THE AFFORDABILITY PARADOX

Executive Summary

This study measures two separate but interacting components that determine housing affordability: the distribution of households and the distribution of housing units. The distribution of households considers 8 income categories, ranging from under $10,000 to over $75,000 per year. The distribution of housing units considers 8 price categories (i.e. the amount spent for housing), ranging from under $250 to over $1,875 per month.

What happens when these two distributions are evaluated simultaneously? We find there is a mismatch (i.e. the difference between the number of housing units and the number of households) that is negative (i.e. more households than housing units) for higher and lower income categories. On the other hand, there is a positive mismatch (i.e. more housing units than households) for more moderate income categories. These mismatches lead both higher and lower income households to choose more moderately priced housing units.

However, higher and lower income households are likely to select more moderately priced housing units for different reasons with different implications. For example, higher income households likely have multiple affordably priced housing units to choose from that include existing housing units, new construction, and alternative housing markets. But, the choices for lower income households are more restrictive relative to their economic consequences and include such outcomes as paying more than an "affordable" amount for housing relative to their income. **Therefore, it is possible to simultaneously experience one of the most affordable housing markets in the United States for higher income households while having a housing affordability crisis for lower income households.**

This model and the related findings are <u>not</u> the <u>only</u> way to view housing affordability and housing markets, but they are useful because:

- The analysis uses assumptions about housing expenditures common to several affordable housing financing programs (e.g. the low income housing tax credit program)
- The findings are compared to actual outcomes to verify that the model accurately reflects actual experience
- The analytical model provides a tool for evaluating various factors (e.g. changes in interest rates, housing supply, rental vouchers, subsidized construction costs, etc.) to determine the likely effect prior to implementation

Areas for additional research include issues such as: home ownership rates in Marion County in comparison to other cities, the impact of factors other than affordability on housing choices, ethnic disparities in home ownership rates, foreclosure rates, and similar topics.

This study used data from the 2000 Census, primarily at the census tract level. As discussed in this report, there are inherent limitations to such data. Consequently, the author verified various findings with alternative data sources and analysis as noted.

Acknowledgements

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Introduction

Several news stories published in 2001 and 2002 provided differing, and sometimes conflicting, perspectives of the Indianapolis housing market:

- *"There is a serious shortfall of housing that the poorest Indianapolis residents can afford…"*[1]
- *"Indianapolis Ranks No. 1 for Affordable Home Prices"*[2]

While one article was specific to home ownership and the other was specific to rental housing, the obvious paradox was "how could such significant discrepancies occur in the same housing market?"

The analysis that follows builds a *model* of how housing markets work. It is important to note that a model is a representation of the world, not the world itself. Similar to a map, a model highlights some important factors while excluding others. For instance, a map may show continents, but not nations, or it may show the location of streets, but not alleys. Depending on the needs of the user, different maps and models are appropriate. The particular model we have chosen as the first step in creating a common framework for analyzing housing markets considers household incomes, housing prices, and the relative distribution of each. Other factors may be more important in different contexts.

The first step in creating this model was to determine the distribution of household incomes. We created 8 mutually exclusive income categories, ranging from roughly 20 percent of the Area Median Income (AMI) to over 150 percent of the AMI. Then, we determined the number of households in each category using data from the 2000 Census.

The second step was to calculate the appropriate housing expenditure for each income category (i.e. either gross rent including utilities for renters or the taxes, insurance, mortgage insurance premium, and mortgage payment for home owners), based on an assumption that households spend 30 percent of their income on housing. Then, we determined the number of housing units that are "affordable" for each income category.

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[1] Blueprint to End Homelessness, as quoted in Indianapolis StarNews, February 28, 2002.
[2] Indianapolis StarNews, November 8, 2001.

Consequently, this model provides a method of estimating the difference (i.e. mismatch) between the number of housing units in each income category and the number of households for each income category. The mismatch is positive when the number of housing units exceeds the number of households and negative when the number of households exceeds the number of housing units.

We then evaluated the model against alternative estimates of how much households spend on housing to determine the validity of the results. The advantage of this type of model is that it allows policy makers to combine a quantitative analysis of housing markets with qualitative factors to better estimate the results of initiatives prior to implementation. The results will not be exactly as estimated by this model. But, to the extent that policy makers are given an additional tool that makes initiatives more effective and the outcomes more predictable, the analysis fulfills its purpose.

Preliminary Facts About Housing in Marion County

Before describing the details of the housing market model, it is important to review what the 2000 Census reveals about housing in Marion County:[3]

- 860,454 persons
- 352,164 households (2.44 persons per household overall, 2.54 for owners and 2.18 for renters)
- 352,164 occupied housing units
- 35,019 vacant housing units (9% vacancy rate)
- Of the 35,019 vacant units, 17,778 are for rent, 4,355 are for sale, 2,390 are rented or sold but not occupied, 1,326 are for seasonal use, 12 are for migrant workers, and the remainder are classified as "other"
- 208,957 owner occupied housing units (59% ownership rate)
- 143,207 renter occupied housing units
- Median household income of $40,248 ($52,214 for owners and $27,044 for renters)

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[3] All figures used in this analysis should be considered approximations. Estimates from the Census vary slightly depending on which dataset is used (e.g. Summary File 1 versus Summary File 3).

- Median gross rent (i.e. rent including utilities) of $567
- Median value for owner occupied units of $97,200

Generally, the data for the 2000 Census is applicable as of 2000, with the exception of specific items such as income and real estate taxes that are included in home ownership costs and applicable as of 1999.

Comparing the 2000 Census to the 1990 Census revealed the following:

- Household growth in Marion County was 10.2 percent and population growth was 7.5 percent
- Household growth in the surrounding suburban counties was higher than the household growth in Marion County, with the exception of Madison County (i.e. Anderson)
- Marion County is by far the largest county in the MSA relative to number of households (i.e. the next largest county is Hamilton County with 65,933 households)
- The number of households declined by 5.8 percent in Center Township, but grew by as much as 50.3 percent in Pike Township and 61.4 percent in Franklin Township
- Regardless, Center Township continues to have the most households of any Township in Marion County

Modeling Housing Markets
This analysis relied on the following guiding principles:

- 2000 Census tract data serves as the basis for the data analysis[4]
- Estimates of the distribution of households are a function of household income and tenure (i.e. renter or owner)
- Estimates of the distribution of housing units are a function of price and tenure (i.e. value for ownership or rental rate for renters)

Estimating the Distribution of Households
To estimate the distribution of households, we focused on household incomes and tenure

choice (i.e. the choice between renting and owning).

Income categories for households were based on the following income ranges:

Category	Income Limit
Most Limited Income	$10,000 or less
Extremely Limited Income	$15,000
Very Limited Income	$20,000
Limited Income	$25,000
Below Typical Income	$35,000
Typical Income	$50,000
Above Typical Income	$75,000
Higher Income	Over $75,000

These categories equate to approximately the following percentages of 2001 Area Median Income (AMI) for a household of 2 persons:[5]

Category	% of AMI
Most Limited Income	Under 20%
Extremely Limited Income	30%
Very Limited Income	40%
Limited Income	50%
Below Typical Income	70%
Typical Income	100%
Above Typical Income	150%
Higher Income	Over 150%

Exhibit 1 contains the distribution of households within each income category after summing across all census tracts. Later in this report, we split households between renters and owners to create a similar summation based on tenure.

Estimating the Distribution of Housing Units
Knowing the number of households in each income category is important, but not sufficient to determine the difference between the distribution of households and the distribution of housing units. The critical link is the amount that households pay for housing.

A standard measure of affordability is that a household should not spend more than 30 percent of their income on housing. This percentage, as well as the components used to calculate the percentage, vary considerably across

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[4] Our analysis of the Census data uses Microsoft Excel and the HMDA data analysis uses STATA.

[5] Percentages are rounded to the nearest 10%. See section on Special Issues for discussion of AMI calculations.

funding programs, underwriting requirements, and households. We included the following items to determine "affordable" housing expenditures:

- Rental rates included contract rent plus utilities (i.e. gross rent)
- Ownership costs included real estate taxes, insurance, mortgage payments (principal and interest), plus a mortgage insurance premium based on 1 percent of the mortgage amount per year

For mortgage payments, we estimated that owners can obtain 30 year, fixed rate mortgages at 7 percent interest with a down payment ranging from 1 percent for the lowest income categories to 5 percent for the highest income categories. Real estate tax estimates ranged from $150 to $2,000 per year, based on our comparisons of the distributions of real estate taxes as shown in Table HCT-19 (Sample File 3) of the 2000 Census compared to the distribution of housing units. Insurance estimates ranged from $480 to $1,020 per year. Closing costs estimates ranged from $1,500 to $3,000.

With these calculations, we estimated the following maximum monthly housing expenditures for rental households in each income category:

Category	Maximum Rent
Most Limited Income	Under $250
Extremely Limited Income	$375
Very Limited Income	$500
Limited Income	$625
Below Typical Income	$875
Typical Income	$1,250
Above Typical Income	$1,875
Higher Income	Over $1,875

Likewise, we estimated the following maximum housing prices for ownership households in each income category, rounded down to the nearest $1,000:

Category	Housing Value
Most Limited Income	Under $25,000
Extremely Limited Income	$39,000
Very Limited Income	$54,000
Limited Income	$68,000
Below Typical Income[6]	$99,000
Typical Income	$146,000
Above Typical Income	$225,000
Higher Income	Over $225,000

Exhibit 2 contains the distribution of housing units within each category after summing across all census tracts. Later in this report, we split housing units between rental and ownership to create a similar summation based on tenure.

Vacant Units

This previous analysis of the distribution of housing units included a portion of the vacant units from the 2000 Census. The Census Bureau describes vacant units as:

- For sale
- For rent
- Rented or sold but not yet occupied
- Seasonal
- For migrant workers
- Other

Our analysis includes "vacant for sale" and "vacant for rent" units, but not the units in any other categories. Excluding the "rented or sold but not yet occupied" category reduced the potential supply by less than 1 percent of the total housing units and was not material to the analysis.

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[6] Findings related to the Below Typical Income category must be evaluated carefully in relation to the findings for the Typical Income category due to the nature of the underlying data. For instance, changing the maximum value in the Below Typical Income category to $101,000 caused a significant number of units in the Typical Income category to become "affordable" for the Below Typical Income category. However, this issue does not change the nature of the results.

The "other" category encompasses a variety of units. For instance, this category can include units "held for occupancy by a caretaker or janitor, or units held vacant for personal reasons of the owner."[7]

Abandoned, or boarded up, units are discussed later under Special Issues.

<u>Never the Two Shall Meet?</u>
When we combined the distribution of households with the distribution of housing units, we began to see how some categories have a positive mismatch (i.e. more housing units than households) and some categories have a negative mismatch (i.e. more households than housing units). The results of this combination are shown in Exhibit 3.

Households in upper income categories (i.e. on the right hand side of the chart) find that there are very few housing units priced such that the unit meets the requirements of the affordability calculation (i.e. that the unit is priced equal to 30 percent of the household's income).

For moderate income households (i.e. households ranging from Very Limited Income to Typical Income), there are more than enough units relative to the number of households (i.e. positive mismatch).

Households in the lower income categories (i.e. on the left hand side of the chart) find that there are very few housing units priced such that the unit meets the requirements of the affordability calculation (i.e. that the unit is priced equal to 30 percent of the household's income).

So how does the housing market adjust to address these mismatches (both positive and negative)? Households in both lower and higher income categories move to the middle where there is a positive mismatch of housing units relative to the number of households**.**

But, the likely causes of these mismatches, and their implications, vary significantly for each group:

- **Some higher income households likely spend less than 30 percent of their income on housing (i.e. they choose housing units to the left of their income category because they can afford such units and find them to be a desirable alternative). To the extent that such households cannot find a desirable alternative among the existing housing units, new construction or alternative housing markets may be viable options as well. Consequently, such households find housing to be relatively affordable.**
- **Some lower income households likely spend more than 30 percent of their income on housing (i.e. they choose housing units to the right of their income category but these choices have significant economic consequences because of the required housing expenditure). Consequently, such households find housing to be unaffordable, or find affordable housing to be in short supply.**

There are many factors that may cause differences in the distribution of households compared to the distribution of housing units, including:

- Households of a given income may spend an amount different from the amount we estimate as an "affordable" housing expenditure
- The regulatory environment may hinder housing prices from fully adjusting (up or down) to the level that would occur without regulation
- Public subsidization of new construction through infrastructure improvements, zoning changes, and other public services, may cause differing outcomes
- Discrimination within either employment or housing markets may occur in a way that limits the choices of households
- The relatively durable quality of housing assets may alter the use of such assets
- The relatively limited creation of new housing units relative to the total existing housing supply implies that changes to the housing market take time to become fully effective
- Transaction costs for households that choose to move may affect the timing of the housing market's adjustment to changing circumstances

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[7] U.S. Census Bureau, American FactFinder documentation regarding Income in 2000 Census, www.census.gov.

Analysis of Renters and Owners

The differences between the alternatives for lower and higher income households become more distinct when we separate renters from owners utilizing the same model. As shown in Exhibit 4, rental households at the lower income categories, experience significant negative mismatches of affordable housing. The most limited income category shows a shortfall of approximately 10,000 units, while the extremely limited income category shows a shortfall of over 4,000 units. These two categories represent households at or below 30 percent of the AMI (using a household size of 2). The combination of these two categories shows a total shortfall of approximately 10,000 to 15,000 rental units affordable to households in the lowest income categories. This estimate is similar to the estimate reported in the Mayor's Blueprint to End Homelessness.

Further, the rental rate used for the Most Limited Income category (i.e. less than $250 per month or $3,000 per year) may not be sufficient for a rental unit to cover basic operating expenses of approximately $3,000 per unit.[8] These amounts do not include any allocation for debt service payments.

As shown in Exhibit 5, the story for owners is different. Some negative mismatches exist for owners in the Extremely Limited Income category, but the mismatches do not appear to be as significant at lower income levels for owner households as for renter households (i.e. approximately a 2,500 unit mismatch for owners versus 10,000 to 15,000 unit mismatch for renters in the two lowest income categories). Consequently, we would expect home ownership rates in Indianapolis to be particularly favorable because of their affordability across income categories.

Yet, the rate of home ownership in Marion County is only near the median of comparable cities. As

shown in Exhibit 6, Marion County's home ownership rate lags behind several comparison areas[9] (e.g. Cleveland, St. Louis, Kansas City, Louisville, and Cincinnati). Further, Exhibit 7 shows the significant difference in home ownership rates for households by race or ethnicity. Finally, Exhibits 8 and 9 show the much publicized quarterly "loans in foreclosure" and delinquency rates of loans in Indiana and the United States since 1979. As shown on this chart, Indiana's rates have often been above the national average, but the gap reversed substantially during the late-1980s and mid-1990s and has reappeared recently with the latest economic slowdown. Based on these three additional factors, it is possible that significant issues other than affordability need to be evaluated relative to home ownership in Marion County.

Comparison to Actual Housing Costs

After establishing a model of *how* the housing market works, it was important to compare the results relative to actual expenditures[10] to verify that the model was working appropriately. Exhibit 10 shows the percentage of income spent on housing, by income category based on data from the 2000 Census.[11] As anticipated, higher income households spend significantly less than 30 percent of their income on housing expenditures (i.e. over 80 percent of such households spend less than 20 percent of their income on housing expenditures), while lower income households spend significantly more than 30 percent (i.e. nearly 60 percent of the Most Limited, Extremely Limited, and Very Limited Income

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[8] See Institute of Real Estate Management, Income/Expense Analysis for Conventional Apartments and Income/Expense Analysis for Federally Assisted Apartments, 1998, 1999, and 2000. This estimate of operating expenses should be taken as a very general approximation given the wide potential fluctuation among differing property types, locations, owners, time periods, and other factors. These estimates are created by surveying typically mid-size to larger, professionally managed, apartment complexes.

[9] For comparison purposes, home ownership rates shown in Exhibit 6 are applicable to the county where each city is located, except in the cases of St. Louis and Kansas City where we also included the data for an adjacent county. This adjustment of adding an adjacent county raises St. Louis's home ownership rate significantly, but has no material impact on Kansas City's rate relative to Indianapolis's.

[10] The data used for Exhibit 10 includes utilities as an owner cost for housing, thereby accentuating the point of favorable affordability for higher income owners.

[11] The income categories in Exhibit 10 are based on Table H73 and H94 using Sample File 3 of the 2000 Census and do not match the income categories constructed previously for use in this report. However, this difference does not alter the general conclusion that lower income categories spend significantly more than 30 percent of income for housing and higher income categories spend significantly less than 30 percent of income for housing.

households spend more than 35 percent of their income on housing expenditures).

Special Issues

There are a variety of special issues that must be considered, some of which are already adequately addressed in the data from the 2000 Census, but some of which require that the previous findings noted earlier be tempered accordingly. These issues include:

- Section 8 vouchers
- Homeless persons
- Tax credit and bond financed units
- Area median income calculations
- Abandoned units
- Alternative data sources

Section 8 Vouchers

The Section 8 voucher program enables the recipient to lease a housing unit similar to any other tenant. Attached to the lease agreement is an addendum that specifies a portion of the rent will be paid by the local housing agency (i.e. Indianapolis Housing Agency, IHA). When such a voucher is used, the landlord receives a rental payment from the tenant equal to 30 percent of the tenant's income and receives the remainder of the rental payment from IHA.

The census questionnaire asked for the household income of the respondent, but did not ask that the value of a Section 8 voucher be added to income where applicable. Further, the census questionnaire asked for the rental rate for the unit, not necessarily just the portion paid by the tenant.

Consequently, it is possible some of the mismatch noted for various lower income categories of renters is being met through the use of Section 8 vouchers. The IHA holds approximately 6,650 such vouchers (i.e. normal Section 8 vouchers and Special Section 8 vouchers), and may be able to increase this amount to approximately 7,000 by the end of 2002.

Homeless Persons[12]

The 2000 Census did not attempt to fully account for homeless persons. Depending on the definition of homelessness, people experiencing homelessness may be included in the 2000 Census in the following ways:

- Housing units that contain people doubled up with families or friends
- Housing units where respondents provided the address of a friend or relative as their usual place of residence
- Children living in foster care
- Emergency and transitional shelters (note that this is different from emergency and transitional housing units)
- Various group quarters

The Census Bureau did not produce a separate tabulation of those without conventional housing. However, the category of housing referred to as "group quarters" is designed to include: college dormitories, correctional facilities, nursing homes, group homes, military quarters, halfway houses, emergency shelters and transitional shelters.[13]

The data contained in this report does not include people housed in group quarters. If the data from the 2000 Census for people living in group quarters were included in this report, the total number of persons would increase by 18,696.[14] Of

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[12] Significant portions of this section have been taken, in whole or in part, without quotation from: "Emergency and Transitional Shelter Population: 2000", U.S. Census Bureau, October 2001, Annetta C. Smith and Denise J. Smith.

[13] "Emergency shelters and transitional shelters" can include: shelters for people experiencing homelessness; shelters for children that are runaways, neglected, or without conventional housing; transitional shelters for people without conventional housing and a maximum stay of 2 years that offer support services to promote self-sufficiency and assist clients to obtain permanent housing, and; hotels and motels used to provide shelter to people without conventional housing. People without conventional housing are defined as "the population who may be missed in the traditional enumeration of housing units and group quarters".

[14] Similarly, our analysis of housing units would adjust to account for whether or not such facilities were suitable as housing units. Additionally, a determination would be

this amount, emergency and transitional shelters had a total population of approximately 518. Two critical points to note:

- This data enumerates people instead of households, which are not necessarily the same in every situation
- These estimates are **not** to be interpreted as a count of the homeless population based on the Census Bureau's documentation

Tax Credit and Bond Financed Units

A particularly prevalent form of financing for rental property since the 1986 Tax Reform Act has been the Low Income Housing Tax Credit (Section 42 of the Internal Revenue Code) and Tax-Exempt Bond (Section 142 of the Internal Revenue Code) programs. These programs provide favorable financing to developers that produce affordable housing as a way of increasing private investment in such housing. Currently, there are approximately 6,500 active units in approximately 100 projects in Marion County.[15]

This report assumes tax credit units appear just like any other rental unit in the 2000 Census. We do not have reason to think the rental rate for most tax credit units is significantly less than the market rental rate that should have been reported by respondents. Further, when the rental rate for a tax credit unit is only slightly less than the market rental rate, it is unlikely that an otherwise traditional resident would be able to discern the difference without substantial knowledge of market conditions.

Area Median Income Calculations

The calculation of Area Median Income (AMI) is performed by the Department of Housing and Urban Development. A more detailed description can be found at www.huduser.org.

Generally, the AMI is determined by considering the median family income for a geographic area. In Indianapolis's case (as well as other metropolitan areas) the AMI is based on the median family income for the Fair Market Rent (FMR) geographic area.

The FMR geographic area definitions are generally based on Metropolitan Statistical Areas (MSAs), Primary Metropolitan Statistical Areas (PMSAs), or non-metropolitan areas, as determined by the metropolitan area definitions formulated by the Office of Management and Budget.[16] For Indianapolis, the AMI is calculated using the 9 county MSA.[17] Consequently, the AMI applicable to the Indianapolis MSA is higher than the median family income for Marion County.

Regardless, we have relied on the standard measurement of AMI applicable to the Indianapolis MSA for the following reasons:

- Several major housing finance programs use the AMI as calculated by HUD to set maximum income guidelines (e.g. the tax credit program relies on several different percentages of AMI including 30, 40, 50, and 60 percent)
- Many industry practitioners use the AMI estimate as calculated by HUD as a standard benchmark rather than formulating their own more localized estimates
- If practitioners, policy makers, and readers desire to focus on different income groups (i.e. 50% of the Marion County median family income rather than 50% of the AMI), it will likely be easier to use a different percentage of the AMI rather than to add a new method for calculating income benchmarks

All percentage of AMI estimates used in this report assume a household size of 2 as of 2001. As stated previously, the average household size is 2.44 in Marion County, with renters being lower and owners being slightly higher. The 2000 estimate of 50 percent of AMI was equal to only 46 percent of the 100 percent of AMI. However, in 2001, the 50 percent of AMI estimate changed such that it was approximately equal to 50 percent of the 100 percent of AMI estimate. Consequently, we used the 2001 AMI estimates.

The differences among years are material to some forms of analysis, but generally would not change the

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required of whether to count the number of persons as equivalent to the number of households.
[15] These estimates are for currently active properties and do not include all properties ever financed under such programs.

[16] Notice PDR-2002-01, U.S. Department of Housing and Urban Development, Attachment 1.
[17] The Indianapolis MSA includes Marion, Hamilton, Hancock, Hendricks, Boone, Shelby, Johnson, Morgan, and Madison Counties.

conclusions presented in this report. The primary result of altering the year of AMI is that the chart regarding AMI as previously shown in "Modeling Housing Markets" must be adjusted to reflect the updated percentages of AMI. However, as noted previously, the percentages shown in this chart have been rounded so minor adjustments in the AMI have minimal effect.

A further complication of the AMI is that the calculation is based on family income instead of household income. Generally, family income is higher than household income because households can consist of only one person while families consist of households with two or more related persons.[18] However, many housing programs consider the incomes of all occupants when qualifying for a given housing unit (i.e. more like household income than family income). Consequently, we used household income when determining the distribution of households by income category.

Abandoned Units

The 2000 Census did not ask census takers to explicitly account for abandoned housing units. Generally, census takers determined whether or not the unit was occupied. If not, the census taker attempted to determine the cause of the vacancy (e.g. a seasonal unit) and the unit's ability to serve as housing. To the extent that the unit was "abandoned", the census taker attempted to determine whether or not the unit was exposed to the elements (e.g. roof collapsed, windows broken, etc.). **If the unit was determined to be exposed to the elements, condemned, and/or noted to be demolished, the census taker likely did not count the unit in any estimate (i.e. such units do not appear, even as vacant "other").**

Data Sources

Data used in this analysis included 2000 Census data downloaded from www.census.gov, primarily using Sample File 1 and 3 for Marion County at the census tract level. Census tables HCT11, H84, H62, H87, and H59 were used extensively.

An additional source of data used to evaluate the self-reported value of ownership housing units was the Home Mortgage Disclosure Act (HMDA) data for 1999, as supplied by the Federal Financial Institutions Examination Council. Exhibit 11 compares the distribution of HMDA loans to the distribution of "vacant for sale" units derived from Table H87 of the 2000 Census.[19] As shown in Exhibit 11, the distribution of ownership housing units is relatively similar for both data sets with the exception of the Typical and Above Typical income categories. More detailed studies of this issue with different data sets provide similar results.[20]

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[18] U.S. Census Bureau, American FactFinder documentation regarding Income in 2000 Census, www.census.gov, and FY2001 HUD Income Limits Briefing Material, U.S. Department of Housing and Urban Development, Office of Policy Development and Research, revised April 25, 2001.

[19] To address comparisons to HMDA data, which rely on loan amounts instead of housing values, this analysis uses the distribution of loan amounts calculated previously when estimating an affordable housing expenditure for ownership households. Differences between the self-reported value and the derived loan amounts are not material due to the relatively low down payment used in the analysis and described previously.

[20] "The Accuracy of Owner-Provided House Values: The 1978-1991 American Housing Survey", Katherine A. Kiel and Jeffrey E. Zabel, Real Estate Economics, 1999, Vol. 27, No. 2, pp. 263-298.

Summary and Areas for Future Research

This study analyzes housing markets in Marion County by considering household income and housing expenditures (i.e. rental rates, home ownership costs, etc.). Significant findings from this study include:

- **Higher and more moderate income households in Marion County, both renters and owners, generally have very affordable housing opportunities relative to their income because of the positive mismatch of housing units and households for moderately priced housing. Consequently, it is reasonable to find that Indianapolis has one of the most affordable housing markets in the country.**

- **Lower income households, especially renter households, generally do not have enough affordable housing opportunities relative to their income. Consequently, it is reasonable to find that Indianapolis also has a shortage of affordable housing for rental households.**

These findings build on the significant accomplishments of the housing industry in Indianapolis and provide a common framework for analyzing housing affordability. At the same time, these findings also highlight areas for future endeavors. For example, given the affordable cost of ownership for households, it is difficult to explain the rate of home ownership relative to other cities, the rate of foreclosure, or the racial/ethnic disparity of home ownership rates. Future research may explore the following alternative perspectives:

- How households make locational choices of where to live within Marion County
- The impact of non-economic variables (i.e. other than household income and the price of housing) on housing choices
- The community benefits and costs of home ownership and rental housing
- Desirable combinations of home ownership and rental housing based on household decisions, financial feasibility, and neighborhood stability
- The interaction of other factors that affect home ownership such as access to capital, geographic dispersion of opportunities, household wealth (instead of income), price appreciation, and alternative lending programs
- Housing issues specific to households at or below the typical income category such as housing quality, location, and employment opportunities

<u>Exhibits</u>

Exhibit 1: Distribution of Households

	Most Limited Income (<$10k)	Extremely Limited (<$15k)	Very Limited Income (<$20k)	Limited Income (<$25k)	Below Typical (<$35k)	Typical Income (<$50k)	Above Typical (<$75k)	Higher Income (>$75k)
■ Households	30,633	22,151	23,486	25,506	49,940	62,228	69,898	68,322
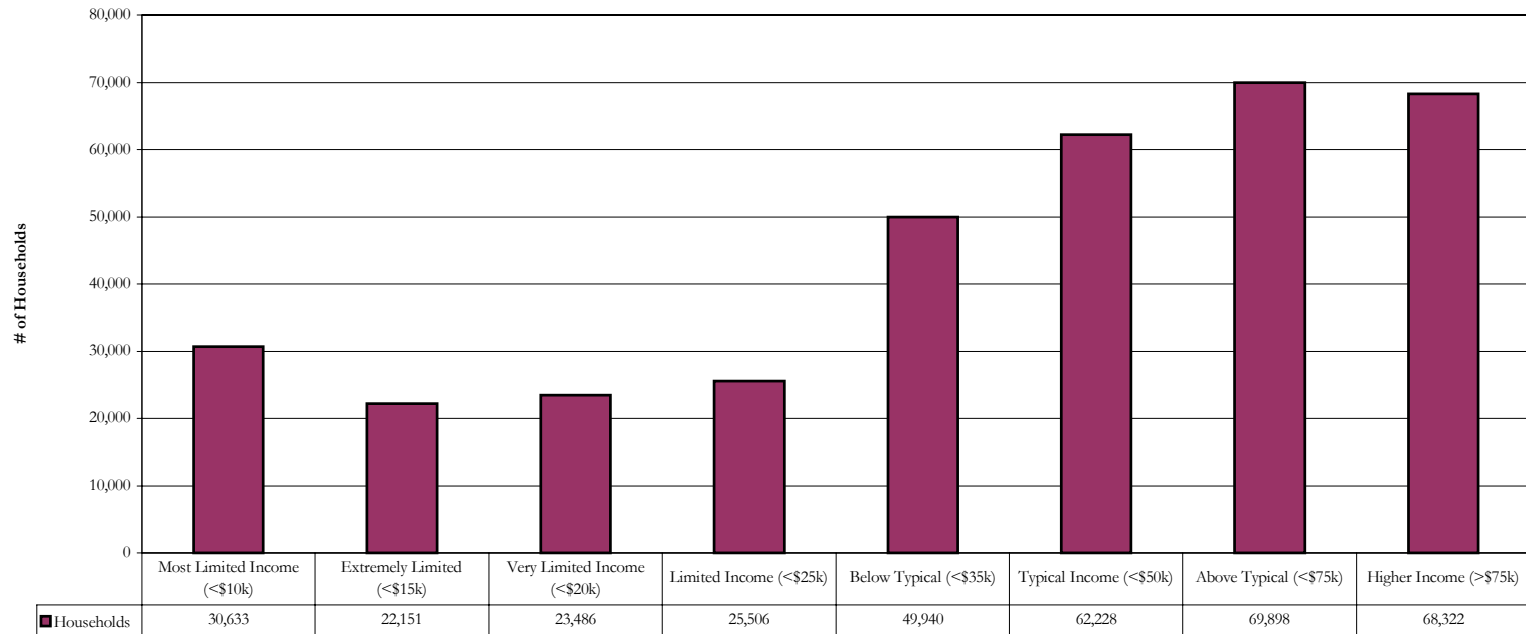
# of Households

Exhibit 2: Distribution of Housing Units (Rental and Ownership)

	Most Limited	Extremely Limited	Very Limited	Limited Income	Below Typical	Typical Income	Above Typical	Higher Income
■ Affordable Units (incl. Vacant)	20,715	14,479	54,419	48,999	95,257	76,227	44,469	19,774
Max. Rent	$250	$375	$500	$625	$875	$1,250	$1,875	
Max. Value	$25,000	$39,000	$54,000	$68,000	$99,000	$146,000	$225,000	

# of Housing Units (y-axis, ranging 0 to 120,000)
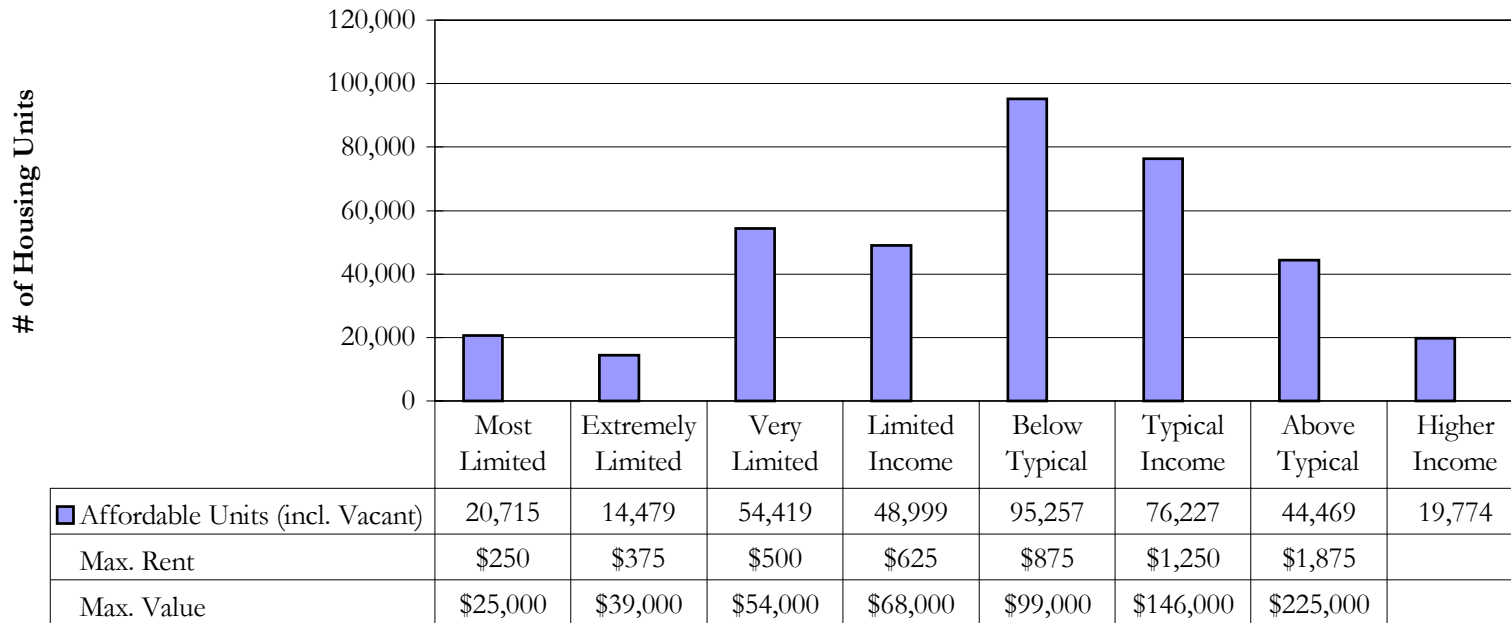
Exhibit 3: Distribution of All Households and All Housing Units (Rental and Ownership)

	Most Limited Income (<$10k)	Extremely Limited (<$15k)	Very Limited Income (<$20k)	Limited Income (<$25k)	Below Typical (<$35k)	Typical Income (<$50k)	Above Typical (<$75k)	Higher Income (>$75k)
■ Affordable Units (incl. Vacant)	20,715	14,479	54,419	48,999	95,257	76,227	44,469	19,774
■ Households	30,633	22,151	23,486	25,506	49,940	62,228	69,898	68,322
Max. Rent	$250	$375	$500	$625	$875	$1,250	$1,875	
Max. Value	$25,000	$39,000	$54,000	$68,000	$99,000	$146,000	$225,000	

# of Households and Housing Units

Exhibit 4: Distribution of Renter Households and Housing Units

	Most Limited Income (<$10k)	Extremely Limited (<$15k)	Very Limited Income (<$20k)	Limited Income (<$25k)	Below Typical (<$35k)	Typical Income (<$50k)	Above Typical (<$75k)	Higher Income (>$75k)
Affordable Units (incl. Vacant)	12,095	9,135	40,397	35,093	44,428	17,287	1,001	1,514
Households	22,430	13,772	14,470	14,499	25,577	25,079	18,571	8,834
Max. Rent	$250	$375	$500	$625	$875	$1,250	$1,875	

# of Renter Households and Housing Units
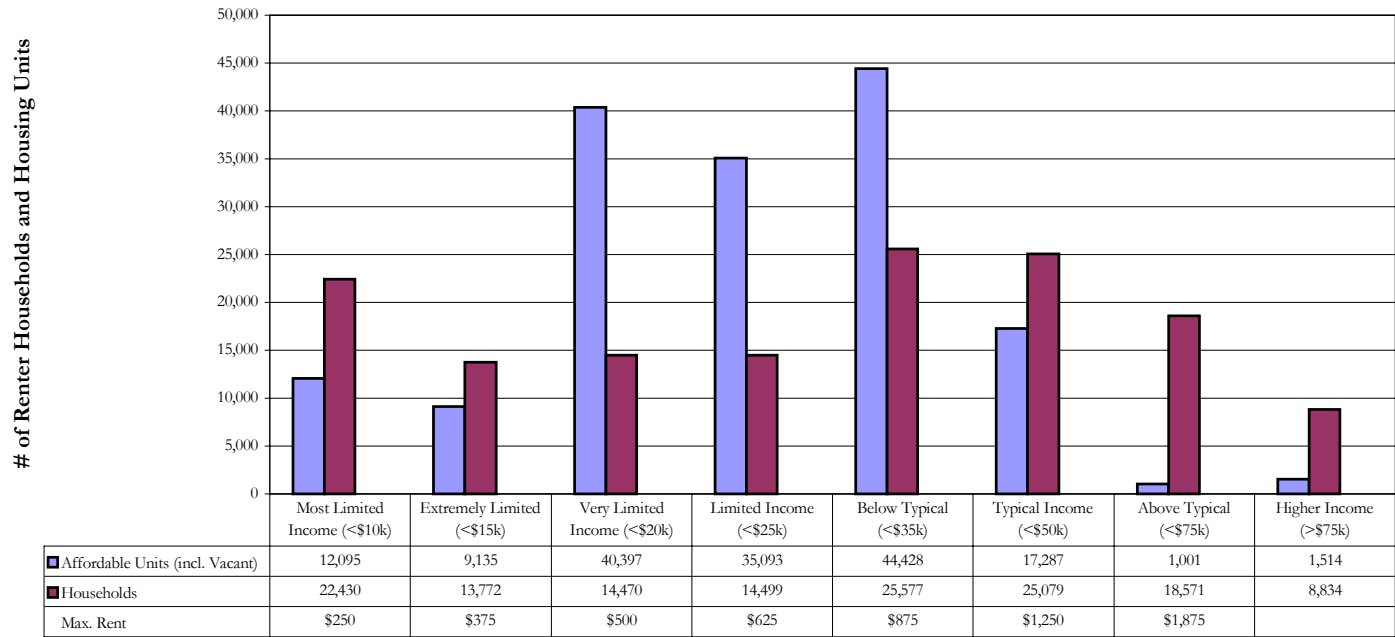
Exhibit 5: Distribution of Ownership Households and Housing Units

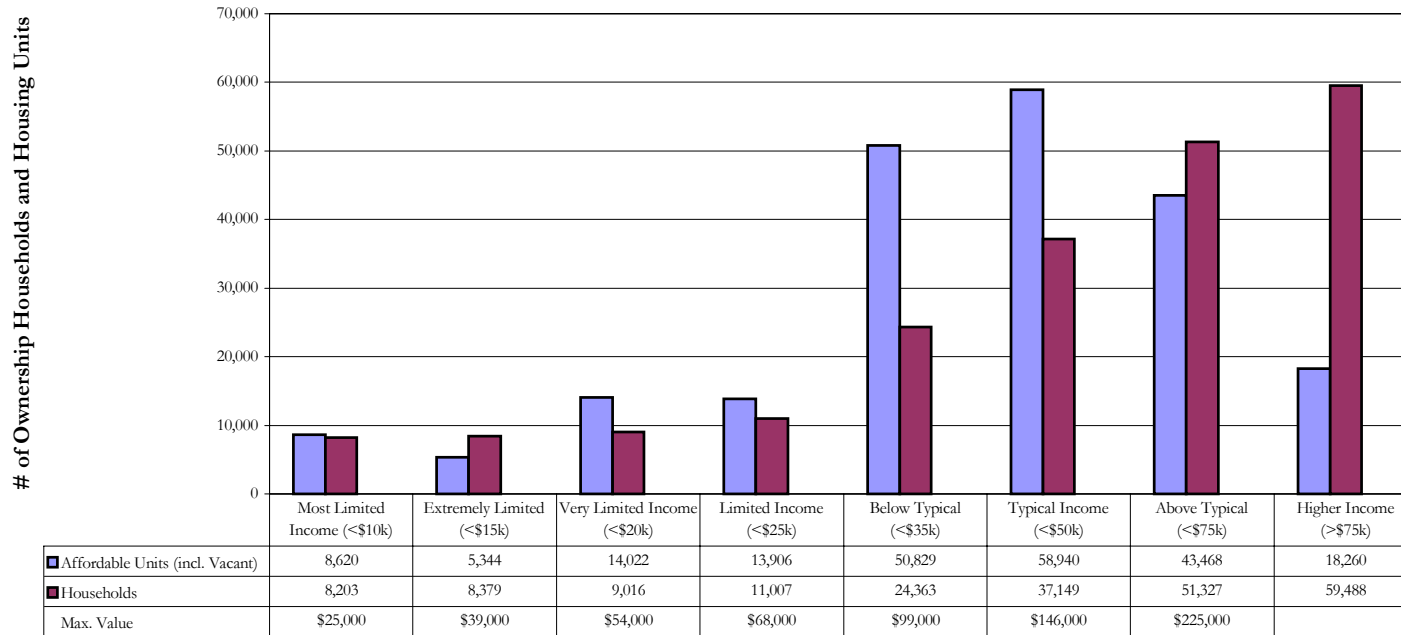|	Most Limited Income (<$10k)	Extremely Limited (<$15k)	Very Limited Income (<$20k)	Limited Income (<$25k)	Below Typical (<$35k)	Typical Income (<$50k)	Above Typical (<$75k)	Higher Income (>$75k)
■ Affordable Units (incl. Vacant)	8,620	5,344	14,022	13,906	50,829	58,940	43,468	18,260
■ Households	8,203	8,379	9,016	11,007	24,363	37,149	51,327	59,488
Max. Value	$25,000	$39,000	$54,000	$68,000	$99,000	$146,000	$225,000	

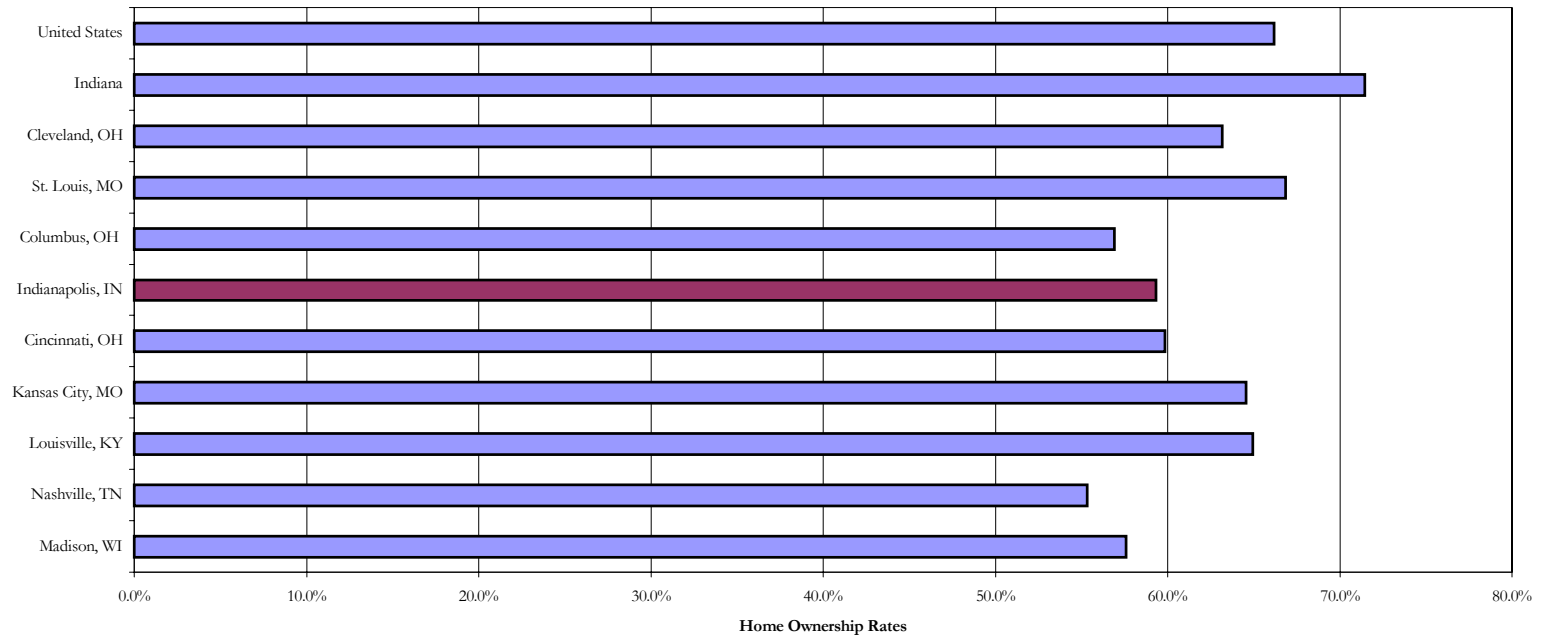**Exhibit 6: Comparable Home Ownership Rates* (2000 Census)**

Exhibit 7: Home Ownership Rates by Race/Ethnicity (2000 Census)

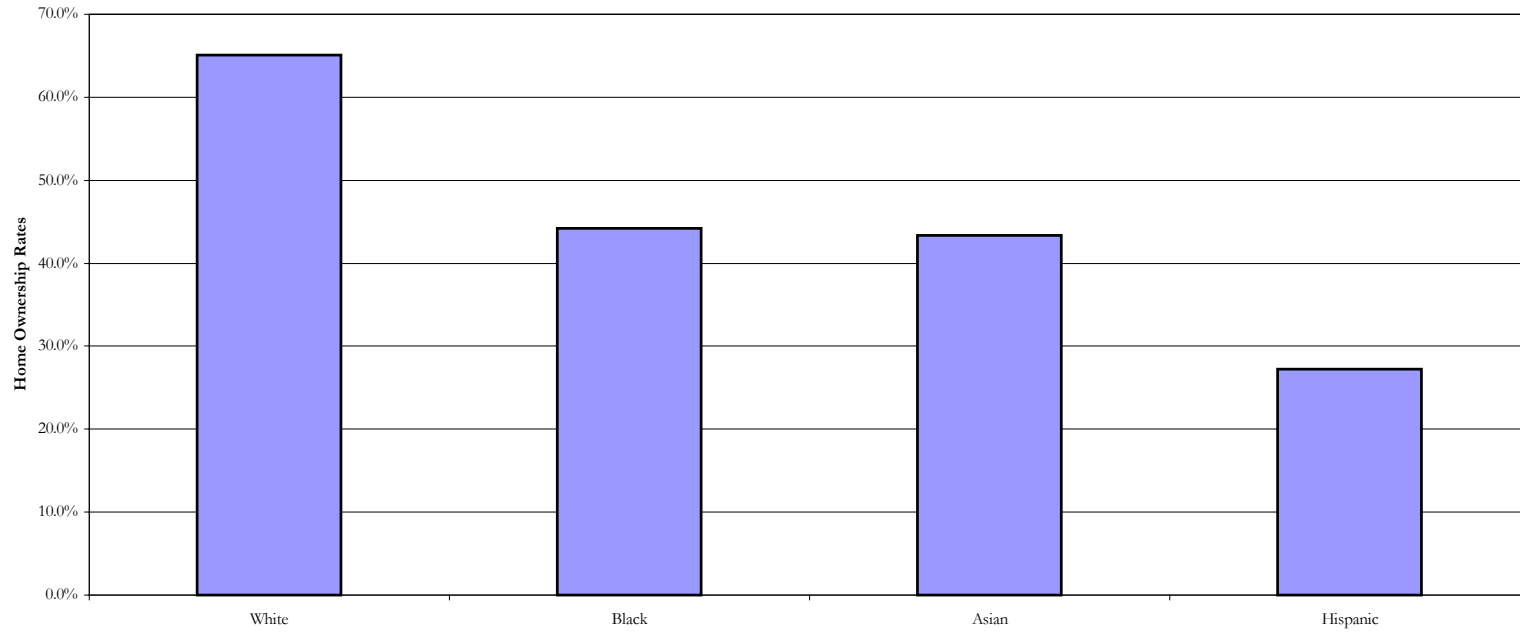**Exhibit 8: Comparison of "Loans in Foreclosure" Rates for Indiana and United States**

Foreclosure Rates

```
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
```

1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001

Indiana "Loans in Foreclosure" Rate (Seasonally Adjusted)
U.S. "Loans in Foreclosure" Rate (Seasonally Adjusted)
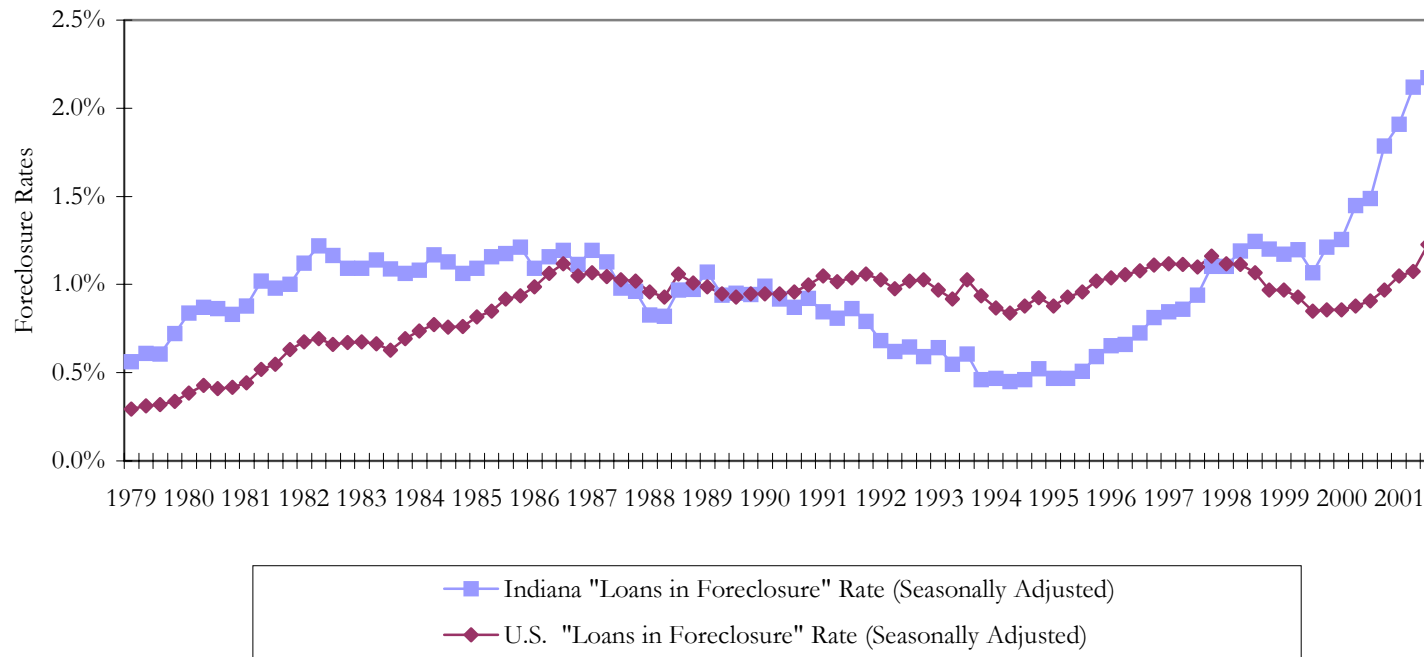
Exhibit 9: Comparison of Delinquency Rates for Indiana and United States
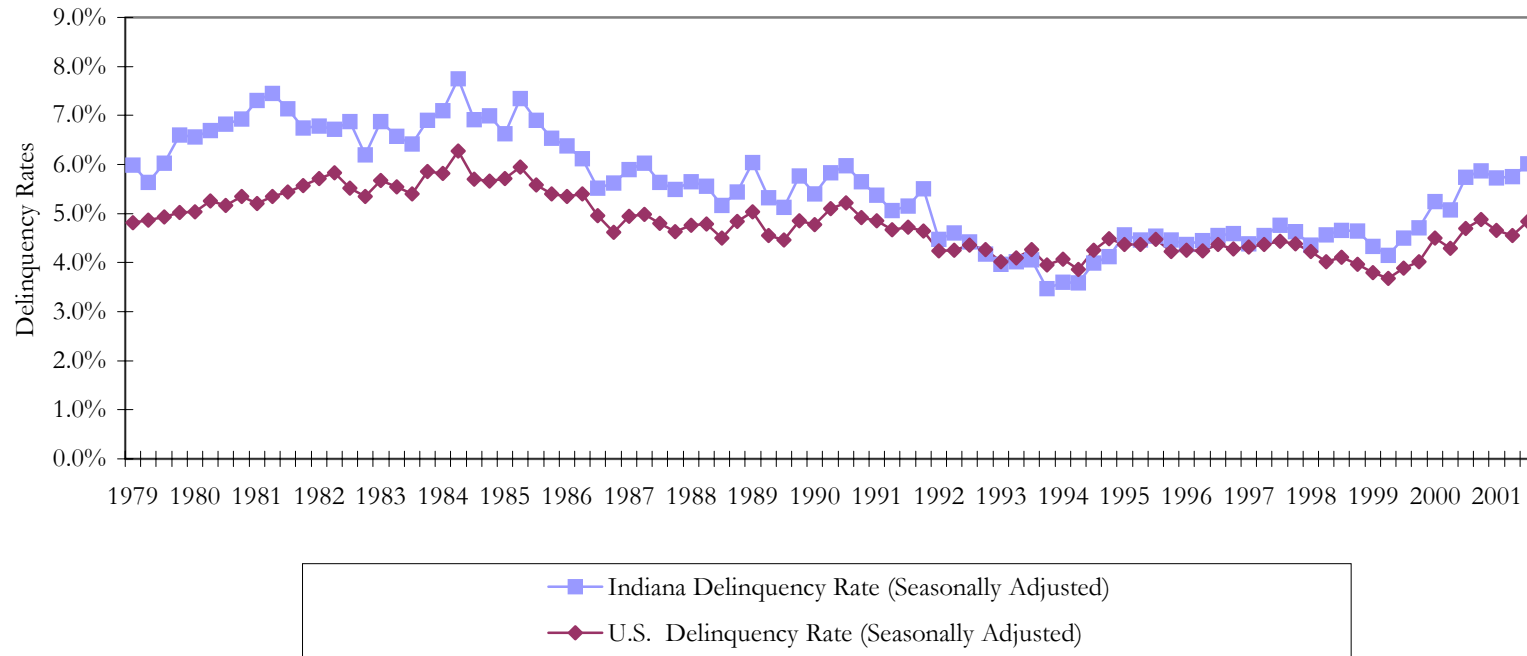
Exhibit 10: Distribution of % of Income Spent on Housing by Income Category (2000 Census)
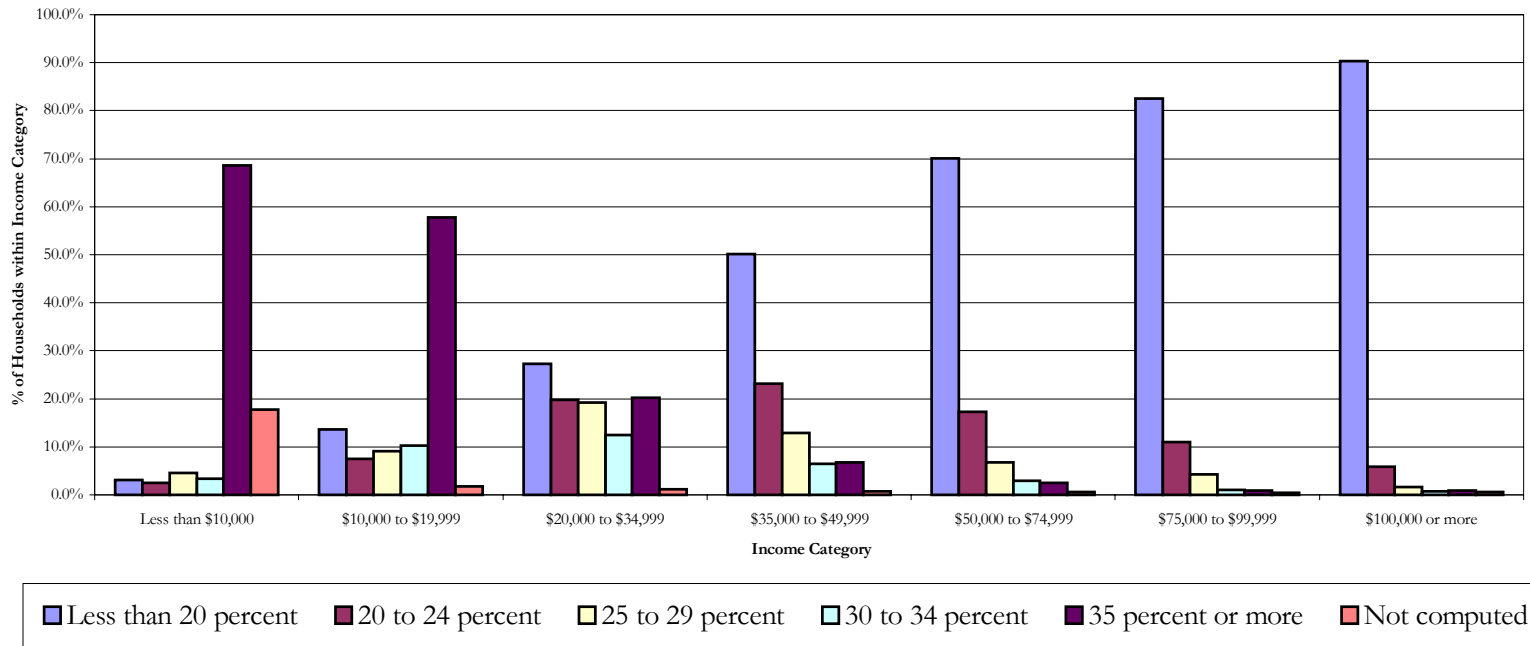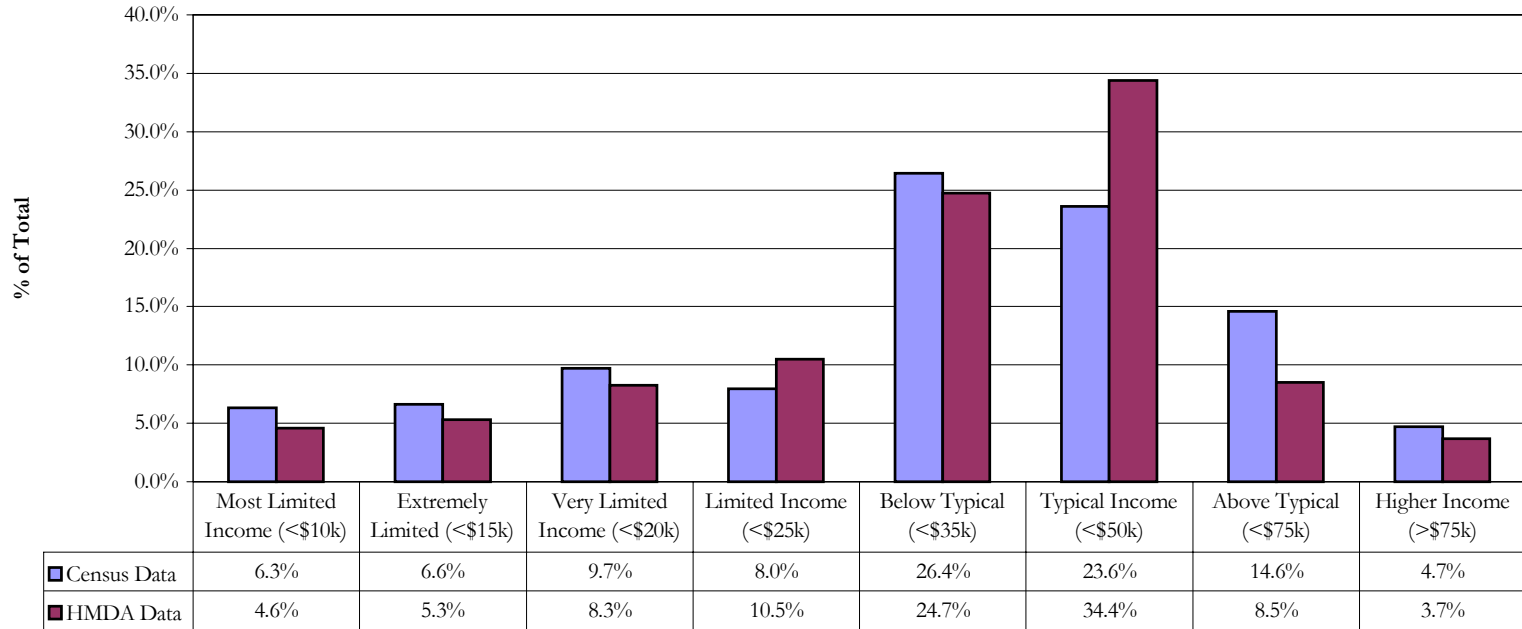
Exhibit 11: Comparison of Estimated Loan Amounts to HMDA Data

	Most Limited Income (<$10k)	Extremely Limited (<$15k)	Very Limited Income (<$20k)	Limited Income (<$25k)	Below Typical (<$35k)	Typical Income (<$50k)	Above Typical (<$75k)	Higher Income (>$75k)
■ Census Data	6.3%	6.6%	9.7%	8.0%	26.4%	23.6%	14.6%	4.7%
■ HMDA Data	4.6%	5.3%	8.3%	10.5%	24.7%	34.4%	8.5%	3.7%

Definitions

Affordable	A housing expenditure that is equal to or less than 30 percent of household income.
Area Median Income	A benchmark of maximum incomes eligible to qualify for various housing finance programs, generally adjusted for family size. Abbreviated as AMI.
HMDA	Home Mortgage Disclosure Act, a federal disclosure requirement for institutions that originate mortgage loans.
Home Ownership Rate	The number of owner occupied housing units divided by the number of occupied housing units.
Housing Expenditure	The amount a household spends for housing related costs. For renters, this includes rent plus utilities. For owners, this includes taxes, insurance, mortgage insurance premium, principal, and interest.
Housing Prices	See Housing Expenditure. When referring to home ownership, this term may also reflect the capitalized value of housing expenditures, or value of the housing unit.
Metropolitan Statistical Area	A geographic area of economic activity, typically composed of several counties, as defined by the Office of Management and Budget. Abbreviated as MSA.
Mismatch	The difference between the number of housing units less the number of households. A positive mismatch indicates that there are more housing units than households. A negative mismatch indicates that there are more households than housing units.
Model	A spreadsheet or other analytical tool that translates raw data into a description, or representation, of reality.
Tenure	The status of ownership of housing, generally either renter or owner.