates and the housing industry. There is not a universally accepted measurement that includes all aspects of housing affordability. Because there is not one universally accepted measure, different players in the housing market use their own criteria. This makes it difficult to determine what is affordable, and, therefore, makes it challenging to determine what needs to be changed and developed in policies to address the issues of housing affordability on a local level.

The purpose of this study is to describe how the different stakeholders assess housing affordability in a local market in order to demonstrate that different housing

affordability measurements yield different results depending on the constituencies behind the measurement. The housing affordability measurements chosen are based on the varied stakeholders in the housing market, including legislators, industry, and consumer advocates. These measurements will be applied to extant data from the 2006 U.S. Census on the census tracts in Cache County, Utah in order to assess housing affordability from the viewpoint of the stakeholders in the housing market. This study will be useful for housing counselors, mortgage lenders, housing educators, consumers, and policy makers who deal with issues relating to a household's ability to afford a home. This study will answer the following questions:

1. What is the profile of housing affordability according to each measurement when applied to the local housing market in Cache County, Utah?

2. What are the characteristics of the affordable/unaffordable housing markets, based on the results of the measurements, in Cache County, Utah?

3. What are the theoretical or empirical differences among the housing affordability measurements?

CHAPTER II

LITERATURE REVIEW

Definition of Housing Affordability

The concept of housing affordability has been widely used for the past 15 years or so (Robinson, Scobie, & Hallinan, 2006), but defining it in a precise way is challenging. Housing affordability could simply be defined as shelter that is cost-effective, meaning that a household can "pay without incurring financial difficulties" (Robinson et al., p. 1). However, this description does not provide enough detail, leaving unanswered questions such as "what is considered cost-effective?" A review of the literature reveals there is no exact definition of housing affordability; Linneman and Megbolugbe (1992) stated that "talk of housing affordability is plentiful, but a precise definition of housing affordability is at best ambiguous" (p. 371), leaving unsolved issues. Although housing affordability is a housing topic of interest which has been discussed and debated over time, there is still no complete and encompassing definition. Instead, there are multiple definitions or vague explanations provided by scholars, researchers, and lenders.

When thinking of affordability, one might intuitively think of the financial stress a certain purchase would make on one's life, which would include factors such as how much income is available to cover that purchase, and how much is leftover for other expenses (Robinson et al., 2006). Stone (2006) has asserted that housing affordability "expresses the challenge each household faces in balancing the cost of its actual or potential housing, on the one hand, and its nonhousing expenditures, on the other, within the constraints of its income" (p. 151). Sometimes households are unable to balance the

stress of a home purchase and thus experience an affordability problem. Hulchanski (1995) explains that a household has a housing affordability problem "when it pays more than a certain percentage of income to obtain adequate and appropriate housing" (p. 471). The problem therein lies in determining a "certain percentage of income," that fits well with all housing affordability explanations.

Some definitions of housing affordability are based on whether or not a household can qualify for a mortgage (Linneman & Megbolube, 1992), because without a mortgage as leverage, most households could not purchase a house. But defining housing affordability based on ability to qualify for a loan is often criticized because of the leniency of mortgage qualifying standards in recent years, and the availability of "questionable" loans to virtually all types of borrowers, whether or not they are actually "qualified" for a mortgage loan (Eakes, 2007). Borrowers who obtain a loan that is not appropriate for them may end up facing mortgage default and foreclosure, causing a myriad of other difficulties, including problems securing a place of residence and a damaged credit rating, which raise the cost of future credit.

Stone (2006) explained that "affordability is not a characteristic of housing—it is a *relationship* between housing and people" (p. 153). In general, housing affordability is seen as a relationship between housing costs and income. As stated in one article: "Affordability can generally be thought of as a continuum…[A]t one end is easily affordable, at the other definitely not affordable. But at which point do we say that something that was affordable now becomes unaffordable?" (Robinson et al., 2006, p. 2). How is one definition to account for all aspects of housing affordability, including households who have already achieved homeownership? How is one definition to

account for varying levels of individual household preferences and to distinguish between life cycle stages of households, household size, and somehow accommodate low-income households that may never be able to "afford" homeownership?

Indeed, housing affordability is a "very slippery thing to try to grasp" (Bourassa, 1996, p. 1870), in part because "different definitions yield different estimates of the magnitude and distribution of the [housing affordability] problem" (p. 1868). Due to the lack of a uniform definition of housing affordability, this study will define housing affordability using three common standards. As Stone (2006) stated:

> Such indicators and standards make it possible to arrive at conclusions—potentially contentious to be sure—about the overall extent of affordability problems and needs, as well as their distribution socially and geographically. They also provide an important foundation for the at least somewhat rational formulation, implementation, and evaluation of policies and practices that deal with affordability. (p. 152)

Indicators, or standards, of housing affordability are commonly used in the context of housing affordability. There exists a variety of housing affordability indexes, which act as "measuring sticks" for determining a person's ability to pay for housing (Van Vliet, 1998, p. 11). The literature shows that there are multiple indexes for measuring housing affordability (Belsky, Goodman, & Drew, 2005; Bogdon & Can, 1997; Linneman & Megbolugbe, 1992; O'Dell, Smith, & White, 2004; Robinson et al., 2006; Stone, 1993; U.S. Department of Housing and Urban Development, 2006; Van Vliet, 1998; Yip & Lau, 2002), some of which are better known and used more often than others. A few have been used for many decades, and others are less known. Each index

has a unique way of measuring and, in some cases, defining housing affordability, based on data collected or available.

Housing affordability measurements are used in a variety of situations, including the following: (1) jurisdictional Housing Impact Analysis, which aids a jurisdiction in obtaining funding through Community Development Block Grants; (2) to approximate a potential market for building housing, for example, aiding the industry; (3) to aid in understanding the local housing market; (4) to determine fair housing discrimination issues; and (5) to help determine worst-case housing and homelessness issues. While each housing affordability measurement is unique, each illustrates a particular aspect of the local housing market, which assists many organizations involved in the housing market, such as housing counseling agencies, policy makers, housing development corporations, homebuilders, mortgage brokers, and others.

In order to fulfill the purposes of this study, three housing affordability measurements have been chosen based on the different stakeholders' use of the concept of housing affordability, and also based on the limitations of data. The following housing affordability measurements will be discussed: the U.S. Department of Housing and Urban Development (HUD), the National Association of Realtors, and the Out of Reach Housing Wage. These measurements represent a broad spectrum of the measure available, but are not conclusive. The following section will discuss each measurement in turn, including the description of the measure, the historical background, as well as the strengths and weaknesses as applied to a local housing market.

U.S. Department of Housing and Urban Development Measure

The United States Department of Housing and Urban Development (HUD) uses a simple percentage-of-income measure to define housing affordability. It states that a household spending more than 30% of its gross annual income on total housing costs (including principal and interest payments on the mortgage, property taxes, utilities, and insurance) has a housing cost burden, and if a household spends more than 50% of their gross annual income on housing the household has a severe housing cost burden. The HUD measurement, or ratio, implies that total housing costs at or below 30% of gross annual income are "affordable" (Belsky et al., 2005). HUD's measurement is the most widely used and the most conventional measure of housing affordability; it is often considered *the* definition of housing affordability (Linneman & Megbolugbe, 1992), and has shaped views of who has affordability problems, the severity of problems, and the extent of the problems (Belsky et al.).

The origination of the 30% ratio has its roots in the 19th century adage: "one weeks pay for one month's rent," which derived from 19th century researchers who studied household budgets (Hulchanski, 1995). In the 20th century, the Housing Act of 1968 specifically mentioned that rent paid in public housing "should not exceed 25% of a household's income" (O'Dell et al., 2004, p. 31); this standard was increased to 30% of a family's income in 1980 (O'Dell et al.). Hulchanski believes it is unclear as to whether or not legislation increased the standard because average households *tend to* or *ought to* pay more for housing.

Users of HUD measurement. Despite the uncertainty of the origin of the 30% rule, it is the legislative standard used today and is "consistent with lender ratios for qualifying for a mortgage loan" (O'Dell et al., 2004, p. 32). In addition to qualifying ratios, it is used in the administration of rental housing subsidies, such as the Section 8 housing vouchers (Bogdon & Can, 1997); it is utilized as a sort of "rationing" method to allocate subsidy dollars (Hulchanski, 1995). The HUD ratio is often used to describe housing markets and affordability issues in local housing market analyses, which are used to help jurisdictions obtain funding to support needed programs. It is also used by housing counselors and educators to assess how much first-time homebuyer clients can afford. The HUD measurement has been around for some time and will probably stay for a while longer, as it is used in legislative guidelines, market analyses, and housing counseling and education practices. It is commonly accepted throughout the nation and has even been accepted and utilized internationally (Robinson et al., 2006).

Strengths of HUD measure. In addition to being a commonly accepted measurement of housing affordability, the HUD ratio has other strengths. It is easy to compute and simple to comprehend (Belsky et al., 2005; Bogdon & Can, 1997; Hulchanski, 1995; O'Dell et al., 2004). The data needed for this measurement is often readily available from a few different sources (Bogdon & Can). As the measurement is reported in ratio form, it can be compared easily over time (Bodgon & Can; Stone, 2006); the ratio is a useful way to describe what households spend on housing at given points in time, which provides a way to analyze trends, and can lead to developing concepts and to testing hypotheses (Hulchanski). While this measurement does not cover all areas of housing affordability, if provides a helpful point to begin examining housing affordability

problems (Bogdon & Can). Due to its simplicity in computing and comparing across time, it is widely used and accepted as an indicator of housing affordability (Stone).

Weaknesses of HUD measure. As with all measurements, the HUD ratio is criticized for multiple reasons. The ratio does not take into consideration a cost of living variable (O'Dell et al., 2004), which can be a vital variable considering the differences in housing markets across the country. It also does not control for quality of housing over time (Bogdon & Can, 1997; Linneman & Megbolugbe, 1992), or for differences that may exist between household preference and choice (Belsky et al., 2005; Bogdon & Can; Linneman & Megbolugbe; O'Dell et al.), as some households may be willing to spend more of their income to live in a larger or more luxurious home or apartment.

Hulchanski (1995) has argued not against the ratio itself, per se, but against the way in which it is used and interpreted. This ratio should not be used as a definition of housing needs. In Hulchanski's words: "to define everyone spending more than 30 per cent of income on housing as having a housing problem, for example, takes a descriptive statistical statement and dresses it up as an interpretative measure of housing need" (¶ 37). The ratio should not be used to predict whether or not a household is willing or able to pay rent or mortgage. Although the assumption between income and ability to pay is often made, the ratio does not "account for the actual financial constraints faced by individual households…" (Bogdon & Can, 1997, p. 48), which would aid any attempts to predict whether or not a household is able to pay. However, using the ratio to predict ability to pay is inappropriate, as it is just a descriptive measure (Hulchanski).

The HUD ratio, in its simplicity, fails to consider other factors which influence housing cost, such as interest rates, home appreciation (Bogdon & Can, 1997), and

increases in housing costs such as household utilities (Linneman & Megbolugbe, 1992). Finally, the last flaw of the HUD ratio is similar to many other measurements that use income as a factor. Typically, the HUD ratio uses transitory income, rather than permanent income; however, it makes more sense from a policy prospective to use permanent income to show long-term affordability rather than affordability at a given point in time (Bogdon & Can). Although it might make more sense from a policy perspective, Linneman and Megbolugbe argue that "the housing cost burden should [not] be expected to be constant over time, given the life-cycle patterns of housing demand" (p. 372) as younger households may purchase larger housing than their income can currently afford, based on the expectation of income increase in the future.

In conclusion, the HUD measurement of housing affordability has been around long enough to be widely accepted and commonly used; and it has also been used long enough to have received much criticism and debate. However, Hulchanski (1995) pointed out that the ratio is valid and appropriate if used as a ratio purely for the purposes of describing a housing market, analyzing trends, and for the administration of subsidies.

National Association of Realtors Measure

Sometimes called "standard ability-to-pay ratio," the National Association of Realtors (NAR) measure of housing affordability measures whether or not a typical family could qualify for a mortgage loan on a typical home (National Association of Realtors, n.d.b). A "typical home" is defined as "the national median-priced, existing single-family home as calculated by NAR," and "typical family" is defined as "one earning the median family income as reported by the U.S. Bureau of the Census" (NAR).

Due to the nature of the index, it actually measures more than whether or not a typical family could qualify for a loan. It shows how far over- or under-qualified the median family is (U.S. Department of Housing and Urban Development, 2006). The index reports a number, derived from a formula: a value of 100 signifies that a family with the median income has exactly enough income to qualify for a mortgage on the median-priced home; and a value above 100 means that a family has more than enough to qualify. This index assumes a 20% down payment and also assumes that the monthly principal and interest payment on the mortgage "cannot exceed 25% of the median family monthly income" (NAR). This index is important to consider because it is based on an industry's perspective and not on government recommendations, as is HUD.

Users of NAR measure. The NAR housing affordability measurement is used by its creator and advocator, the National Association of Realtors. It has been seen as "the most widely reported index for measuring housing affordability" (U.S. Department of Housing and Urban Development, 2006, p. 41). The NAR measurement was first published in 1983 (Center for Real Estate Studies, n.d.). Since 1983, the NAR publishes monthly statistics on the housing affordability index. The national media constantly focuses on the NAR measurement and has adopted it as an acceptable measure of housing affordability (Center for Real Estate Studies). Many newspaper articles discussing the national housing affordability situation base their analyses on the NAR measure. One could say that the NAR measure is the media's "pet" housing affordability measure.

Strengths of NAR measure. The NAR measurement is useful in assessing housing affordability. It can be used in virtually any housing market, local or national, "so long as the median house price and median family income are known" (U.S. Department of

Housing and Urban Development, 2006, p. 41). It is relatively simple to compute, as it only needs two variables; and other variables such as the distribution of house prices and family incomes are not needed (USD HUD). Another strong point of this measurement is that it is available for many previous years on national and metropolitan levels. It is also a widely recognized indicator of housing affordability (Stone, 2006).

Unlike other housing affordability measurements, the NAR measurement does consider mortgage interest rates, which is an important factor in housing affordability (Linneman & Megbolugbe, 1992) because interest rates affect the monthly mortgage payment and the total interest on the loan. Linneman and Megbolugbe, however, point out one issue with the inclusion of interest rates in the measurement. The equation for the measurement uses the effective interest rate given by the Federal Housing Finance Board's Monthly Interest Rate Survey, which provides the "average effective mortgage rate reported by surveyed lenders on loans closed during a certain period" (p. 381). The issue therein lies in the qualification of a loan. The lenders do not automatically qualify a borrower based on the "average effective mortgage rate" but on a contracted rate that is dependent on the loan amount, the size of the down payment, and the credit score of the borrower. In all actuality, a borrower is approved based on a potentially different rate than the "average effective mortgage rate" used in the NAR measurement, which can affect the "potential borrower's ability to meet the monthly mortgage payment" (Linneman & Megbolugbe, p. 381).

Weaknesses of NAR measure. While the NAR measurement is simple to compute and often used, it is not a comprehensive measure. It does not take into account total housing costs, including property taxes, insurance and utilities (U.S. Department of

Housing and Urban Development, 2006), as does the HUD ratio. Another weakness in the measurement is the way results are reported. It can be useful when used on a local level, but when national results are used to broadly define housing affordability, the measure loses its impact; it cannot be assumed that the national results are the same as the local situation, because "housing affordability is a local market problem" (Linneman & Megbolugbe, 1992, pp. 373-4). The NAR measurement cannot show "how many and which kinds of households can and cannot afford those properties that are for sale" (Stone, 2006, p. 159), which would be useful in certain studies. It also does not consider housing quality, location, or neighborhood quality (Belsky et al., 2005). Further, the NAR measure uses the national median family income that does not include single-person households. The national median family income is higher than the national median household income, which includes single-person households who also purchase homes (Harris, 2002). The exclusion of some households that could purchase a home is an obvious weakness in this measurement of housing affordability. Recognizing its flaws, the NAR measurement, in its simplicity, misses some important aspects of housing affordability.

National Low Income Housing Coalition Housing Wage Measure

The final housing affordability measurement to be examined is the Housing Wage provided by the National Low Income Housing Coalition (NLIHC) Out of Reach data. The Out of Reach data uses information from the Department of Housing and Urban Development (HUD) to develop statistics to come up with the Fair Market Rent (FMR) and the needed hourly wage (called the "housing wage") to afford the FMR in a given

area. “Out of Reach 2006 compares the Housing Wage to local wage and income levels for every county, metropolitan area, and state in the country” (NLIHC, n.d.). For example, in order to afford the two-bedroom FMR of $678 (as estimated by HUD) in Utah, a household must earn an hourly, full-time wage (called a Housing Wage) of $13.04, to avoid paying more than 30% of income on housing (NLIHC).

Users of housing wage measure. The NLIHC is an interest group focused on solving housing affordability problems for low-income households. The NLIHC represents consumer advocates, as opposed to the legislation and housing industry, and lobbies policy makers by pushing the need for affordable housing within reach of the low-income renters (NLIHC).

Strengths of housing wage measure. One unique aspect of the housing wage is that it is geared specifically toward renters. It is important to consider data specifically for renters because renters make up nearly one-third of the U.S. population (NLIHC, n.d.). While the HUD ratio can be adapted to renters, the housing wage is designed for the renters. The strengths of this measurement are similar to the HUD ratio strengths, because the FMR and the Housing Wage are calculated based on paying no more than 30 per cent of income for housing costs (NLIHC, n.d.).

Weaknesses of housing wage measure. As the housing wage can only be applied to renters, it is not helpful in determining the housing affordability situation for a homeowner. Also, all the weaknesses that exist for the HUD ratio also exist for the Housing Wage.

None of the three measurements account for inflation, anticipated price appreciation, tax benefits, after-tax cost of homeownership, burdens presented by down

payment requirements, or adjusts for changes in housing quality (U.S. Department of Housing and Urban Development, 2006). These factors are sometimes included in housing affordability assessments, but are difficult to quantify.

Summary

The literature review demonstrates that there is no one universally defined way to assess housing affordability. Consequently, the stakeholders involved in housing define housing affordability differently, showing that it is important to consider more than one measurement when assessing the housing affordability situation of a local housing market. The three measurements chosen for this study are based on the stakeholders represented by the measurement: the HUD ratio, representing the legislative standard; the NAR measure, representing the real estate industry and media; and the Housing Wage, representing the NLIHC consumer advocacy group. Each measure offers its own value for assessing the housing affordability of a local housing market.

CHAPTER III

METHODS

The purpose of this study is to assess housing affordability measurement issues in Cache County, Utah, using the census tracts as the unit of analysis. This will be accomplished by using extant data sources and housing affordability measurements. This section will provide a description of the sample, data sources, measurements, variables, and data analysis.

Sample

The sample for this study will be gathered from the extant data source, collected from the 2006 Federal Financial Institutions Examination Council (FFIEC) Census data. The sample consists of the 22 census tracts in Cache County, Utah. The total sampling frame is the total number of households in Cache County, Utah, which is estimated to be 27,500 according to the 2000 Census data.

Procedures

Data for this study were collected from the 2006 Federal Financial Institutions Examination Council (FFIEC) Census data. The FFIEC provides Census data on multiple levels, such as census tracts, blocks, counties, and metropolitan areas (FFIEC, 2007a). This study will use the 2006 FFIEC census tract data which is based on the 2000 Census (FFIEC, 2007b). The overall national response rate for the 2000 census was 67%. Utah's

response rate was 68% and Cache County's response rate was 73% (U.S. Census Bureau, 2007a).

Measurements

When considering housing affordability, it is important to understand that there are many factors that play a part in determining housing affordability. These factors generally include income, housing costs, and house value (as value is generally the maximum price at which one could sell or buy a home), but also include interest rates, supply of housing, and future mortgage or rent payments (taking into account inflation and appreciation; Robinson et al., 2006). Due to the many factors that contribute to housing affordability, it is important to "consider more than one measure" (Robinson et al., p. 9). As discussed in the literature review, four housing affordability measurements will be used to calculate housing affordability. The variables and the methodology for each are discussed in turn, as follows.

U.S. Department of Housing and Urban Development for Homeowners

The following variables will be used for the HUD homeowner measurement: median household income, median home value, number of households with income in ranges beginning with "$10,000-14,999" and ending with "$200,000 and above." All of these variables are available on the FFIEC census tract data.

In addition to these variables, there are two variables which will be created given the variables listed above. The HUD measurement states that no more than 30% of gross annual income should be spent on housing. However, there are no data available on

individual households' housing costs. This study will use the median home value to determine what income is needed to afford the median value home. In order to compute the income needed to afford the median value home, a few variables will have to be calculated, using a Hewlett Packard 10BII Financial Calculator, as shown below:

Interest rate = (effective rate at time of study)
N = 360 payments
PV = median home value
Payment on median home value mortgage = PMT
Total housing costs = PITI payment = PMT / 80%
Monthly gross income needed to afford home at median value = PITI / 30%
Yearly gross income needed = monthly income x 12 months

The created variables will be used to calculate the proportion of households in a given census tract that could afford the median value home without incurring a housing cost burden. This will be done by looking at the total number of households within the income range needed to afford the median value home. It is also possible to identify the households for which a home at the median value would be a cost burden (above 30% of income spent on housing costs). This would include all households within the census tract that earn less than the income needed to afford the median value home. It can be divided into parts to include households that are spending between 31 and 50% of income on housing and 51% or more. This is done by using the above methodology and substituting "31%" in place of "30%" as follows.

Monthly gross income needed to have cost burden on home at median value = PITI / 31%

Any household at or below the income given by the equation above are households that would experience a cost burden. Severe cost burden can also be calculated by replacing 31% with 50%. Although this does not show the number of households that are experiencing a cost burden in the same way that the rental households

are described, it shows the number of households that are unable to afford the median value home, based on the HUD measurement.

National Association of Realtors

The NAR measure will use the following variables: median home value and the median family income. The NAR measure calculation uses the median home price. Due to data limitations, median home value will be used in place of median home price. In order to determine the index value, which shows how far over or under qualified the median income family, is, the monthly principal and interest payment must be calculated, assuming a 20% downpayment. This is accomplished in the following formula (NAR, n.d.a):

> Monthly Principal and Interest Payment (PMT) = Median value home x 80% x [(interest rate/12)/1-(1/(1+interest rate/12)^360)]

Once this amount has been determined, the necessary income needed to qualify for a loan for the median value home can be calculated as follows, assuming a qualifying ratio of 25%:

> Monthly Qualifying Income (MQI) = (PMT / 25%)
>
> Yearly Qualifying Income = MQI x 12 months

Lastly, in order to calculate the index value, which reports the percentage of income a family must have in order to qualify for a mortgage on a median valued home, the following was calculated:

> (Median family income / yearly qualifying income) x 100 = the percentage of income a family at median income level has in relation to the income needed to qualify for the median value home.

U.S. Department of Housing and Urban Development for Renters

The HUD measure uses specific data on rental households that show the number of rental households experiencing a housing cost burden. The FFIEC data includes variables on rental households within an income range (from less than $10,000 to $100,000 or more) that are spending less than 30%, and up to 35% or more, of income on housing. This data will provide information on how many rental households within a given income range are experiencing a housing cost burden as well as the number of rental households within a given income range that are not experiencing a housing cost burden, as measured by the HUD measurement.

National Low Income Housing Coalition Housing Wage

The housing wage measure uses the following variables: the housing wage for Cache County, Utah, the number of renter-occupied housing units at a given household income level (such as "below $10,000," "between $10,000 and $19,999," and so on up to "$100,000 or more"), and the total renter-occupied housing units at a given cash rent (such as "less than $100," "$100-149," "$150-199," and so on up to "$2000 or above"). With these variables, it is possible to determine how many households making at least the annual income equivalent to the Cache County housing wage can afford an apartment at the FMR. To do this, the housing wage will be converted into an annual income, as follows:

Housing wage (at a given FMR) x 40 hours per week x 50 weeks per year = annual income needed to afford a rental unit (at a given FMR)

This annual income will be the threshold for those that can afford the given FMR, any rental household at or above that income can afford a rental unit at the FMR, and any rental household below that income cannot afford a rental unit at the FMR. Using the rental units with a given cash rent, the number and percentage of rental units at or below the FMR can also be determined, using the FMR as the threshold.

Data Analysis

Descriptive statistics were used in order to answer the research questions. The research questions are answered in the results section, as outlined in the measurements portion of this chapter. Each result produced by the measurements describes the profile of the local housing market according to its definition of housing affordability. The measures, together, describe characteristics of the affordable and unaffordable housing markets in Cache County, as seen through legislative, industry, and consumer advocate perspectives. The study describes how the different stakeholders assess housing affordability on a local market in order to demonstrate that different housing affordability measurements reveal different perspectives depending on the constituents behind the measurement, and to demonstrate the need for a more comprehensive housing affordability measure.

CHAPTER IV

RESULTS

This chapter contains results from the data analysis. Descriptive statistics were used to show the profile of housing affordability for Cache County, Utah, and to show the characteristics of the affordable and/or unaffordable housing markets in Cache County. Table 1 shows the census tracts, the corresponding cities and towns, the total number of owner-occupied households, and the total number of renter-occupied housing units per tract.

The census tracts and corresponding cities or towns are shown in the tables. Census tracts do not overlap, however, one census tract may have more than one city or town included in its boundaries. For ease of reading and interpreting the results, census tracts were simplified to include only the city or town that it mostly includes, unless it is equally split. For example, census tract 4.01 is mostly North Logan, but includes a sliver of the northern part of Logan. Therefore, Logan has been dropped from the list; this is also the case with a few census tracts, including 4.01, 4.02, 5.00, 7.01, 11.01, 11.02, 12.00, 14.00, and 15.00. All of the tables will reflect this adjustment.

The Utah State University Campus in Logan (census tract 7.02) and the far-east portion of Cache County (16.00) were eliminated from of the study for the following reasons. The Utah State University campus (7.02) has virtually no owner-occupied housing, except for a mobile home park that will be closing in 2011. The far-east portion of the county (16.00) only includes 17 households. This tract includes the high foothills and homes located in Logan Canyon, which are mostly vacation or secondary homes, and

not primary residences, except for those 17 households. Both of these census tracts are considered outliers in the results and were removed from the following tables and analysis.

Table 1

Number of Households per Census Tract

Census tract	City/Town/CDP	Total owner occupied households (#)	Total rental occupied households (#)
1.01	Cove, Lewiston, Richmond	1205	181
1.02	Cornish, Clarkston, Lewiston, Trenton	465	55
2.01	Smithfield (West)	848	135
2.02	Smithfield (East)	1343	169
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	1204	159
4.01	North Logan	695	277
4.02	North Logan, Hyde Park	662	62
4.03	North Logan, Hyde Park	1185	142
5.00	Logan	2767	1613
6.00	Logan	2314	1714
7.01	Logan	1338	173
7.02	Logan (Campus)	795	730
8.00	Logan	2031	1586
9.00	Logan	1240	690
10.00	Logan	1997	1097
11.01	Logan, Providence	1260	220
11.02	Logan, River Heights	1173	96
12.00	Providence, Millville, Nibley	1550	124
13.00	Mendon, Petersboro, Wellsville	1289	178
14.00	Hyrum	1755	257
15.00	Paradise, Avon	473	45
16.00	Far East of County	8	9

Department of Housing and Urban Development Index for Homeowners

The income needed to afford a home at the median value was computed for each census tract, and is shown in Table 2. The income needed to afford a home at the median value was calculated as explained in Chapter III using the 2006 annual average 30-year mortgage interest rate, which was 6.41 (Freddie Mac Website, 2008).

The Department of Housing and Urban Development (HUD) accepts the 30 % ratio as the cut-off point for considering affordable and unaffordable housing. If a household spends 30% or less of its gross income on housing, it is said to be affordable. If a household spends more than 30% but less than 50%, it is considered to have a "cost burden," and if a household spends more than 50%, it is considered to have a "severe cost burden." Table 2 presents the percentage of households that could afford a home at the median value, the percentage of households incurring a cost burden, and a severe cost burden, along with the variables used to calculate the percentages.

In calculating the HUD index for homeowners a new variable was created, namely, income needed to afford a home at the median value. Most of the time the calculated income needed fell within the income range provided in the raw data. For example, if the income needed to afford a home was $32,748, and the income range in the raw data was between $30,000 and $34,999, it was decided that the number of households making an income within this range would be counted toward the group that does not have a cost burden.

Table 2

Results for HUD Homeowner Affordability Measure

Census tract	City/Town/CDP	Median home value	Income needed to afford median home value	House-holds without cost burden (30% or below) (%)	House-holds with cost burden (31 - 50%) (%)	House-holds with severe cost burden (50% +) (%)
1.01	Cove, Lewiston, Richmond	$114,600	$35,879.00	61.24	22.99	15.77
1.02	Cornish, Clarkston, Lewiston, Trenton	$104,600	$32,748.00	70.11	18.28	11.61
2.01	Smithfield (West)	$119,900	$37,538.50	63.68	21.58	14.74
2.02	Smithfield (East)	$145,800	$45,647.00	61.73	21.37	16.90
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	$126,300	$39,542.00	61.96	24.17	13.87
4.01	North Logan	$157,500	$49,310.00	45.04	22.30	32.66
4.02	North Logan, Hyde Park	$211,300	$66,154.00	56.04	21.30	22.66
4.03	North Logan, Hyde Park	$136,100	$42,610.00	66.50	23.80	9.70
5.00	Logan	$95,800	$29,993.00	61.76	22.73	15.50
6.00	Logan	$116,300	$36,411.50	37.81	32.37	29.82
7.01	Logan	$147,200	$46,085.50	60.91	16.37	22.72
8.00	Logan	$114,700	$35,910.50	25.50	30.77	43.72
9.00	Logan	$98,500	$30,838.50	51.29	33.47	15.24
10.00	Logan	$102,000	$31,934.00	47.47	31.65	20.88
11.01	Logan, Providence	$123,200	$38,571.50	67.38	19.44	13.17
11.02	Logan, River Heights	$177,800	$55,665.50	68.63	17.90	13.47
12.00	Providence, Millville, Nibley	$148,100	$46,367.00	62.52	24.84	12.65
13.00	Mendon, Petersboro, Wellsville	$142,300	$44,551.50	67.03	19.32	13.65
14.00	Hyrum	$117,400	$36,755.50	68.49	20.34	11.17
15.00	Paradise, Avon	$166,900	$52,253.00	45.67	30.66	23.68

Results for the percentage of households without a cost burden show similar numbers across all census tracts, with few exceptions. When the HUD index was applied to Cache County, it showed the median at 61.75% of the households without a housing cost burden, at 22.52% for housing cost burden, and at 15.37% for severe housing cost burden. There exist a few noteworthy census tracts in the results of HUD index. They are in Logan (6.0 and 8.0), with the lowest percentages of households without a cost burden.

Two Logan census tracts (6.0 and 8.0) are just west of the Utah State University campus, heavily populated with students. Tract 8.0 has the highest percentage of households with a severe cost burden, and tract 6.0 has the third highest percentage with severe cost burden, possibly in part to this high student population. Students are more likely to earn less income than non-students, but will still pay the necessary housing costs to live (or, in some cases, may have the housing costs paid by parents or student loans). In addition, some students purchase a home and expect the payment to be made with the help of renter-roommates.

The National Association of Realtors Affordability Index

The National Association of Realtors index value represents the percentage of income a family at the median income has in relation to the income needed to qualify for the median priced home, assuming a 20% down payment. The 20% down payment is taken into consideration in the following table, meaning that the actual median value is 20% higher. Due to data limitations, median home value was used in place of median home price, assuming hypothetically that a home will never sell for more than its value. Therefore, the use of median home value could overstate the actual median priced home.

Table 3 shows the index values for each census tract, as well as the variables needed to obtain that calculation, as discussed in Chapter III. An index value of 100 signifies that a family with the median income has 100 per cent of the income needed to qualify for a mortgage on the median-priced home. A value above 100 is interpreted as a family having more than enough to qualify, and a value below means a family only has a percentage of the income needed to qualify.

The NAR measure shows all but five census tracts have more than enough income to qualify and, therefore, afford a home at the median value (assuming a 20% down payment). Why are most census tracts viewed as having more than enough income to afford a home at the median value? One answer is found in the way the NAR calculates its measure. It assumes a 20% down payment, meaning that a household buys the home already owning 20% of it. Other affordability assessments, such as the HUD index, do not assume a down payment and therefore a household buys 100% of the home, making it not as affordable as buying only 80% of the home.

The five census tracts that do not have enough income to afford a home at the median value (all index values below 100) are all in the north parts of Cache County, including Richmond, the east side of Smithfield, Hyde Park, and North Logan. It is interesting to note that some of these areas, including Smithfield, Hyde Park, and North Logan, have larger homes and more expensive land plots than most other parts in Cache County, but not necessarily higher incomes to balance the increased values. The lowest index proportion reported is Cove, Lewiston, and Richmond (1.01), which only has 67.61% of the income needed to afford a home at the median value. This is due to the lowest tract family income of all census tracts of $18,531.

Table 3

Results for NAR Affordability Measure

Census tract	City/Town/CDP	Tract median value[a]	Tract yearly median family income	Yearly qualifying income	Index proportion
1.01	Cove, Lewiston, Richmond	$91,680.00	$18,531	$27,408.48	67.61
1.02	Cornish, Clarkston, Lewiston, Trenton	$83,680.00	$23,333	$25,017.12	93.27
2.01	Smithfield (West)	$95,920.00	$30,303	$28,676.16	105.67
2.02	Smithfield (East)	$116,640.00	$31,011	$34,870.56	88.93
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	$101,040.00	$31,152	$30,206.88	103.13
4.01	North Logan	$126,000.00	$31,292	$37,668.96	83.07
4.02	North Logan, Hyde Park	$169,040.00	$39,063	$50,536.32	77.30
4.03	North Logan, Hyde Park	$108,880.00	$43,194	$32,550.72	132.70
5.00	Logan	$76,640.00	$44,513	$22,912.32	194.28
6.00	Logan	$93,040.00	$44,971	$27,815.52	161.68
7.01	Logan	$117,760.00	$45,542	$35,205.60	129.36
8.00	Logan	$91,760.00	$49,840	$27,432.48	181.68
9.00	Logan	$78,800.00	$51,176	$23,557.92	217.23
10.00	Logan	$81,600.00	$51,910	$24,395.04	212.79
11.01	Logan, Providence	$98,560.00	$52,717	$29,465.76	178.91
11.02	Logan, River Heights	$142,240.00	$55,217	$42,524.16	129.85
12.00	Providence, Millville, Nibley	$118,480.00	$55,387	$35,420.64	156.37
13.00	Mendon, Petersboro, Wellsville	$113,840.00	$59,487	$34,033.44	174.79
14.00	Hyrum	$93,920.00	$69,844	$28,078.56	248.74
15.00	Paradise, Avon	$133,520.00	$74,048	$39,917.28	185.50

[a]20% downpayment adjusted, according to NAR measure

The five census tracts with the highest percentage of income needed are Logan (5.00, 9.00, & 10.00), Hyrum (14.00), and Paradise and Avon (15.00). The highest is Hyrum (14.00), reporting an index value of 248.74. This tract has the third highest tract income, but the eighth lowest median value, producing a combination of affordability. Hyrum (14.00), Paradise and Avon (15.00) are the farthest south in the county. These two tracts also have the two highest median tract family income. Logan (5.00, 9.00, & 10.00) do not have as high of incomes as Hyrum (14.00), Paradise, and Avon (15.00), but have the three lowest home values, making the index value higher for these tracts.

Department of Housing and Urban Development Index for Renters

The HUD index for renters is used to show rental households considered affordable (spending less than 30% on housing costs), those considered having a cost burden (30 – 50%) and severe cost burden (50% or more). Data were not available to compute those with severe cost burden, but only those considered affordable and those with cost burden. The percentage of renter-occupied housing units experiencing a housing cost burden, and the percentage of renter-occupied housing units spending less than 30% of gross yearly income on housing are presented in Table 4.

The variables provided in the original data were grouped into percentage of rental households spending less than 29.9%, percentage of rental households spending between 30 and 34.99%, and percentage of rental households spending more than 35%, as shown in Table 4. The original raw data provided the number of rental households and the number of rental households for which the percentages reported in the table were calculated.

Table 4

Results for HUD Renters Affordability Measure

Census tract	City/Town/CDP	Rental households per census tract (%)	Rental households spending less than 29.9% (%)	Rental households spending 30 - 34.99% (%)	Rental households spending more than 35% (%)
1.01	Cove, Lewiston, Richmond	13.06	78.20	9.02	12.78
1.02	Cornish, Clarkston, Lewiston, Trenton	10.58	77.50	17.50	5.00
2.01	Smithfield (West)	13.73	57.03	6.25	36.72
2.02	Smithfield (East)	11.18	50.93	28.57	20.50
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	11.67	57.52	7.08	35.40
4.01	North Logan	28.50	72.18	4.89	22.93
4.02	North Logan, Hyde Park	8.56	74.07	14.81	11.11
4.03	North Logan, Hyde Park	10.70	75.42	4.24	20.34
5.00	Logan	36.83	62.45	5.75	31.80
6.00	Logan	42.55	67.93	6.64	25.42
7.01	Logan	11.45	79.72	7.69	12.59
8.00	Logan	43.85	58.26	7.09	34.64
9.00	Logan	35.75	62.40	12.01	25.59
10.00	Logan	35.46	61.46	9.84	28.70
11.01	Logan, Providence	14.86	76.21	4.85	18.93
11.02	Logan, River Heights	7.57	63.95	3.49	32.56
12.00	Providence, Millville, Nibley	7.41	77.67	2.91	19.42
13.00	Mendon, Petersboro, Wellsville	12.13	77.91	8.59	13.50
14.00	Hyrum	12.77	65.70	13.22	21.07
15.00	Paradise, Avon	8.69	51.28	10.26	38.46

The results show that all census tracts have more than half of the rental households spending less than 29.9% of gross income on housing and are, therefore, considered affordable according to the HUD index for renters. Logan (7.01) is the tract with the highest percentage of rental households spending less than 29.9%, followed closely with Cove, Lewiston, and Richmond (1.01), Cornish, Clarkston, Lewiston, and Trenton (1.02), Providence, Millville, and Nibley (12.00), and Mendon, Petersboro, and Wellsville (13.00). Each of these areas has relatively low percentages of renters.

Five census tracts, including Smithfield (2.01 & 2.02), Amalga, Benson, Cache, Logan, Newton, Petersboro, and Trenton (3.00), Logan (8.00), and Paradise and Avon (15.00), have more than 40% of rental households with a cost burden (spending more than 30 percent of income on housing). Smithfield (2.01, 2.02) has many new, large homes; it is unclear how many of those homes are rental units. Logan (8.00) is just west of campus where many students live. Cornish, Clarkston, Lewiston, and Trenton (3.00) and Paradise and Avon (15.00) are more rural. It may be that there is a shortage of rental housing in rural areas, which have distinct housing problems dealing with the supply and demand of housing (Jones, 1999). The demand comes from the local population in most instances, but also from the "additional pressures outside their community" (Jones, p. 146). The demand of the limited supply of housing can lead to higher rent prices, poor quality housing, or a combination of both.

National Low Income Housing Coalition Affordability Index

The National Low Income Housing Coalition affordability index uses the Housing Wage to assess housing affordability for renters. The housing wage represents the hourly

wage needed to afford an apartment at the Fair Market Rent (FMR), basing "afford" off the HUD definition (spending no more than 30% of income on housing). The Housing Wage was used to calculate the percentage of rental households that can afford and cannot afford the FMR on a 2-bedroom apartment in Cache County, Utah. These results are presented in Table 5.

In order to calculate the number of rental households that can and cannot afford the Fair Market Rent, the hourly wage was converted into a yearly income. Then, according to the National Low Income Housing Coalition's assessment of affordability, the households earning below the income needed to afford the FMR were counted in the group that cannot afford the FMR. Those households earning more than the FMR were counted in the group that can afford the FMR. There was also a grey area due to the original grouping of the raw data. The income variables of the rental households included, for example, the variable "rental household earning between $20,000 and $34,999." The income needed to afford the FMR is $23,000, and does not perfectly fit with the given variables. The rental households earning between "$20,000 and $34,999" were included in the "can afford" group. This will possibly exaggerate the number who can afford to rent at the FMR.

The results in Table 5 show that in all census tracts more than half of the rental households can afford the Fair Market Rent. When the Housing Wage was applied to Cache County it showed the median percentage of renters at 69.33% that can afford the FMR, and the median at 30.67% of households cannot afford the FMR.

Table 5

Results for Housing Wage Rental Housing Affordability Measure Part 1

Census tract	City/Town/CDP	Annual income equivalent housing wage[a]	Fair market rent (FMR) 2-bdrm	Rental house-holds per census tract (%)	Rental house-holds that can afford FMR (%)	Rental house-holds that cannot afford FMR (%)
1.01	Cove, Lewiston, Richmond	$23,660	615	13.06	75.14	24.86
1.02	Cornish, Clarkston, Lewiston, Trenton	$23,660	615	10.58	78.18	21.82
2.01	Smithfield (West)	$23,660	615	13.73	71.85	28.15
2.02	Smithfield (East)	$23,660	615	11.18	50.30	49.70
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	$23,660	615	11.67	62.89	37.11
4.01	North Logan	$23,660	615	28.50	73.65	26.35
4.02	North Logan, Hyde Park	$23,660	615	8.56	77.42	22.58
4.03	North Logan, Hyde Park	$23,660	615	10.70	90.14	9.86
5.00	Logan	$23,660	615	36.83	65.47	34.53
6.00	Logan	$23,660	615	42.55	65.64	34.36
7.01	Logan	$23,660	615	11.45	72.83	27.17
8.00	Logan	$23,660	615	43.85	50.95	49.05
9.00	Logan	$23,660	615	35.75	67.10	32.90
10.00	Logan	$23,660	615	35.46	60.80	39.20
11.01	Logan, Providence	$23,660	615	14.86	80.91	19.09
11.02	Logan, River Heights	$23,660	615	7.57	69.79	30.21
12.00	Providence, Millville, Nibley	$23,660	615	7.41	67.74	32.26
13.00	Mendon, Petersboro, Wellsville	$23,660	615	12.13	81.46	18.54
14.00	Hyrum	$23,660	615	12.77	68.87	31.13
15.00	Paradise, Avon	$23,660	615	8.69	66.67	33.33

[a]Based on 2006 Housing Wage for 2 Bedroom Apartment at the Fair Market Rent

Smithfield (2.02) and Logan (8.00) have just over 50% of rental households that can afford the FMR, and, therefore, the percentage of rental households that cannot afford the FMR is nearly as high as the percentage of rental households that can afford the FMR. Logan (8.00) is a tract with a large student population, as it is just west of campus. Smithfield (2.02) is an unexpected unique tract that is coming up repeatedly in the results. Half of the renter households in Smithfield make less than the annual income equivalent to the Housing Wage and half make at or above it. These results show the percentage of rental households that could afford the FMR, but that does not imply that is what they are paying. The FMR may not even be the going rate, as property owners are free to decide how much to charge their renters.

The tract with the highest percentage of rental households that can afford the FMR is North Logan and Hyde Park (4.03). Only about 10% of this tract is rental households, and yet 90% of those can afford the FMR. This shows the higher income households in this area. The median family income in this tract is $43,914, which is well above the income equivalent to the housing wage of $23,000. Only a small percentage make below the housing wage, which enables them to afford the housing.

It is important to point out that the table is not showing whether the renters in the census tracts live in affordable housing. The table shows the ability of the renters to afford an apartment at the Fair Market Rent. Overall, rental households in Cache County can afford the FMR, but that does not show whether the apartment or house they are living in is, in fact, affordable. Rather, it shows the potential to live in affordable housing, given it is available. This table when used in conjunction with Table 6 shows a clearer picture of the situation represented by the Housing Wage measure.

The Housing Wage was also used to calculate the percentage of renter-occupied housing units with a cash rent below and above the FMR (Table 6). The variables included in this portion of the study include the number of rental households paying a given cash rent. The FMR of a two-bedroom apartment is $615,

Table 6

Results for Housing Wage Rental Housing Affordability Measure Part 2

Census tract	City/Town/CDP	Fair market rent (FMR)	Rental households below FMR (%)	Rental households above FMR (%)
1.01	Cove, Lewiston, Richmond	615	68.51	31.49
1.02	Cornish, Clarkston, Lewiston, Trenton	615	89.09	10.91
2.01	Smithfield (West)	615	40.00	60.00
2.02	Smithfield (East)	615	79.88	20.12
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	615	79.25	20.75
4.01	North Logan	615	43.68	56.32
4.02	North Logan, Hyde Park	615	56.45	43.55
4.03	North Logan, Hyde Park	615	54.93	45.07
5.00	Logan	615	70.99	29.01
6.00	Logan	615	75.55	24.45
7.01	Logan	615	68.21	31.79
8.00	Logan	615	80.83	19.17
9.00	Logan	615	78.84	21.16
10.00	Logan	615	74.48	25.52
11.01	Logan, Providence	615	37.27	62.73
11.02	Logan, River Heights	615	59.38	40.63
12.00	Providence, Millville, Nibley	615	62.90	37.10
13.00	Mendon, Petersboro, Wellsville	615	67.42	32.58
14.00	Hyrum	615	75.49	24.51
15.00	Paradise, Avon	615	57.78	42.22

which falls within the provided variable of "cash rent between $600 - $649." Households paying rent between $600 and $649 were included in the group of rental households paying above the FMR.

In reports to HUD, a household either owns the home in which they live or they are renting. In the Census data there are two options: owner or renter. Because there may be situations in which one does not own but is not paying rent, there is data collected on rental households that pay $0 cash rent. Examples may include an individual who is living in the home of a family member while the owners are on extended vacation for the winter, or an adult child who lives in the basement of a family member without making any rental payments. These rental households were included in the households paying below the FMR, as $0 is below $615.

The median percentage of rental households paying below the FMR is at 68.36%, and the median percentage above the FMR is at 31.64%. The results show that 3 of the 20 census tracts have less than half of the rental households paying below the FMR. There is an interesting pattern to note among the census tracts with the lowest percent of households paying below the FMR, namely Smithfield (2.01), North Logan (4.01), and Logan and Providence (11.01). Smithfield (2.01) reports that 60% of its rental households are paying above the FMR, North Logan (4.01) reports 56%, and Logan and Providence (11.01) reports nearly 63%.

Table 5 reported that these same census tracts had high percentages of rental households that could afford the FMR, at 71.85%, 73.65%, and 80.91%, respectively. The majority of rental households in these tracts can afford the FMR, but Table 6 shows the majority are paying above the FMR. This may be because of larger incomes, and

larger families, or a combination of the two. It may also be because of individual preference of the rental households. These tracts have few multiple housing rental units and far more single-family homes, and large homes at that. Renters in these areas are probably families renting larger single-family homes and not renting a small apartment.

Summary of Findings

Table 7 shows a summary of the results, with one column from each of the measures. Overall, the affordability indexes from the Department of Housing and Urban Development, the National Association of Realtors, and the National Low Income Housing Coalition show how housing markets in each census tract vary from each other and have unique characteristic. The HUD index for all households showed that 75% of the census tracts had more than 50% of households without a cost burden, if they were to purchase a home at the median value. The NAR index showed that 75% of the census tracts have enough income to purchase a home at the median value, assuming a 20% down payment.

The HUD index specifically for renters showed that the 100% of census tracts had more than 50% of rental households spending less than 29.9% of income on housing, and therefore do not have a housing cost burden and can afford housing. The use of the Housing Wage showed that in 100% of the census tracts over half of the rental households can afford the Fair Market Rent (FMR). The Housing Wage also showed that in 85% of the census tracts over half of the rental households pay below the FMR.

Overall, North Logan (4.01) is one of peculiar interest, particularly among the indexes looking specifically at owners. A higher percentage of households in North

Table 7

Results Summary

Census tract	City/Town/CDP	House-holds without cost burden (30% or below) (%)	NAR index (%)	Rental house-holds spending less than 29.9% (%)	Rental house-holds that can afford FMR (%)	Rental house-holds below FMR (%)
1.01	Cove, Lewiston, Richmond	61.24	67.61	78.20	75.14	68.51
1.02	Cornish, Clarkston, Lewiston, Trenton	70.11	93.27	77.50	78.18	89.09
2.01	Smithfield (West)	63.68	105.67	57.03	71.85	40.00
2.02	Smithfield (East)	61.73	88.93	50.93	50.30	79.88
3.00	Amalga, Benson, Cache, Logan, Newton, Petersboro, Trenton	61.96	103.13	57.52	62.89	79.25
4.01	North Logan	45.04	83.07	72.18	73.65	43.68
4.02	North Logan, Hyde Park	56.04	77.30	74.07	77.42	56.45
4.03	North Logan, Hyde Park	66.50	132.70	75.42	90.14	54.93
5.00	Logan	61.76	194.28	62.45	65.47	70.99
6.00	Logan	37.81	161.68	67.93	65.64	75.55
7.01	Logan	60.91	129.36	79.72	72.83	68.21
8.00	Logan	25.50	181.68	58.26	50.95	80.83
9.00	Logan	51.29	217.23	62.40	67.10	78.84
10.00	Logan	47.47	212.79	61.46	60.80	74.48
11.01	Logan, Providence	67.38	178.91	76.21	80.91	37.27
11.02	Logan, River Heights	68.63	129.85	63.95	69.79	59.38
12.00	Providence, Millville, Nibley	62.52	156.37	77.67	67.74	62.90
13.00	Mendon, Petersboro, Wellsville	67.03	174.79	77.91	81.46	67.42
14.00	Hyrum	68.49	248.74	65.70	68.87	75.49
15.00	Paradise, Avon	45.67	185.50	51.28	66.67	57.78

Logan (4.01) would have a cost burden or severe cost burden if purchasing a home at the median value, according to the HUD for homeowners measure. North Logan (4.01) does not have sufficient income to afford a home at the median value according to the NAR measure. A higher percentage of rental households in North Logan (4.01) are paying above the FMR.

The results also show a difference in the perspectives of the stakeholders behind the housing affordability measures. The National Association of Realtors tends to be more liberal and erroneous, as it assumes an unlikely 20% down payment. The National Low Income Housing Coalition tends to be more conservative, and focused on the working poor. These observations reflect the stakeholders' various agendas. The NAR measure represents the housing industry, and the NLIHC represents the consumer advocacy group.

CHAPTER V

DISCUSSION

Profile of Housing Affordability

In summary, the results show that the majority of households, rental and owner, are not experiencing a housing affordability problem, as defined by these four measurements. Overall, the analysis shows that housing in Cache County is relatively affordable, in comparison to other housing markets in the nation. The *Wall Street Journal* reported that about 37% of all mortgage holders in the United States in 2006 were paying at least 30% of their gross income on housing costs, up from 35% in 2005 (Leland, 2007). The increased percentage of income spent on housing nationwide may correlate with the increased foreclosure rates nationwide, which rose 75% in 2007 (Levy & Lee, 2008). In contrast, Utah's foreclosure rates dropped 26% in 2007 from the previous year (Levy & Lee). In addition, the National Association of Realtors (NAR) housing affordability index value for the nation as a whole was 106.1 in 2006 (National Association of Realtors, 2008), and this study showed that only 7 census tracts (35%) have below the nation's average. The NAR measure also shows a strong picture of housing affordability in Cache County compared to the nation.

The results from the study revealed that about 75% of the census tracts have over 50% of households in housing that is affordable, and 25% of the census tracts have below 50%. The 25% living in unaffordable housing are the minority, but are still important. Housing crises, such as eviction, foreclosure, and homelessness do not happen to the majority of households, but to the minority. This study shows the likely areas where

households could be experiencing housing unaffordability. The identification of the areas help housing educators with homeowner education programming and other prevention and intervention information or classes, and it helps local policy makers target areas for affordable housing projects, such as low income housing tax credit, or Section 8 housing vouchers.

Market Versus Individual Affordability

The results of the study bring to attention the difference between "market affordability" and "individual household affordability." The results show distinct housing markets from one census tract to another, varying even in the same city, showing what the author will call "market affordability." Market affordability has its purpose, and is useful for the industry in predicting how profitable it would be to build and sell new homes in a given area. It could also help local planners and zoning committees decide where affordable housing developments are in need. Market affordability is the general affordability of a given area.

However, the results of the study do not show individual household affordability. "Individual affordability," as so named by the author, would be assessed by housing counselors, educators, loan officers, and others in the housing industry that deal first-hand with an individual household's financial situation. Knowing the housing affordability of a census tract does nothing to help an individual who may have an affordability problem, or who may be buying a home beyond their capacity to sustain. On the other hand, individual housing affordability may be the best place to start for

preventing the extreme result of housing unaffordability—that of foreclosure and homelessness.

Assessing individual household affordability could be completed in a qualitative study, where the researchers study what homeowners and renters consider affordable and unaffordable. This could then be compared to quantitative figures such as income, monthly rent or mortgage payments, and other housing costs, and to such housing measures as reported in this study. A study such as this may more clearly define the relationship between market and individual affordability.

Furthermore, a long-term study comparing the market affordability and projections from an industry's standpoint to the individual household affordability would be ideal to discern relationships between the industry and the individual household, and whether each has adapted to the other in the volatile projections within the real estate market. This would be a timely topic, considering the current subprime mortgage housing conditions in the United States (Leland, 2007; Levy & Lee, 2008).

Limitations

This study examined various measures of housing affordability in Cache County, Utah. The limitations of the study are discussed in turn, as follows. First, the study was limited to one county in Utah. Second, the results are based on predicted estimates of the 2000 Census data. The estimates could be different from actual figures in 2006, therefore limiting the validity of the results. Third, the results only show the interpretation of affordability according to each measure's definition, and not according to what an individual household may themselves consider affordable or not. In addition, the chosen

housing affordability measures do not include all factors potentially influencing housing affordability, including actual down payment, ratio of equity to principal balance, home appreciation, residual income, individual preference of homeowner or renter, and creative mortgage financing.

Fourth, there could be error in the way variables were calculated, particularly those dealing with dollar figures. The researcher checked through the calculations carefully and sampled a few random census tracts per housing affordability measure to check for accuracy. Fifth, since there was no way to tell the exact number of households earning a specific income, some households may have been classified in "can afford" when, if their exact income was known rather than just a range of income, they should have been classified as "cannot afford." Sixth, the Census data only includes a representative sample of the county. For example, in the HUD for renters measure (see Table 4), there are 9,712 total rental households, and 8,996 of those households were computed in the raw data, meaning that Table 4 represents 92.6% of the total rental households. The reason why some rental households were not included is unknown, but one possibility may be incomplete information in the original Census survey.

Furthermore, the results of the HUD index provide examples of some of the limitations of the HUD affordability index discussed in the literature review. For example, the adaptation of the HUD index in this study does not separate out retirement incomes, and those that have a home paid in full that would not otherwise have a cost burden. A household may earn a small income, but may have a home paid-in-full. This may be the case with any census tract, since homes paid in full are not separated.

The NAR measure also has unique limitations. The index uses the variable "median home price." However, due to data limitations, that variable was replaced with "median home value." This replacement could skew the results of the calculated variable "income needed to afford the home at the median price" and, therefore, change the calculated index value. It also assumes a 20% down payment, which is highly unlikely for first-time homebuyers, but may be more likely for repeat homebuyers who use equity from the sale of a previous home. In fact, the median down payment for first-time homebuyers from mid-2005 to mid-2006 was 2% (Harney, 2007). The median down payment for a typical repeat homebuyer nationwide was 16% (Harney). This limits the way the results are interpreted, so the affordability percentages are likely less than the percent calculated, because a 20% down payment is not likely.

Recommendations for Future Research

Suggestions for future research include the following. First, this study could be replicated in other counties in Utah, in a regional area, or in the state as a whole, to create more generalized results and conclusions. This could lead to better understanding of housing affordability statewide and show areas in need of intervention, as well as areas of strength. There could be something to learn from the characteristics and factors of the areas with strong housing affordability.

Second, a longitudinal study to compare housing affordability to default and foreclosure rates, and to other housing market conditions could be useful. Third, a study to show how the market and individual housing affordability adapt and respond to each other would be insightful, as discussed above. Fourth, a useful study would be an

expansion of the Housing Wage and the ability of households to afford the FMR for more than just the 2-bedroom apartment, as was reported in this study, to accommodate larger household sizes and the rental of single-family houses. This information could provide recommendations to policy makers concerning the assessment of the affordable housing supply, and where affordable housing is needed.

Fifth, research gathering specific information from homeowners and renters regarding down payment or security deposit amount, mortgage and rent payments, utilities, insurance, and property taxes, as well as considering other obligations, including debt payments, childcare, and health costs, could provide a more precise picture of housing affordability. It would also lead to other studies on the utilization of down payments; it would be interesting to know if down payments are used as a "conventional" down payment of 20%, or if it is used to purchase a larger home with the same or higher mortgage payment. Such information could lead to recommendations to adjust existing housing affordability measures or to create new measures.

Sixth, it would also be valuable to survey whether homeowners and renters perceive their housing costs as affordable or unaffordable. This could be compared to quantitative data on housing cost and income to provide further insight in to the various housing affordability measures. This study does not account for housing preference and the individual household's ability to choose to spend more or less than is deemed affordable. Stone (2006) stated, "For some people, all housing is affordable, no matter how expensive it is; for others, no housing is affordable unless it is free" (p. 153). A study seeking to understand the relationship between income and housing costs and the

perceived level of housing affordability could greatly contribute to the use of housing affordability measures and the housing literature in general.

Finally, this study looks at all census tracts and all incomes. A study with a focus solely on housing affordability for low-income households would show the "residents [that] are not likely to be able to buy or rent at prevailing market rates without spending an 'excessive' fraction of their income on housing" (Carlson & Mathur, 2004, p. 24). An examination of this is especially important when considering the working poor and those in public service occupations, such as teachers, firefighters, police officers, custodians, and other service providers, and whether they can afford to live where they work (Carlson & Mathur).

Recommendations and Implications

The recommendations and implications section will address four main topics. First, how the residual income approach can effectively be used in pre-purchase counseling sessions to ensure households have adequate housing and non-housing expenses. Second, the need to consider how transportation expenses can affect housing affordability. Third, the continued need for first-time homebuyer assistance programs. Finally, this last section will discuss ways to prevent housing crises in the future and to further contribute to individual housing affordability.

Residual Income Approach

This study showed the results of four separate housing affordability measures as applied to Cache County, Utah. In the discussion of the results shown with the Housing

Wage, it was apparent that while many households can afford the Fair Market Rent, they are paying above the FMR. That may be because of large household sizes. Cache County has an average household size of 3.2 (U.S. Census Bureau, 2000), which would fit more comfortably in an apartment or home larger than two bedrooms (which was used for the housing wage results). While this study does not account for household size in any of the reported measures, two noteworthy housing scholars have developed housing affordability measures that take into account household size (Kutty, 2006; Stone, 1993).

These measures look at residual income, or the income that is left over after buying an adequate amount of non-housing goods, as the determining factor toward a housing cost burden (Kutty, 2006; Stone, 1993). Such approaches ought to be given more thought and study. Stone (2006) has recommended that the residual income approach be used "at very least for advisory purposes if not as a formal criterion" (p. 178). The residual income approach may also be used to bridge the gap between the varying housing costs from one housing market to another. Kutty's findings show the "disparities in housing costs across regions and locations and the impact of such disparities on the standard of living" (p. 139). Taking into account geographical differences in housing and non-housing expenses is important when considering a housing affordability measure that can be used accurately in more than one location. The residual income approach may be a better way to assess individual homeowner and renter housing affordability, because it takes into account household size and geographic location.

An adapted residual income approach could effectively be used in pre-purchase housing counseling sessions and in loan application processes with loan officers. The housing counselor or loan officer can look at the prospective homebuyer's monthly

expenses and determine the amount of money that individual could afford toward a mortgage payment, while still being able to meet non-shelter necessities. Kutty (2006) stated that housing expenditures above what a household can afford causes both renters and homeowners to "reduce their expenditures on food, clothing, health care, education, and other human capital investments" (p. 113). Approaching the ability to afford housing through the residual income approach could ensure that households have adequate housing and non-housing expenses that will not endanger their financial situation. Such approaches could be modeled after the U.S. Department of Veteran's Affairs home loan program, which utilizes the residual income approach, including household size and geographical location, to qualify veterans for a mortgage (U.S. Department of Veterans Affairs, 2008).

Housing Affordability and Transportation

This study showed areas in Cache County that are more affordable. These tend to be in the suburbs, such as Richmond, Hyrum, Avon, and Wellsville. This means a household may be able to purchase their first or buy more house in these areas, but some will then need to pay for additional transportation—gas and car maintenance, to and from work, shopping, and other services. A Brookings Institution study (2006) makes the connection between housing affordability and transportation costs. The study points out that with the increase in gasoline prices "the average household will increase its total transportation expenditures by 14%, or $1,200 per year. This increase alone is 3% of the median income household's annual earnings" (p. 2). This has implications for housing educators and counselors who can point out the effects of moving farther away from

work, shopping, and so forth. It also shows a need to have assistance available for households who were just able to make their mortgage payment and rent, but with the increase in gasoline will be pushed over the edge.

First-Time Homebuyers Assistance

Assistance specifically available for first-time homebuyers should be continued. While the National Association of Realtors housing affordability index assumes a 20% down payment, the median down payment for first time homebuyers in one study was only 2% (Harney, 2007). If the data were to be run again using only a 2% down payment, there would be many more census tracts unable to afford the home at the median value. A previous study of first-time homebuyers in Cache County showed that many were applying 50% of their income toward regular mortgage payments, and had no savings for emergencies or home maintenance (Delgadillo, 2003). Funding for down payment assistance programs for first-time homebuyers should continue to be available. However, it is also important to note that, although homeownership is part of the American Dream, there are some households who are not in a position to purchase a home. Nevertheless, as a positive researcher suggests, they "may be capable of purchasing a house at a later date should they choose to save accordingly" (Bourassa, 1996, p. 1870). Housing educators, counselors, and other players in the housing industry should recognize this and make appropriate recommendations to clients.

Preventing Housing Crisis

In light of the current subprime mortgage foreclosure crisis facing the United States, much concern is in the forefront about how to fix the housing and subprime

problems. While many of the problems occurred in the past and can be alleviated in small ways, the foreboding foreclosure crisis shows a reason why researchers, policy makers, and the housing industry need to invest more time and effort into studying housing affordability.

When the standard housing affordability measures were applied to the Cache County census tracts, the results revealed that the majority of households seem to be experiencing housing affordability. Why are there problems if the majority does not have a housing affordability problem? It is the *minority* of households who face problems with housing affordability. It is the minority that deals with mortgage default and foreclosure. It is the minority of households that had such a largely underestimated impact on the economy.

More preventative measures could be taken to educate households facing housing affordability challenges to prevent a foreclosure crisis from occurring again. The housing industry players, as well as individual consumers, need to take more responsibility in their role. Laws should be passed that would require complete disclosures, in layman's terms, of what loan terms imply. Regulation should establish fiduciary duty between the lender and borrower to halt abuses in the lending market. Housing education courses and counseling should continue to recruit and help consumers. The qualifying ratios and other factors involved in the loan application process should be reviewed to determine if the assessments show an accurate portrayal of housing affordability. Housing affordability measurements should continue to be studied, as new developments or clarification could lead to a better understanding of how to determine a household's ability to afford a given mortgage.

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