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**DEMOGRAPHIC VARIATION IN HOUSING COST ADJUSTMENTS
WITH US FAMILY MIGRATION**

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DEMOGRAPHIC VARIATION IN HOUSING COST ADJUSTMENT WITH U.S. FAMILY MIGRATION

ABSTRACT

This paper examines the demographic variation in housing cost adjustment associated with family migration in the United States. The American population continues to migrate away from very large metropolitan areas down the urban hierarchy to smaller metropolitan and micropolitan areas, according to studies based on the 2000 Census and beyond. The exodus from the largest metropolitan areas is frequently attributed to the push effects of diseconomies and congestion, increasing presence of foreign population, and housing affordability problems particularly in the large gateway cities. Yet, there is no empirical study of the housing cost adjustments associated with migration. This study aims to redress this gap by empirically addressing three questions. First, is migration associated with housing affordability adjustments? Second, when families migrate do they increase or decrease their housing costs and what are the demographic variations in these housing cost adjustments? Lastly, are there significant differences in the geographies of housing cost adjustments among migrant families? The first of these questions is addressed using the Census 2000 county-to-county migration flows merged with Census 2000 measures for median housing value and median income. The remaining questions are examined using the 2000 Public Use Micro Sample 5% National file. The results indicate evidence of significant changes in housing costs associated with migration in general, and interstate migration in particular. On average the direction of migration is to more affordable places. Families migrating from the traditional gateway cities with relatively high percentage of foreign born populations are the most likely to make enormous shifts in affordability. However, these moves do not translate neatly into the regional white flight theory. In particular, Hispanics are far more likely to decrease housing costs with migration, as are non US citizens and naturalized citizens. While primarily empirical, this research makes an important contribution to debates within the family migration literature, including conjectures of regional white flight and gendered theories of migration. Family migration towards greater housing affordability is strategic and embedded in larger issues of family work-life balance.

Keywords: family migration; housing affordability; housing costs; inter-metropolitan migration; wives' employment; regional white flight.

INTRODUCTION

Families migrate to make adjustments in the husband's job, or increasingly in both family members' jobs, as the number of two-worker households has increased substantially in the past two decades. Families also migrate to deal with family commitments, including care for elderly family members, and sometimes as part of family planning decisions. There is increasing evidence that family and household migration goes beyond the notion that people migrate from areas with relatively low wages and/or full employment opportunities to areas with higher wages and more employment opportunities. Going beyond economic motivations is sometimes identified as gendered family migration theory. It is the attempt to place the decision making of families about the employment of wives within the context of inter-regional migration where the decision to move may not be explained by adjustments to long-term economic benefits of the husband alone.

However, neither the labor theory of interregional migration nor gendered family migration theory has specifically taken into account the role of costs of living in the migration process. In this paper, we attempt to redress this shortcoming by specifically examining the role of housing costs, as a proxy for larger costs of living impacts, in the migration process. Recent media coverage has identified the rapid increase in the cost of housing as a motivation for significant migration flows down the urban hierarchy. However, little empirical work has established the relationship between differential costs of living and migration flows, particularly for families. This paper provides empirical evidence of significant adjustments in the cost of housing for migrants, especially for interstate migrants.

In the three decades since Mincer (1978) introduced the concept of "tied stayers" and "tied movers" the research on family migration has grown substantially and substantively. The growth in the research on family and household migration reflects two important changes that have occurred in US labor markets in the last quarter of a century. In the 1970s, nearly all couple households (90 percent) relied on the husband for most of the family income. Twenty-five years later, the 2000 census reported almost the reverse. Only 25% of couple households had a sole provider husband (Raley *et al.*, 2006). The dramatic increase in wives labor-force participation has changed the migration dynamic. Now families are juggling two jobs when they make migration decisions, and it is no longer simply the husband's job that determines whether or not a move will be made and to where the household will move.

These migration decisions are now being made in a world of rapid housing price change. In the past two decades there have been a number of housing price increases, but the housing price rise of the late 1990s and early 2000 pushed housing prices to a new level. As costs have increased at varying rates throughout the country, the geography of housing costs has changed considerably from 1990 (figure 1) to 2000 (figure 2). Currently housing prices are regularly more than three times annual earnings (the old standard for deciding on the affordability of housing), and numerous media publications have focused on the increasing problems of affordability in the housing market.

(figures 1 and 2 here)

A recent US Census report notes that there are strong migration flows out of the metropolitan areas of New York, Los Angeles, Chicago, and San Francisco - just those areas which are amongst the most expensive housing markets in the country (Lalasz, 2006). There is out-migration from traditional urban centers but also from older classic bedroom communities as well. Many of these metropolitan movers are choosing to settle in smaller cities across the United States. According to the report, 21 of the country's 25 largest micropolitan areas, areas with populations between 10,000 and 50,000 and strong commuting links with neighboring counties, have had significant in-migration between 2000 and 2004 (US Census Bureau, 2006). These patterns obviously reflect the continuing transition within the US from a manufacturing economy to a service economy, and reflect the continuing shift of jobs from old metropolitan areas to new and distant suburbs and cities. As well, they reflect life course moves associated with a changing age structure of the population (Plane *et al.*, 2005). But, the patterns also reflect the realities of the high costs of housing in major metropolitan centers.

In the context of changing workplace involvement and changing housing costs it is worthwhile considering just what role housing costs play in the migration decision-

making process. In the past, the focus even within family migration studies has been on income gains and losses and whether wives are disadvantaged by migration. That work privileged income considerations but previous work showed that housing costs do matter on individual outcomes, now we extend that work to migration flows in general.

PREVIOUS RESEARCH AND THEORETICAL CONTEXT

The labor theory of interregional migration assumes that people migrate in search of economic opportunities and income gains. The traditional interregional migration literature used variation in employment and wage rates to predict interregional flows (Greenwood, 1985; Isserman *et al.*, 1986). Even when extended from the individual (Sjaastad, 1962) to the family the notion is that families migrate when the expected long-term economic benefits outweigh the costs (Mincer, 1978).

More recent work has raised questions about the relationship between migration and wage differentials (Newbold, 1996; Pellegrini and Fotheringham, 1999). Boyle *et al.* (2001) suggest that migration is much more than an economic adjustment mechanism, and they have turned to gendered family migration theory to explain migration outcomes. This literature, which has been widely reviewed (Clark and Davies Withers, 2002; Cooke, 2003; Davies Withers and Clark, 2006,) demonstrates that the outcomes for women are not always positive and are frequently associated with lost earnings, interrupted labor-force participation, unemployment or underemployment. Still, the latest work seems to suggest that the impact on women may be of shorter duration than previously suggested. The outcomes also depend on whether wives were employed before the move and whether the move was motivated by their own career advancement or their partners (van Ham, 2001).

The shift in focus from specific economic outcomes for women led to research on the interconnection between family and work and in particular, the non-economic elements of family life. These studies argue that migration outcomes, for women, need to be considered within the broader context of family structures, including parenting and the linked lives of dual-earner families (Cooke, 2001, 2003; Bailey *et al.*, 2004). Other research on two-worker households has stressed the extremely dynamic nature of labor-force participation for both movers and non-movers. Our focus on professional employment, often under plays the way in which many spouses tend to leave and re-enter the labor force relatively quickly (Clark and Davies Withers, 2002; Clark and Huang, 2006). The research on gendered migration also emphasizes the synchronicity of other life-course events, including the birth of children and marriage. Both have been shown to be important factors in the dynamics of women's labor force participation. In such studies the emphasis is on how households gain or lose in the context of combined labor-force participation and other family events.

The limited research on possible cost-of-living effects has focused mainly on examining the way in which wage differentials may be affected by cost-of-living differentials. Dumond *et al.* (1999) show that estimates of inter-area wage differentials are sensitive to adjustments for price differences. With an adjustment for cost-of-living, workers in the South realized a major gain rather than a substantial loss in their wage incomes. The important geographic finding is that while nominal city-size wage differentials show that wages are more than 20% higher in large metropolitan areas than small urban areas, after adjustment, there is a 7%, large city *disadvantage*. Their work is

clear support for the importance of cost-of-living in terms of geographic outcomes and potential decisions about vocational choices.

In related work, Fosu (1999) examines the effect of economic variables such as the market wage on the likelihood of wives labor-force participation. He argues that the cost of living can influence a woman's labor-force participation by altering the real values of labor and non-labor income or by capitalizing on local amenities. A wife enters the labor force in this second context to maximize their access to local public goods. Of importance to the present analysis, Fosu (1999) includes housing in the important environmental attributes. He uses the example of a wife entering the labor force to satisfy a family's taste for a better climate in California which has associated higher housing costs. Although Fosu (1999) focuses on wives' labor-force participation, rather than migration, the thesis is directly on target with our notion of the importance of geographic variations in housing cost as a factor in migration.

To date there is limited work on geographic variations in the cost of living and the impact on migration. Davies Withers and Clark (2006) challenge the assumption that simple evaluation of economic gains and losses guide family migration. They show that nominally more affordable outcomes of migration are significantly more affordable when adjusted for the cost of housing differences. In contrast, nominally more expensive moves are significantly more expensive when adjusted for the cost of housing. Losses for wives based on nominally more affordable moves become gains when adjusted, and neutral outcomes for nominally more expensive outcomes become significantly negative outcomes when adjusted for the cost of housing.

There is also evidence that wives leave the labor market when the move is to a more affordable place and wives enter the labor market when the move is to a more expensive housing market. This latter finding is consistent with the Fosu (1999) research reviewed earlier. The findings based on individual family data do not tell us about the overall role of differential housing costs. The current paper takes up that issue in the context of state-to-state and county-to-county moves. We extend the earlier work on the mechanism of cost-of-housing impacts by examining aggregate flows and the geography of the cost-of-housing adjustment process. As well, we examine the demographic variation in housing cost adjustments of migrant families in the United States.

METHODOLOGY AND DATA SOURCES

Although there has been considerable speculation within the literature and the media that housing cost differentials are driving migration down the urban hierarchy, there is no empirical evidence to support this claim. In this paper we address this empirical gap by examining the U.S. Census county-to-county migration files for 2000¹. By merging census data measures for median home value and median income per county we are able to calculate the location-specific adjustment in the cost of housing that occurs with each migration². Since Census 2000 migration flows refer to migration since 1995, we used the midpoint between 1990 and 2000 data values to represent 1995 median income and 1995 median housing costs by county. Following Davies Withers and Clark (2006), we then measure the relative cost of housing by calculating a housing-to-income ratio (HIR)

¹ Census county-to-county migration flow files are available at <http://www.census.gov/population/www/cen2000/ctytoctyflow.html>

² Census county measures are available in the Census Summary Tape File 3 at <http://www.census.gov>.

at the origin county by measuring the ratio of median housing costs to median income in 1995. Similarly, we calculate the housing-to-income ratio at the destination by measuring the ratio of median housing costs to median income in 2000³. Changes in HIR for migrants are determined by comparing the affordability of housing in the origin to the destination. A positive change indicates a move to a more *expensive* place, whereas a negative change indicates a move to a more *affordable* place. We measure these differences in absolute terms and percentage change. This initial stage of the analysis examines all migrants across the country at the county-to-county level, and then disaggregates by the size of the migration flows and by interstate moves. By doing so we provide empirical evidence of significant changes in housing costs associated with migration in general, and interstate migration in particular.

Having established the connection between housing affordability and interstate migration for the general population, the second stage of this study turns to family migrants in particular to inquire as to whether family households increase, decrease or have no appreciable change in housing affordability when they migrate. Further, we inquire as to whether there are significant demographic differences in the housing affordability adjustments from migration on the basis of age, labor force participation of the couple, ethnicity, citizenship status and the concentration of foreign born at the origin or destination. In this stage we focus on inter-metropolitan family migrants by merging the Census Public Use Micro Sample (PUMS 5%) National file with general census measures of median home value, median income, ethnic composition and population size for the geographic origin and destination metropolitan areas. We restrict the sample to family households with married couples between the ages of 20 and 64 years. The age restriction is meant to keep college and retirement moves outside the consideration of this study. We restructured the dataset to link records for both the husband and the wife, and eliminated a few couples with extreme age differences within the married pairs. As well, since our interest is with migration (rather than residential mobility), we eliminated inter-metropolitan migrations that occurred within the same census labor market areas. We then calculate the change in location-specific housing-to-income ratio associated with the inter-metropolitan origin and destinations of these family migrants.

The last stage of this study utilizes a typology of housing cost adjustments to further elucidate the demographic variations in changes in the housing affordability measure. This typology is developed from the interrelated nature of changes in median income (positive or negative) and changes in median housing value (positive or negative) associated with family migration. This typology illuminates the various strategic relocations associated with family migration in the United States.

FINDINGS

Is migration associated with housing affordability adjustments?

At the outset we mapped the calculated housing affordability measure in 1990 (figure 3) and in 2000 (figure 4) across the United States by county. The maps indicate anticipated

³ While there have been numerous efforts recently to develop a national comprehensive cost-of-living index (Nelson, 1991; McMahon, 1991; Moulton, 1995; Malpezzi et al., 1998; Koo et al., 2000; ACCRA, 2001) to date there is still no official comparative index of the variation in the cost-of-living across the United States.

geographic variations in these measures. Traditionally, housing affordability has been measured by a 3:1 rule of thumb, representing the idea that one could afford a home at a value roughly 3 times annual income. The map of the housing affordability in 2000 (figure 4) indicates significant increases substantively (ratios are now far above 3) and a spreading geographic distribution of housing affordability challenges. Furthermore, the traditional 3:1 rule of thumb was applied at a time when predominantly only one member of the household worked. Of course, many households now rely on two incomes.

(figures 3 and 4 here)

Table 1 summarizes the county-to-county migration flows. In total, there were more than 47 million moves amongst the American people between about 735,000 county pairs. The possible set of pairs is more than 9 million (3040x3040 counties). The average flow size is 64 people. Clearly, there are many exchanges between counties that involve very few migrants. The largest 1% of migration flows involved only 5438 pairs with an average flow size of almost 3500 people. By contrast, the largest 0.1% of migration flows occurred between 739 pairs, representing about 9.5 million migrants. The average size of these largest streams is almost 13,000 people. Clearly, migration streams are focused, directed, and constrained to a few major counties. Of course, many of these are the largest metropolitan counties which generate much of the national change in population.

(table 1 here)

Just over half of all migration flows are intrastate flows (Table 2). This increases as we restrict migration to the largest flows. Almost all (90%) of the largest migration flows are intrastate. For all flows, the most frequent intrastate flows are within California (12.28%), Texas (9.55%), New York (5.82) and Florida (5.22%). The same top three occur in the top 0.1 percent of flows with magnitudes changing to 21.57, 8.98 and 8.74 percent of flows, for California, Texas and New York, respectively. For all migration flows, the most frequent interstate migration destinations are Florida (8.42%), California (6.56%) and Texas (6.17%). These change considerably when focus turns to only the top 0.1% of migrant flows. Then Nevada (13.87%), Arizona (13.30%), California (9.82%) and New Jersey (9.65%) are the top destinations. As well, for these largest migrant flows the top origin states are California (28.44%), New York (16.95%), Illinois (10.49%), and DC (8.63%). Much speculation has occurred with the literature regarding regional ‘white flight’ as an explanation for these large population flows out of these high immigration states. However, until now little has been made of the affordability of housing, and the consequent cost-of-living differences that accompany these migration streams.

(table 2 here)

Our analysis proceeds by focusing on the aggregate changes in the housing-to-income ratio for all migration flows, the top 1% by magnitude, and the top 0.1% of migration flows. Subsequently, we differentiate between interstate county migration flows and intrastate county migration flows, while maintaining the comparison amongst all migrants, the top 1%, and the top 0.1% of migrants. To be clear, these changes in housing-to-income ratios are place differences not migrant’s individual differences - they describe the changed context of these moves. People are moving from, or to, more affordable or more expensive places.

The maximum percentage change in the housing-to-income ratio amongst all migrants was 625% (more expensive), and the minimum was -89% (less expensive).

These are the extremes. The 75th percentile was 15% and the 25th percentile was -18%. The midpoint indicates that half of all flows were associated with a decrease of at least -2%. Some of the extreme values are reduced when restricted to the top 0.1% of flows. The maximum increase in the change in HIR was 152%, the 75th percentile was 7 percent. At the other end of the spectrum, the greatest decrease in the comparative cost of housing was -73% and the 25th percentile was -22%. The midpoint indicates that half of the flows were associated with a decrease of at least -0.08 percent. Interstate migration is more closely associated with decreases in the housing-to-income ratio, and this is especially true for the largest magnitude of migration flows.

With respect to interstate migration, the most extreme percentage change in the housing-to-income ratio is 288%, and the greatest decrease is -81%. The 75th percentile lies at a 7% increase, and the 25th percentile falls at a decrease of -42%. The midpoint is a percentage change in HIR of -20%. So, over half of all interstate migrants experience a cost-of-housing decrease of at least 20%, and indeed three-quarters of interstate migrants experience changes below 7%. There is strong association between interstate migration and downward adjustments in the cost of housing.

The top interstate migration streams at the county level provide an interesting landscape of the types of housing affordability shifts that are occurring. Table 3 provides the top 50 interstate migration flows listing the county and state of origin and destination, absolute change in housing-to-income ratios, and well as percentage change. The table is sorted by the magnitude of the migration flow. Within these largest flows there is a correlation of 0.368 between the absolute change in median home value and the absolute change in median income. This is positive and significant but not really strong. The correlation between the percentage change in median income and percentage change in median home value is stronger at 0.425. Figure 5 graphically portrays the relationship between change in median income and change in median home value for the top 100 flows. While most county-to-county migration streams amongst these largest flows are associated with an increase in median income, three-fifths are associated with moves to places with more affordable housing.

(Table 3 and figure 5 here)

The possibility of living in more affordable places has the potential to profoundly influence the labor-force behavior of married-couple families. Davies Withers and Clark (2006) found evidence using the Panel Study of Income Dynamics that women moved into the labor market in association with moves to more expensive destinations and frequently left the labor market in association with moves to more affordable places. Their study lends support to gendered migration theory and the strategic decision-making of households aiming to achieve better work-life balance. By moving to a more affordable housing market families can get closer to realizing a family wage with just one-earner. We turn now to examine whether housing costs matter for family migration and labor-force participation.

Family migration and changes in the cost of housing

Having empirically established that significant adjustments in the cost of housing occur with migration and interstate migration in particular, we turn to the connection between housing costs and family migration. Unfortunately, the county-to-county migration files do not provide demographic information about the composition of the flows, for ideally

we would continue our analysis by examining life course aspects of the migrant streams. To do this with a sizeable sample, we turn to the PUMS 2000 5% national sample. It provides information on the prior metropolitan area for migrants who have moved in the past five years. This is a very large dataset from which we can contrast the cost of housing at the previous metropolitan area with the current metropolitan area. Again, we merged the data with Census 1990 and Census 2000 measures of median income and median housing value, but the scale of analysis is now the metropolitan area rather than the county. This enables us to examine inter-metropolitan migration at the household level. In particular, we focus on family migration and the geography of family migration to determine if families are moving to more or less expensive places when they move. Specifically, we ask if when family households migrate they increase, decrease, or have no appreciable change in their housing-to-income ratio, and whether there are significant differences in labor-force participation amongst married couples between these different types of housing adjustment migrations? From the original PUMS sample of 14,081,466 individuals, our sample is reduced by including only inter-metropolitan migrants who are married-couple households, between the age of 20 and 64 years. Nonetheless, we still have 111,100 households, which when weighted represent 2,425,539 migrant family households. Assessing these questions with the PUMS provides very robust answers to our questions.

There are a host of demographic variations within this sample of family migrants. With respect to age group, 34% of the sample members are between the ages of 20-34, 46% between 35 and 49, and 20% are between the ages of 50 and 64. Ten percent of the husbands are not in the labor force, whereas 38% percent of wives are not. Joining the work status of both partner 54% have both partners working, 34% have only the husband working, 5% have only the wife working, and 7% have neither partner in the work force. The rather large proportion of couples with only the husband working is typical and indicative of the selectivity of family migration. These descriptors refer to the family work status after the move - unfortunately employment before migrating is not known. Regarding ethnicity, 76% of families are nonHispanic White, 9% are Hispanic, 6.5 % are African American or Black, 5.5 % are Asian or Pacific Islanders, and 2.5% are of more than one race.

The majority of couples are American citizens by birth (85%), whereas 6.7% are naturalized citizens, and 7.7 % are not U.S. citizens. One third of these family households do not have children. Roughly one-fifth of these migrant couples have heads whose educational level is at or below high school completion. With respect to employment, almost three quarters of the husbands are wage or salary workers in the private sector, 8.6% are self-employed and 16% are government employees at either the federal, state, or local level. Lastly, 23% percent of these families originate *from* metropolitan areas with a relatively large concentration of foreign born (defined as $\geq 15\%$ of the population). Still, 30% of the families migrate *to* metropolitan areas with large concentrations of foreign born population. Amongst these origin-destination pairs 57% of families migrate from and to metropolitan areas with low levels of foreign-born population, and 10.5% of families migrate from and to metropolitan areas with high levels of foreign-born population. This leaves just shy of 20% of families migrating from low to high concentrations of foreign-born and the remaining 13% migrating from high to low concentrations of foreign-born population. We turn now to ascertain whether these

various demographic attributes have any bearing on housing costs adjustments of migrating families.

In the aggregate, 54% of migrating families decrease their housing affordability measure upon migrating. Roughly 12% have no appreciable difference (+ or – 5%), and the remaining 34% increase their housing affordability measure. In other words, while 1 in 3 migrants move to a more expensive housing market, greater than 1 in 2 families move to places where housing is relatively cheaper. The average change in the housing-to-income ratio was -0.48. Who is most likely to significantly decrease housing costs?

Likelihood of decreasing costs via family migration

Table 4 provides descriptive statistics for the change in housing-to-income ratio associated with these family migration streams. With respect to the couples' work status greater average decreases occur for households in which only she works or neither work. The most striking differences are associated with Hispanic family migration which has an average change of -1.08. This represents an enormous difference in housing affordability between the origin and the destination. Indeed, the median value for Hispanic migrants is -.72, meaning that half of all Hispanic family migration is associated with significant housing cost reductions. In accordance the cost adjustments for non US citizens and naturalized citizens are large and significant. The largest differences in HIR occur for migrants leaving metropolitan areas with significant foreign born populations. Rather than supporting the conjectures of regional white flight, these findings indicate that the exodus of families from gateway cities are Hispanic families migrants moving to places of greater housing affordability.

Because we are interested particularly in which groups decrease their housing affordability measure via family migration we calculated relative risk ratios for the various demographic profiles. Young families are 0.88 times less likely to decrease housing costs, whereas there is no statistical difference between the likelihood of middle or older households. Households in which only the husband works are not statistically different from households in which both partners work with respect to decreasing housing costs. However, families in which only she works are 1.2 times more likely and those in which no one works outside the home are 1.4 times more likely to decrease housing costs via family migration.

Ethnically speaking, Hispanics are 2.1 times more likely to decrease housing costs via family migration than nonHispanic White families. Black families are 1.3, and Asian and Pacific Islander families are 1.2 times more likely to decrease housing costs relative to nonHispanic whites. As well, relative to U.S. born citizens, naturalized citizens are 1.7 times more likely, and non-citizens of the U.S. are 1.6 times more likely to migrate to places with more favorable housing affordability. Families with children are marginally, but significantly more likely to decrease housing costs. Poorly educated families are 1.4 times more likely to decrease housing costs in association with family migration.

Families leaving metropolitan areas with high concentrations of foreign born are 14 times more likely to decrease housing costs when migrating. This is not surprising given that the immigrant gateway cities are amongst the most expensive places in the United States and were in 1990 as well. Conversely, moves to cities with high concentrations of foreign born are unlikely to decrease housing costs via migration, again, predictable given these are moves to expensive gateway cities. These findings

suggest distinct differences in the geography of ethnic relocation via family migration. We turn now to examine the geography of housing cost adjustments from migration migration.

Housing Cost Adjustment Typologies

Lastly, we examine the demographic variations in the mechanisms which lead to more affordable housing markets. Previously figure 5 displayed the relationship between changes in the cost of housing and changes in median income. Similarly, figure 6 illustrates a typology of four quadrants based on the relative increase or decrease of both median housing value changes and median income changes in association with migration. Quadrant 1 (Q1) depicts the situation whereby family migration has involved a move to a destination in which median housing prices are lower yet median incomes are higher. This is the most desirable of adjustments. With respect to housing affordability, Quadrant 2 (Q2) depicts migration associated with both an increase in median income and an increase in median housing value. Quadrant 3 (Q3) migrations seldom occur and represent migration to a place with higher housing costs but lower median incomes. Quadrant 4 (Q4) depicts migration to a place with lower median income and lower median housing prices. Table 5 lists the percentage distribution across these four quadrants for a variety of demographic measures. For all family migrants just shy of a quarter of all moves are to Q1, 68% are to Q2, and 7.5% are to Q4. The bold values on the table highlight variations across the typology with greater than expected representations.

If there is an association between family migration and women's labor-force participation that involves strategic family decision making to more affordable places then we would expect to see greater presence of one-worker households in Q1 especially and also Q4. Although one would have expected greater differences between two-earner and male-earner households, there is a predictable directionality to this distribution (Table 5) with Q1 being a more common occurrence for female-worker households and nonworker households.

Interestingly, the greatest demographic variation does not lie in labor-force attributes of the family⁴ but rather with ethnicity and citizenship. Most notable amongst these findings are young white family migrants moving to Q2, and Hispanic migrants moving to Q1 and Q4 in large proportion. One in 3 Hispanic family migrations involves a move to a more affordable housing market with relatively higher incomes. Similar values are found for naturalized citizens and non U.S. citizens as well. There is no appreciable difference in distribution across this typology on the basis of foreign-born concentrations at the destination. However, on the basis of foreign born concentrations at the origin there are striking differences. The largest discrepancies are present for this measure. The vast majority of moves from foreign-born concentrations are to places with better incomes and cheaper housing. The vast majority of moves from places without concentrations of foreign born are to places with both greater wages and higher housing costs.

Geographically, there is clear evidence of different migration streams: nonHispanic White family migration of young couples to more expensive housing

⁴ Recall the PUMS does not provide information about changes in labor force participation from the origin to the destination of a move. So, these labor-force participation measures are the outcome of migration not the stimulus of migration.

markets, and Hispanic family migration to more affordable destinations. Figure 7 provides some common origin-destination pairs for white family migrants across the housing cost adjustment typology. Figure 8 provides a contrast by listing the common pairs for Hispanic families. Plenty of overlap exists. Yet, there is a Hispanic set of destination metropolitan areas that are distinct from the nonHispanic White destinations of family migration.

CONCLUSIONS

Neither the labor theory of interregional migration nor gendered family migration theory has specifically taken into account the role of costs of living in the migration process.

This paper provides convincing evidence that cost of housing adjustments are a critical component of understanding recent long distance migration flows and family migration strategies.

There is increasing evidence that family and household migration goes beyond the notion that people migrate from areas with relatively low wages and/or full employment opportunities to areas with higher wages and more employment opportunities.

The dramatic increase in wives labor-force participation has changed the migration dynamic.

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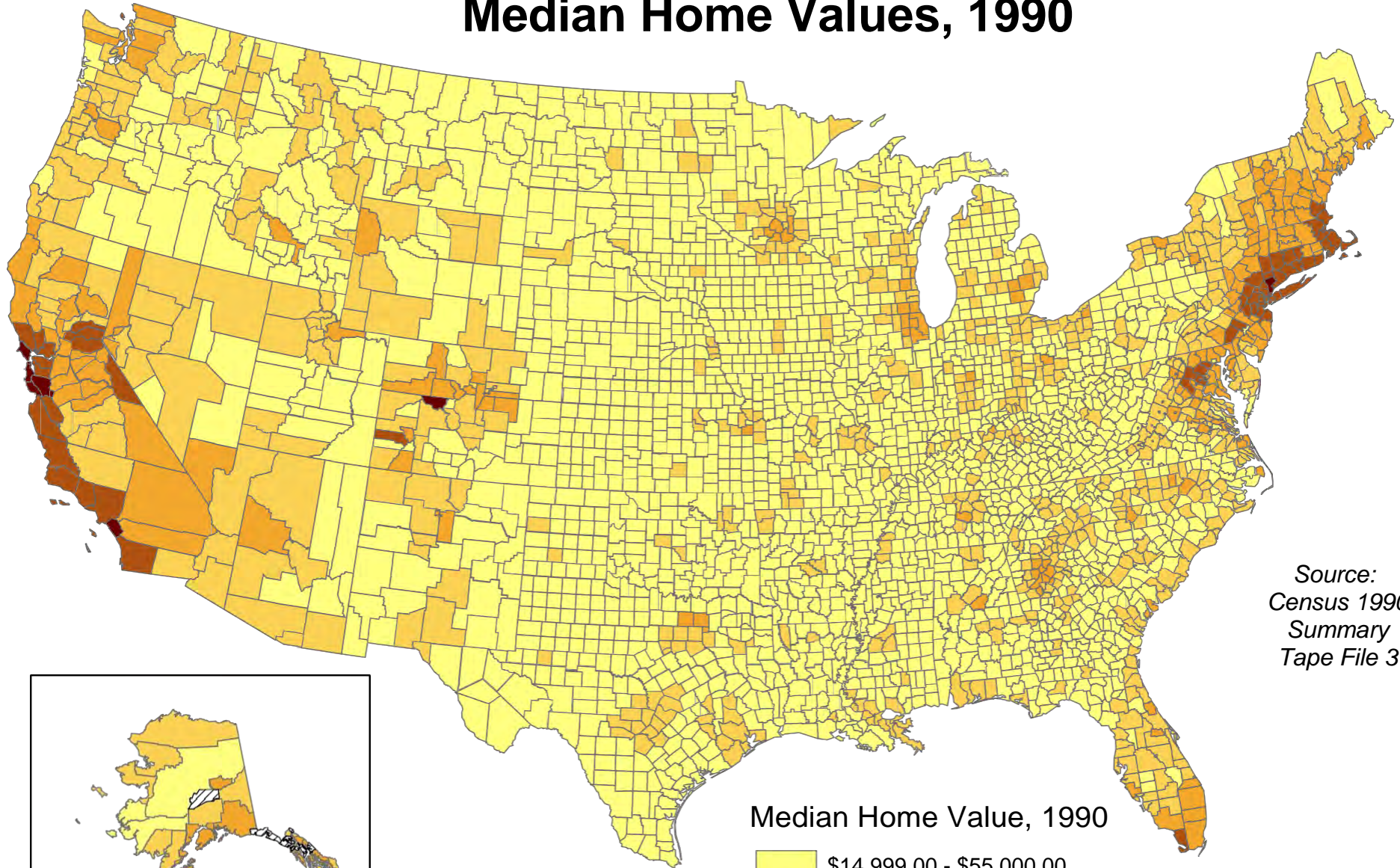
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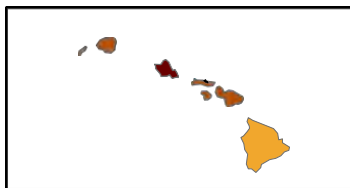
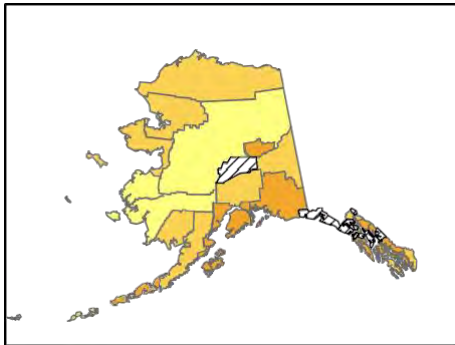
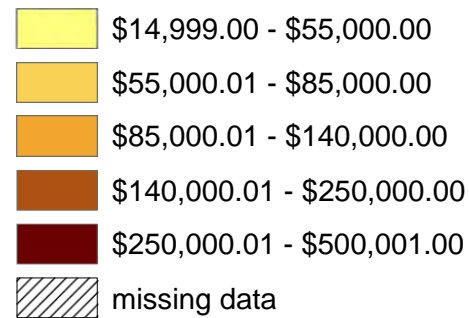
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Median Home Values, 1990

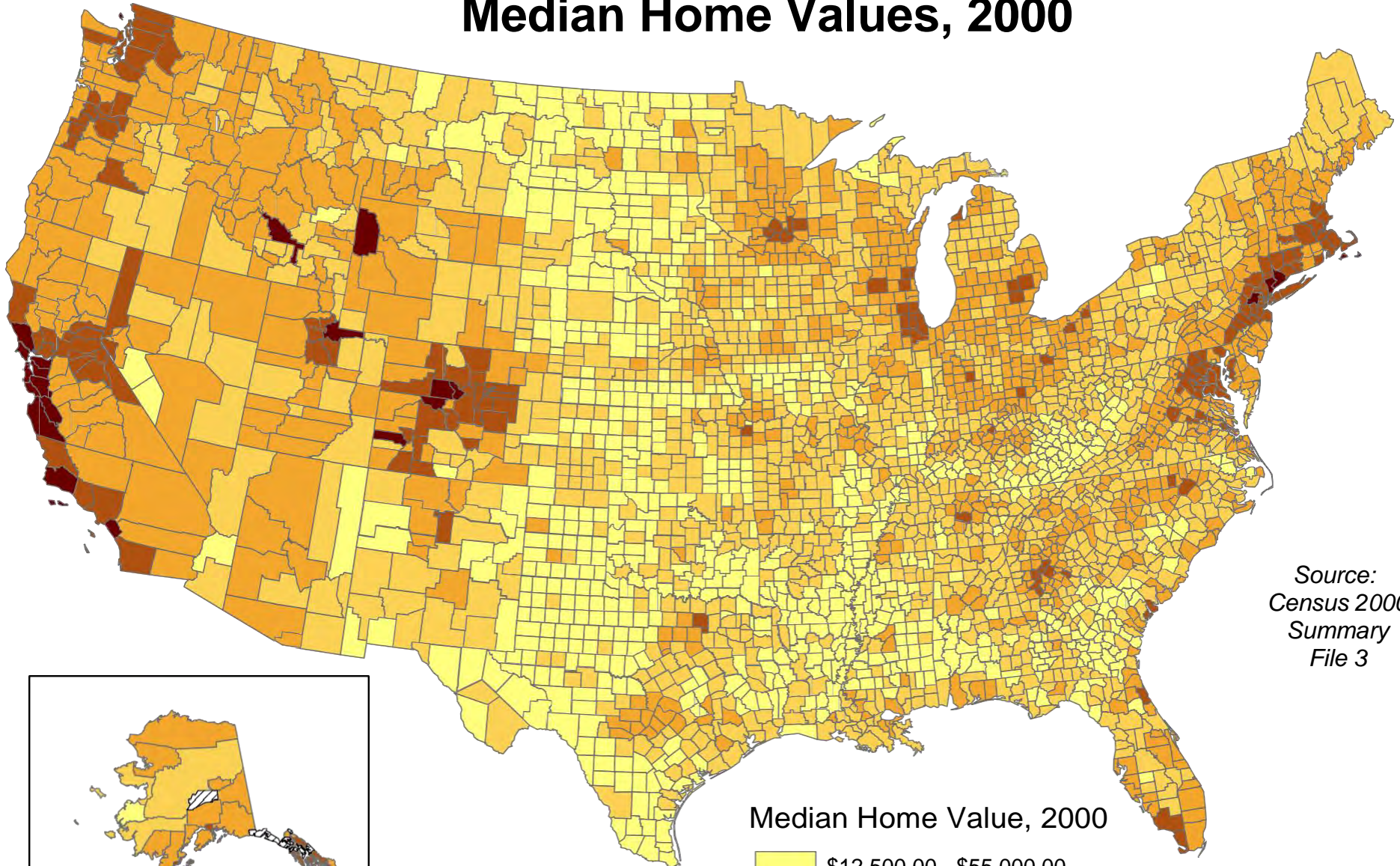


Source:
Census 1990
Summary
Tape File 3

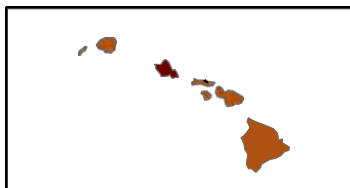
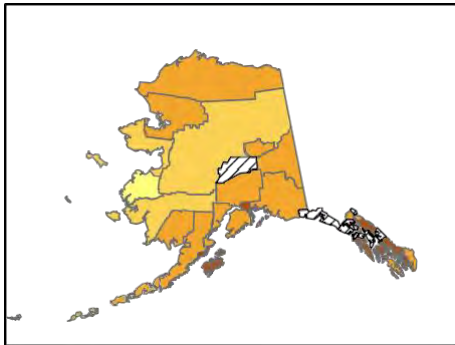
Median Home Value, 1990



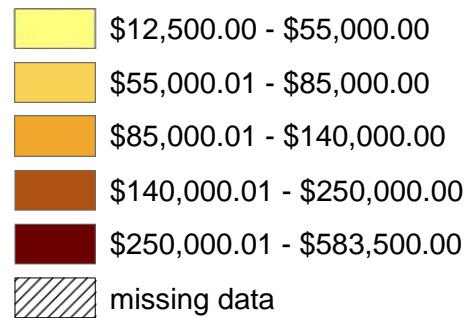
Median Home Values, 2000



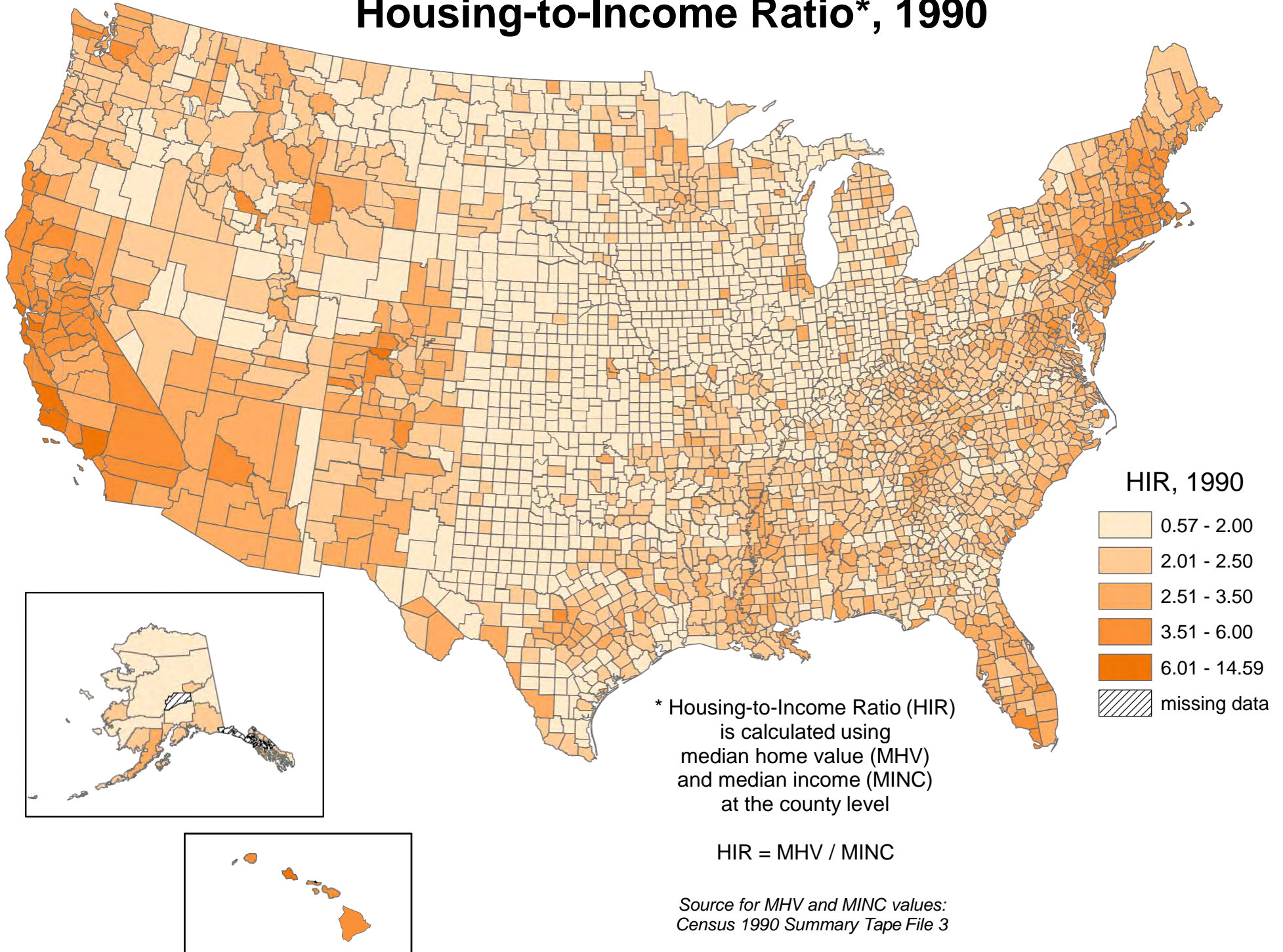
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Summary
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Median Home Value, 2000



Housing-to-Income Ratio*, 1990



Housing-to-Income Ratio*, 2000

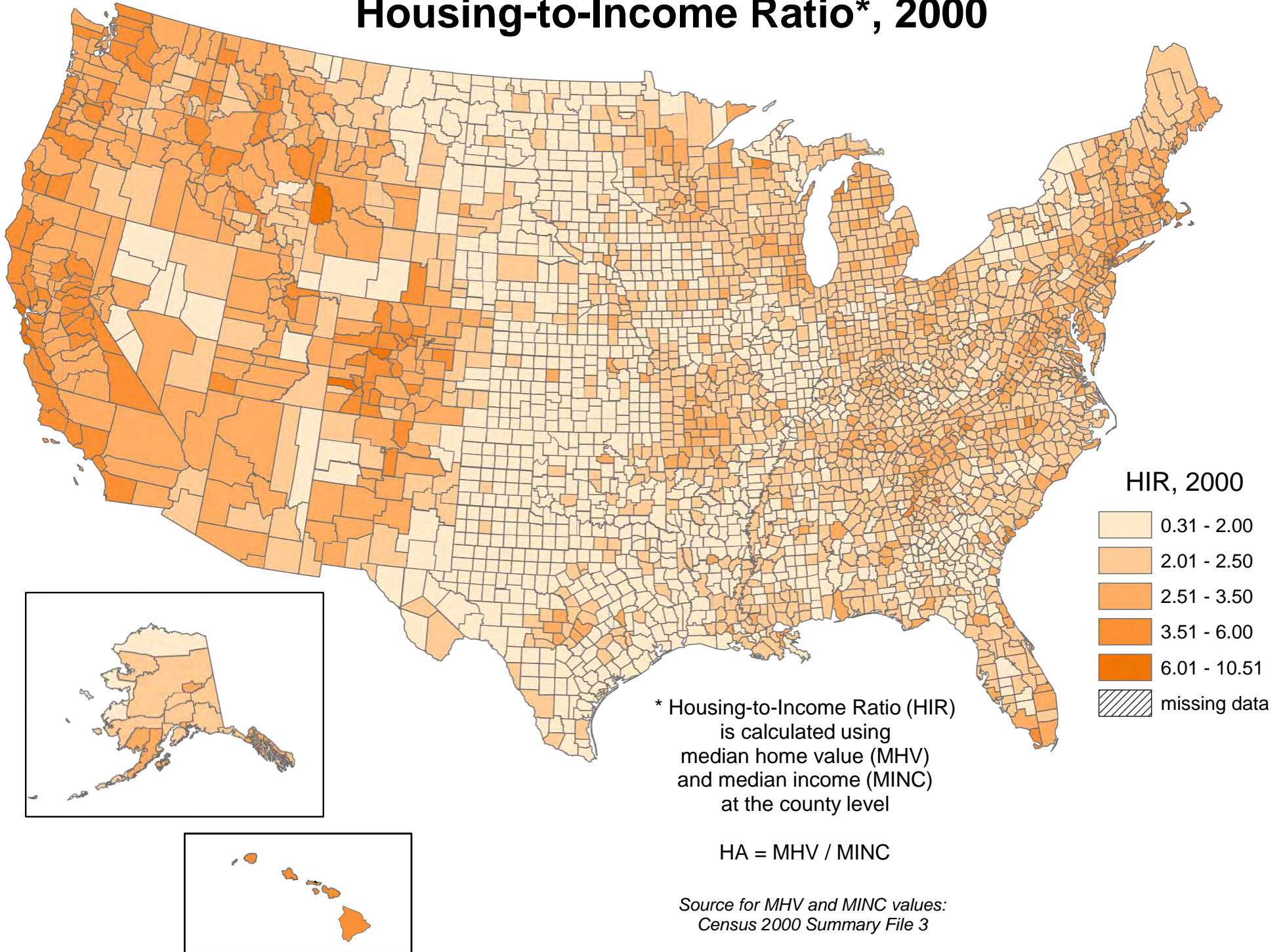


Table 1. US Census County-to-county migration, 1995-2000

| | All Flows | Top 1% Largest Flows | Top 0.1% Largest Flows |
|---|---|---|---|
| County pairs | 735,377 | 5,348 | 739 |
| Streams (in-migrants) | 47,237,906 | 18,449,802 | 9,566,305 |
| mean | 64 | 3,449 | 12,944 |
| Intrastate | 53% | 81% | 90% |
| Interstate | 47% | 19% | 10% |
| States with most Intrastate Migration | CA 12.28% TX 9.55% NY 5.82% FL 5.22% | CA 17.47% TX 8.90% NY 7.31% FL 5.94% | CA 21.57% TX 8.98% NY 8.74% |
| Most frequent destinations: Interstate Migration | FL 8.42% CA 6.56% TX 6.17% | CA 10.53% AZ 9.62% FL 8.40% NV 6.77% | NV 13.87% AZ 13.30% CA 9.82% NJ 9.65% |
| Most frequent origins: Interstate Migration | CA 9.98% NY 7.25% FL 5.68% TX 5.50% | CA 20.57% NY 14.67% IL 9.02% | CA 28.44% NY 16.95% IL 10.49% DC 8.63% |

Table 2. Change in the housing-to-income ratio for all county-to-county flows and interstate flows

All County-to-County migration flows

| Distribution | All Flows | Top 0.1% Largest Flows | All Flows | Top 0.1% Largest Flows |
|-----------------|---------------------|---------------------------|-------------------|---------------------------|
| | (percentage change) | (percentage change) | (absolute change) | (absolute change) |
| Maximum | 625% | 152% | 8.58 | 4.63 |
| 75th percentile | 15% | 7% | 0.35 | 0.17 |
| 50th percentile | -2% | -8% | -0.05 | -0.22 |
| 25th percentile | -0.18% | -22% | -0.54 | -0.90 |
| Minimum | -0.89% | -73% | -9.33 | -7.68 |

Interstate county-to-county flows

| Distribution | All Flows | Top 0.1% Largest Flows | All Flows | Top 0.1% Largest Flows |
|-----------------|---------------------|---------------------------|-------------------|---------------------------|
| | (percentage change) | (percentage change) | (absolute change) | (absolute change) |
| Maximum | 625% | 288% | 8.58 | 5.70 |
| 75th percentile | 19% | 7% | 0.44 | 0.18 |
| 50th percentile | -3% | -20% | -0.08 | -0.64 |
| 25th percentile | -23% | -42% | -0.71 | -2.16 |
| Minimum | -89% | -81% | -9.33 | -8.51 |

Table 3. Change in housing-to-income ratio for top 50 interstate flows

| Origin County 1995 | Destination County 2000 | Inmigrant Flows | Difference in Housing-to-Income Ratio | |
|---------------------------|----------------------------|--------------------|---------------------------------------|----------------------|
| | | | Absolute difference | Percentage Change |
| Los Angeles County, Calif | Clark County, Nevada | 55,857 | -2.55 | -46 |
| District of Columbia, Dis | Prince George's County, M | 38,754 | -1.28 | -33 |
| Los Angeles County, Calif | Maricopa County, Arizona | 32,598 | -2.82 | -51 |
| Cook County, Illinois | Lake County, Indiana | 23,396 | -0.94 | -29 |
| District of Columbia, Dis | Montgomery County, Maryla | 18,448 | -0.94 | -24 |
| Cook County, Illinois | Maricopa County, Arizona | 17,057 | -0.56 | -17 |
| Prince George's County, M | District of Columbia, Dis | 14,771 | 1.13 | 42 |
| Jackson County, Missouri | Johnson County, Kansas | 14,220 | 0.30 | 14 |
| Multnomah County, Oregon | Clark County, Washington | 13,475 | -0.03 | -1 |
| Essex County, Massachuset | Rockingham County, New Ha | 12,994 | -1.56 | -36 |
| New York County, New York | Los Angeles County, Calif | 12,965 | -5.72 | -54 |
| Shelby County, Tennessee | DeSoto County, Mississippi | 12,920 | -0.24 | -10 |
| San Bernardino County, Ca | Clark County, Nevada | 12,779 | -0.39 | -12 |
| Los Angeles County, Calif | King County, Washington | 12,575 | -1.25 | -23 |
| San Diego County, Califor | Clark County, Nevada | 12,548 | -1.89 | -39 |
| Westchester County, New Y | Fairfield County, Connect | 12,543 | -1.01 | -20 |
| San Diego County, Califor | Maricopa County, Arizona | 12,516 | -2.16 | -45 |
| Orange County, California | Clark County, Nevada | 12,283 | -1.84 | -38 |
| Cook County, Illinois | Los Angeles County, Calif | 12,270 | 1.53 | 47 |
| Philadelphia County, Penn | Camden County, New Jersey | 11,472 | 0.31 | 16 |
| Los Angeles County, Calif | Cook County, Illinois | 11,292 | -2.15 | -39 |
| Orange County, California | Maricopa County, Arizona | 10,549 | -2.12 | -44 |
| Queens County, New York | Broward County, Florida | 10,460 | -2.69 | -52 |
| Middlesex County, Massach | Hillsborough County, New | 10,325 | -1.63 | -39 |
| Cook County, Illinois | Clark County, Nevada | 9,963 | -0.28 | -9 |
| Los Angeles County, Calif | Dallas County, Texas | 9,824 | -3.42 | -62 |
| Los Angeles County, Calif | Harris County, Texas | 9,752 | -3.53 | -64 |
| Maricopa County, Arizona | Los Angeles County, Calif | 9,647 | 2.06 | 76 |
| District of Columbia, Dis | Arlington County, Virgini | 9,599 | -0.17 | -4 |
| New York County, New York | Bergen County, New Jersey | 9,423 | -6.80 | -65 |
| Johnson County, Kansas | Jackson County, Missouri | 9,320 | -0.15 | -6 |
| Kings County, New York | Broward County, Florida | 9,053 | -4.86 | -66 |
| Cook County, Illinois | Milwaukee County, Wiscons | 9,034 | -0.61 | -19 |
| Clark County, Nevada | Los Angeles County, Calif | 9,021 | 1.79 | 60 |
| Montgomery County, Maryla | Fairfax County, Virginia | 8,884 | -0.52 | -16 |
| Nassau County, New York | Palm Beach County, Florid | 8,859 | -1.00 | -28 |
| Maricopa County, Arizona | San Diego County, Califor | 8,715 | 1.79 | 66 |
| Montgomery County, Maryla | District of Columbia, Dis | 8,474 | 0.57 | 17 |
| Los Angeles County, Calif | New York County, New York | 8,446 | 2.17 | 39 |
| Maricopa County, Arizona | Clark County, Nevada | 8,311 | 0.25 | 9 |
| Kings County, New York | Middlesex County, New Jer | 8,262 | -4.65 | -63 |
| New York County, New York | Hudson County, New Jersey | 8,244 | -6.45 | -61 |
| Riverside County, Califor | Clark County, Nevada | 8,109 | -0.64 | -18 |
| Kings County, New York | Monmouth County, New Jers | 7,991 | -4.28 | -58 |
| Queens County, New York | Bergen County, New Jersey | 7,967 | -1.47 | -28 |
| King County, Washington | Maricopa County, Arizona | 7,906 | -1.41 | -34 |
| Honolulu County, Hawaii | San Diego County, Califor | 7,757 | -1.51 | -25 |
| Honolulu County, Hawaii | Clark County, Nevada | 7,738 | -3.05 | -51 |
| Lake County, Indiana | Cook County, Illinois | 7,507 | 1.28 | 61 |
| Queens County, New York | Miami-Dade County, Florid | 7,467 | -2.01 | -39 |
| Average | | | -1.35 | -18.42 |

Figure 5: Association between Change in Median Housing Value and Change in Median Income for the Top 100 Interstate county-to-county flows

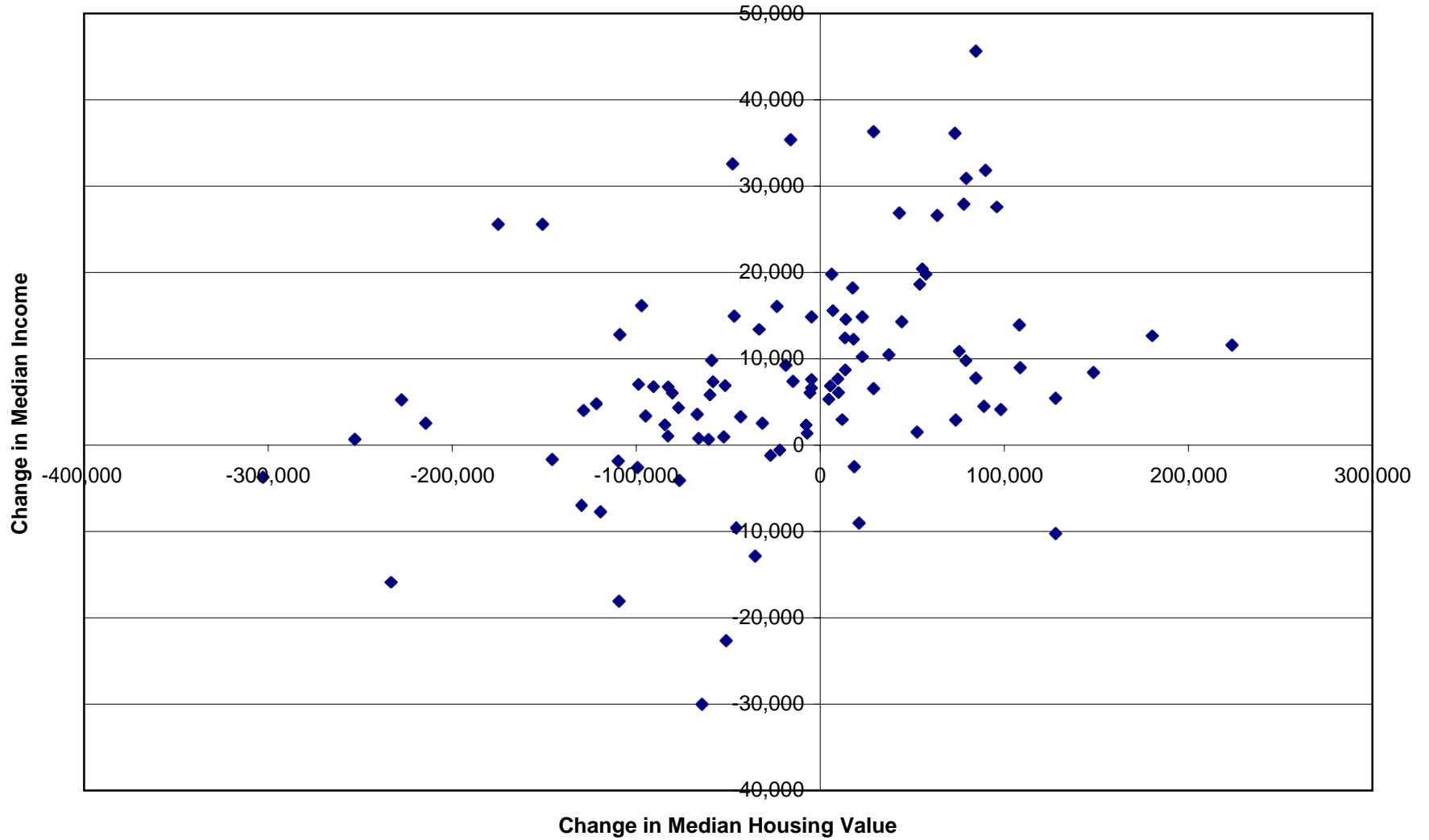


Table 4: Demographic variation in housing-to-income ratio adjustments with family migration

| Demographic Group | mean | maximum | 75th percentile | median | 25th percentile | minumum |
|-------------------------------|--------------|----------------|------------------------|---------------|------------------------|----------------|
| All family migrants | -0.48 | 4.59 | 0.32 | -0.21 | -1.15 | -7.64 |
| Both work | -0.44 | 4.59 | 0.34 | -0.19 | -1.04 | -7.64 |
| Only he works | -0.47 | 4.48 | 0.34 | -0.20 | -1.12 | -7.53 |
| Only she works | -0.60 | 4.21 | 0.28 | -0.29 | -1.46 | -7.33 |
| Neither work | -0.75 | 3.90 | 0.21 | -0.41 | -1.77 | -6.90 |
| Age 20-34 years | -0.41 | 4.25 | 0.37 | -0.16 | -0.97 | -7.37 |
| Age 35-49 years | -0.51 | 4.59 | 0.32 | -0.24 | -1.25 | -7.63 |
| Age 50-64 years | -0.52 | 4.21 | 0.30 | -0.24 | -1.20 | -7.52 |
| nonHispanic white | -0.38 | 4.59 | 0.35 | -0.16 | -0.91 | -7.63 |
| Hispanic | -1.08 | 4.17 | 0.03 | -0.72 | -2.28 | -7.25 |
| Black | -0.62 | 3.62 | 0.23 | -0.29 | -1.47 | -5.09 |
| Asian or Pacific Islander | -0.62 | 4.17 | 0.43 | -0.41 | -1.83 | -6.22 |
| Two or more races | -0.46 | 3.62 | 0.44 | -0.20 | -1.34 | -6.22 |
| US Citizen by birth | -0.41 | 4.59 | 0.34 | -0.17 | -0.95 | -7.63 |
| Naturalized US Citizen | -0.89 | 4.48 | 0.18 | -0.70 | -1.98 | -7.23 |
| Not a US citizen | -0.91 | 4.17 | 0.24 | -0.65 | -2.19 | -7.22 |
| Origin low foreign born | 0.01 | 4.59 | 0.45 | 0.00 | -0.47 | -7.36 |
| Origin high foreign born | -2.13 | 3.55 | -1.29 | -2.24 | -2.99 | -5.30 |
| Destination low foreign born | -0.53 | 3.52 | 0.25 | -0.21 | -0.97 | -7.64 |
| Destination high foreign born | -0.36 | 4.59 | 0.66 | -0.23 | -1.48 | -7.35 |

Figure 6: Conceptual Typology of Housing Cost Adjustments

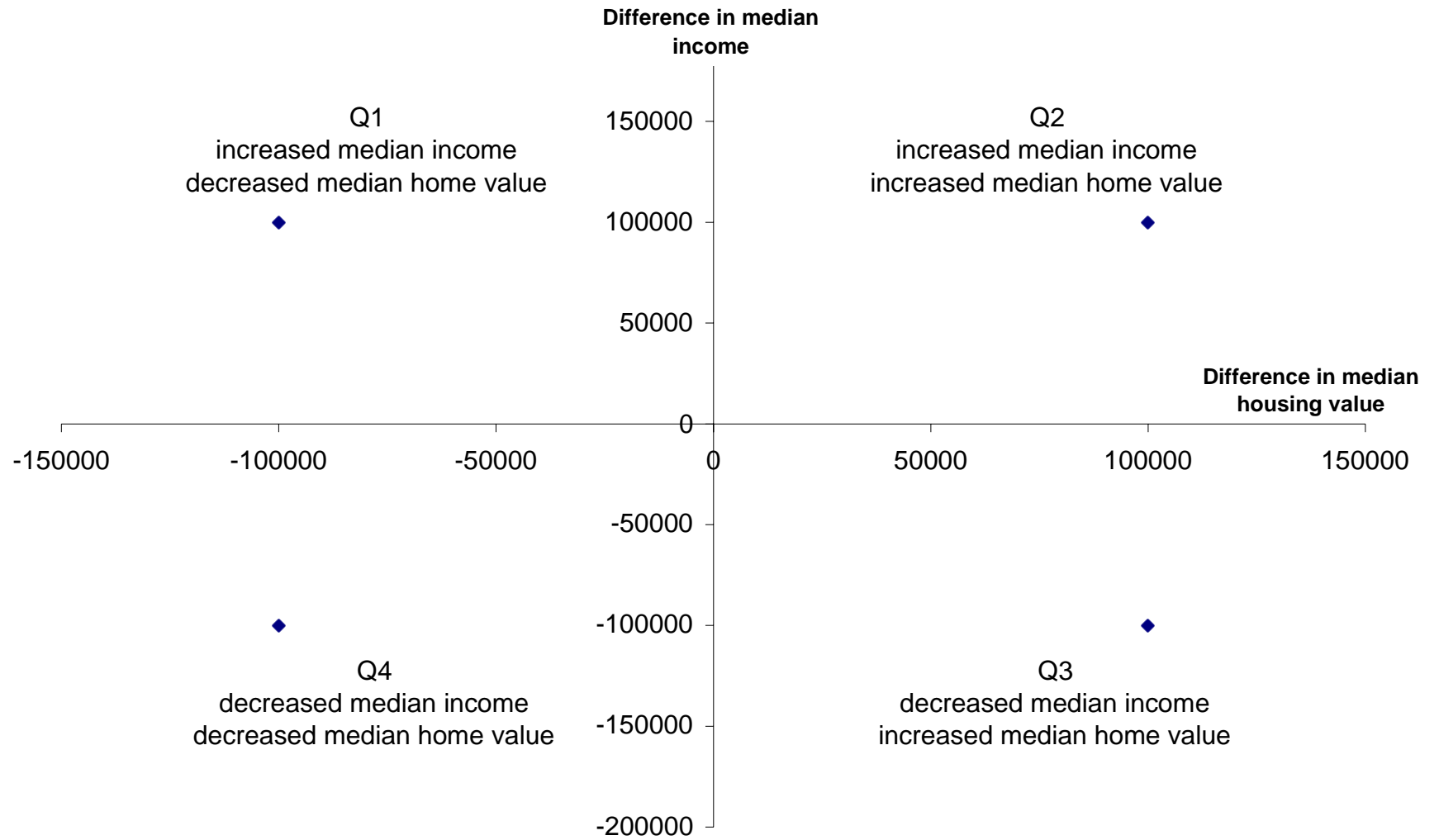
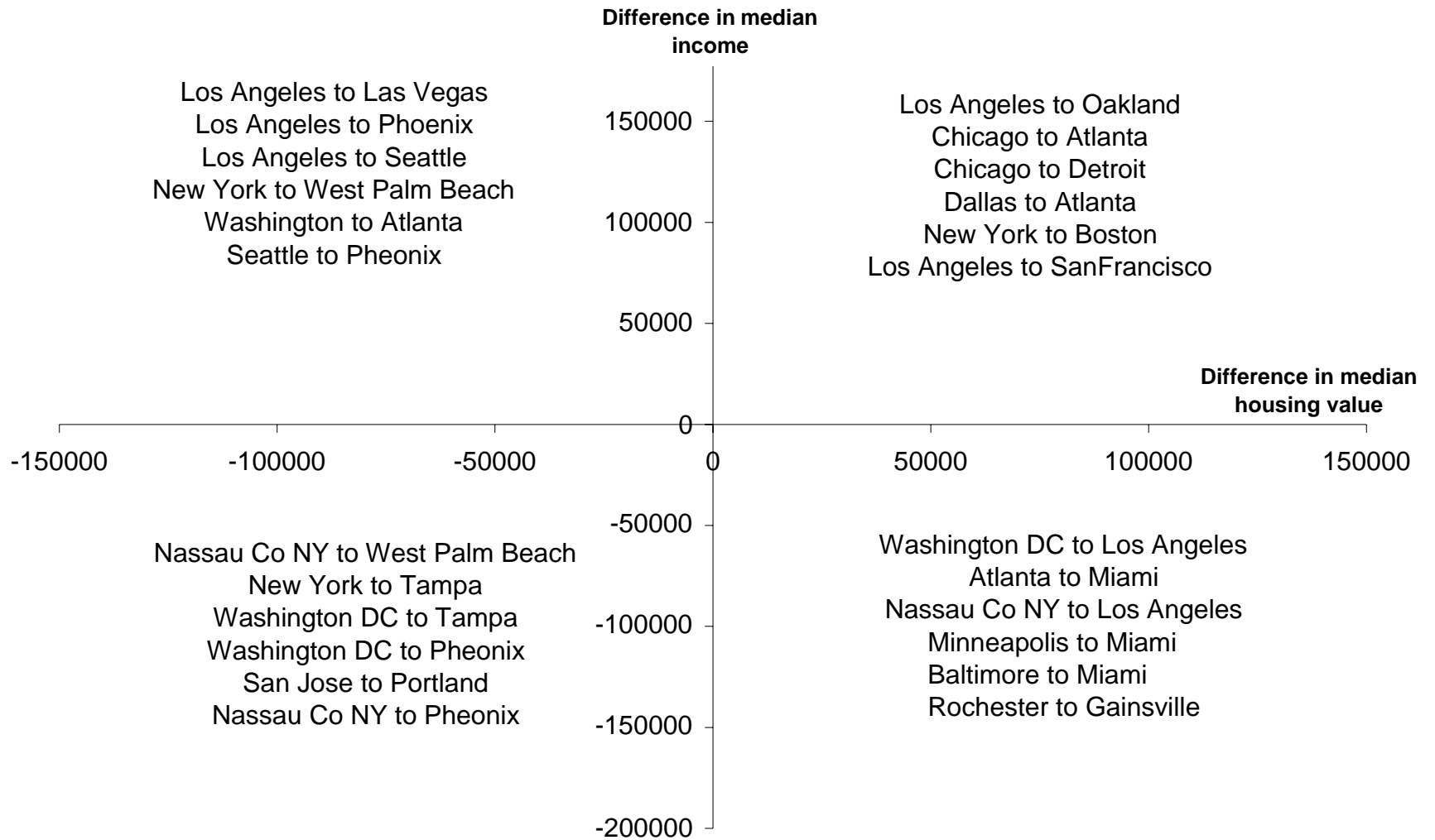


Table 5: Demographic variation across the typology in housing cost changes for migrant families

| Demographic Group | Q1 | Q2 | Q3 | Q4 |
|-------------------------------|-------------|-------------|------------|-------------|
| | (%) | (%) | (%) | (%) |
| All family migrants | 23.5 | 68.4 | 0.6 | 7.5 |
| Both work | 22.4 | 70.7 | 0.5 | 6.4 |
| Only he works | 23.5 | 68.3 | 0.6 | 7.6 |
| Only she works | 27.2 | 62.1 | 0.5 | 10.2 |
| Neither work | 29.6 | 56.2 | 0.9 | 13.4 |
| Age 20-34 years | 21.7 | 71.8 | 0.6 | 6.0 |
| Age 35-49 years | 24.3 | 67.8 | 0.5 | 7.4 |
| Age 50-64 years | 24.8 | 63.9 | 0.8 | 10.5 |
| nonHispanic white | 21.4 | 71.2 | 0.5 | 6.9 |
| Hispanic | 36.0 | 51.4 | 0.7 | 11.9 |
| Black | 25.3 | 65.7 | 0.5 | 8.5 |
| Asian or Pacific Islander | 29.2 | 62.9 | 1.0 | 6.9 |
| Two or more races | 25.1 | 66.5 | 0.6 | 7.9 |
| US Citizen by birth | 21.8 | 70.5 | 0.5 | 7.2 |
| Naturalized Citizen | 32.7 | 56.6 | 0.8 | 9.8 |
| Not a citizen | 34.1 | 55.9 | 0.9 | 9.1 |
| Origin high foreign born | 55.9 | 31.3 | 0.0 | 12.9 |
| Origin low foreign born | 14.0 | 79.4 | 0.7 | 5.9 |
| Destination high foreign born | 23.3 | 68.6 | 1.3 | 6.8 |
| Destination low foreign born | 23.6 | 68.4 | 0.3 | 7.8 |

**Figure 7: nonHispanic White Common Origin-Destination Pairs
across the Typology of Housing Cost Adjustments**



**Figure 8: Hispanic Common Origin-Destination Pairs
across the Typology of Housing Cost Adjustments**

