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HOMEOWNERSHIP, HOME FORECLOSURE, AND NATIVITY: EVIDENCE FROM MIAMI-DADE COUNTY, FLORIDA

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1. INTRODUCTION

In housing research as in employment, education, or demographic research, a central theme is the identification of gaps in outcomes and a desire to understand the extent to which these gaps are due to mutable individual characteristics. A well-developed strand of housing literature, for example, addresses the gap in homeownership between white, non-Hispanics and other groups and asks how much of that gap can be attributed to discrimination and how much is actually explained by other, changeable factors such as group age structure, geographical location, or educational attainment. A key variable in explaining gaps in homeownership has been nativity—the fact that large proportions of some groups simply have not lived in the United States long enough to transition to homeownership—and nativity and homeownership has developed into a sub-branch of housing research all its own.

With regard to the homeownership gap, whether the focus has been on race and ethnicity or immigrant status, well into the first years of the 21st century, the assumption remained that once gaps were closed, they would not open again. Instead, in the midst of the current foreclosure crisis, we are faced with the proposition that, just as homeownership varies across groups, foreclosure risk will also be unevenly distributed. The recent and ongoing nature of the foreclosure epidemic, however, means that research on the geography and socio-demographic factors related to foreclosure is still developing. This paper seeks to contribute to the nascent body of research on this topic.

The current study focuses on Miami-Dade County, a housing market with ample numbers of not only foreclosures but also immigrants. It is, moreover, one of the more racially and ethnically diverse parts of the country, which permits us to consider, all in one location, the interplay between nativity, race and ethnicity, and housing outcomes. In the Miami-Dade county area, almost two thirds of householders were foreign born in 2000 (Table 1).¹ To put

¹Descriptive tables and homeownership data come from Census 2000 microdata, which includes parts of Monroe County and all of Miami-Dade County. The unit of observation is the householder and all descriptive tables use person weights to calculate population-level figures.

this figure in context, in 2000, just over 11 percent of the U.S. population as a whole was foreign born and for the entire state of Florida, just under 17 percent would be considered immigrant (Malone et al., 2003). In terms of race/ethnic background only about 26 percent of the Miami-Dade area householders were white, non-Hispanic and about half were some category of Hispanic. Recent work has suggested that minority homeownership rates are higher in more ethnically diverse metropolitan areas; Miami certainly qualifies as such, and the current work extends existing research on the relationship between ethnic diversity and homeownership (Flippen, 2010).

Across all race and ethnic groups, a sizeable share of the population was foreign born in 2000, but a great deal of variation existed in terms of length of residence in the U.S. This is potentially important, as it permits us to test whether any immigrant-native born differential in terms of homeownership and foreclosure is due to length of time in the U.S. and whether this varies across race and ethnic groups. Myers, Painter, and colleagues' (2010) work revealed that Hispanics who have been in the United States for at least 20 years have homeownership rates above those of even native Hispanics. On the other hand, newly-arrived Hispanics have homeownership rates much lower than native Hispanics.

Tied to length of time in the United States and also to place of birth for the foreign born population is economic status; immigrants who have been in the United States for two or more decades tend to be more stable financially than newly-arrived immigrants. Higher incomes and more stable employment increase immigrants' prospects for homeownership and can also help protect them from mortgage delinquency and foreclosure situations.

In addition to its ethnic diversity, Miami-Dade County, along with many other fast-growing markets across the country, has been disproportionately impacted by the housing crisis that began in the late 2000s. In Miami-Dade, there were 64,000 foreclosure filings in 2009, 2.4 times the number of filings in 2007 and 6.5 times the number of filings in 2006.² The metropolitan area ranked 10th out of all metropolitan areas in the United States in foreclosure filings at the end of 2009, with 1 in 14 households experiencing foreclosure (Realty Trac, 2010).

Kochar, Gonzalez-Barrera, and Dockterman's (2009) analysis found that foreclosure rates were especially high in counties in the United States that were both traditional and new destinations for immigrants, including Florida. That work compared the factors contributing to higher-than-normal foreclosure rates in Miami-Dade County and suggested that demographic factors were among the most important (economic factors were relatively more important in other counties). Such findings suggest that Miami-Dade County is a natural test case for our study on foreclosures, nativity and race/ethnicity at the neighborhood level.

Data on housing tenure and the characteristics of the homeowner are easily obtained from the decennial census (until 2000) or the American Community Survey (2005 onwards). In contrast, research on foreclosures is hampered by a lack of data: even when reliable data are available on individual foreclosures (such as we use here), those data provide no information

²Miami-Dade County Foreclosures Online System. (2010). Retrieved May 20, 2010 from <http://www.miami-dadeclerk.com/dadecoc/Mortgage-Statics.asp>.

on demographic characteristics of the homeowner in foreclosure. In order to take full advantage of data availability where possible, we approach homeownership in this paper at the individual level and foreclosure at the community, or census tract, level. This approach prohibits a direct link between characteristics of homeowners and foreclosures, but does allow us to more fully understand the landscape of foreclosure in the Miami area, given the factors associated with homeownership in the area.

The results of the two different types of analysis have the potential to significantly impact policy, especially in those jurisdictions hard hit by the current foreclosure crisis. While foreclosures cause harm to individuals, they can also harm entire neighborhoods by lowering quality of life. Understanding the dynamics of the determinants of homeownership in a particular area can inform localities on how best to tailor their approaches to the needs of different residents, improving residents' chances for successful homeownership and reducing foreclosure risk. At the community level, jurisdictions can prospectively identify especially vulnerable neighborhoods, or those at greatest risk, and infuse those areas with needed attention, allowing the distribution of limited prevention and intervention resources to be as efficient and effective as possible.

In the next section we provide an overview of the more fully developed literature on socio-economic predictors of homeownership as well as the extant literature on foreclosures. We also give a short description of homeownership, nativity, race/ethnicity, and foreclosures in Miami-Dade County. Section 3 details the data used in the analysis. Sections 4 and 5 provide analyses of homeownership and foreclosure, respectively. Section 6 offers a discussion of the results and following that we offer brief concluding remarks in section 7.

2. BACKGROUND: HOMEOWNERSHIP AND FORECLOSURE

Racial and Ethnic Gaps in Homeownership

While the literature on socio-economic and demographic factors associated with foreclosure risk remains nascent, a well-developed literature on the relationship of those factors to homeownership does exist. In general, the primacy of socio-economic and life course factors in explaining homeownership is taken as a given (e.g. Alba and Logan, 1992; Krivo, 1995), with the typical article focusing on explaining the race/ethnicity gap in homeownership.³ This gap, which is generally seen vis à vis white, non-Hispanics, is documented for many racial and ethnic sub-groups and for many places. The question then is the extent to which variations in socio-economic status and life-course variables across groups are responsible for the observed differences in homeownership rates.

Most research finds these factors to be important, but more recent findings have emphasized the importance of incorporating immigration into the standard analysis, as well as information on local housing markets where particular sub-groups tend to live. Krivo (1995), in particular, finds that immigrant background explains a great deal of the variation in homeownership across racial and ethnic sub-groups. Coulson (1999) finds a similar result

³An interesting exception to the preoccupation with race/ethnicity in homeownership is Jepsen and Jepsen, 2009, which uses the standard socio-economic status, location, and life course set of variables to look at differences in homeownership between heterosexual and gay couples.

and notes that the negative impact that immigrant status has on the likelihood of homeownership decreases over time. Painter et al. (2001), who, like us, focus on only one region of the U.S. for their analysis, discuss analytical results broadly in line with the research above, but note in particular that the white-Hispanic gap can be explained by “differences in endowments” (p.166), while the gap between whites and blacks cannot. In general, incorporating immigration into explanatory models of homeownership has consisted of sets of variables that control for race/ethnicity, nativity, and perhaps how long an immigrant has been in the country.

Another perspective on immigration worth mentioning here deals with controlling not only for length of time in the U.S. but also the age at which immigrants arrived and the demographic cohort to which they belong. This insight was developed in Myers and Lee (1998) and Myers et al. (2009). Although the latter focused on the relationship between age at arrival for immigrants and a number of outcomes in addition to homeownership, the results indicate that, indeed, age at arrival matters, and that younger immigrants benefit from more time in the U.S. to increase their human capital.

A different approach is taken by Borjas (2002), who bypasses the race/ethnicity discussion to go straight to place of birth for immigrants. His findings suggest that the native-immigrant homeownership gap is largely due to the changing composition of immigrants over the past several decades. Interesting, and potentially relevant for the present study, he also finds that ethnic enclaves increase the probability of immigrants being homeowners. This is in contrast to Krivo (1995), who finds that higher concentrations of immigrants have a negative influence on homeownership rates for Hispanics and even for natives. Although we capture neighborhood context in a rudimentary fashion in the homeownership models below, our foreclosure models do so in a more explicit fashion and these findings may be relevant for explaining neighborhood foreclosure rates.

Homeownership, Nativity, and Race/Ethnicity in Miami-Dade County

Similar to Painter et al. (2001) and Myers and Lee (1998), we limit our study of homeownership and foreclosure to a particular area of the country. By focusing on Miami-Dade County alone, we obviate the need to control for inter-metropolitan variations in housing market characteristics. We are also able to delve more deeply into the idiosyncrasies of our study site. For example, Miami-Dade county is more diverse and has a deeper immigrant history than much of the rest of the U.S. Table 1 provides the demographic breakdown for householders in the Miami-Dade County area; Table 2 addresses variations in homeownership across racial and ethnic sub-groups.

As at the national level, white, non-Hispanics—both native and foreign born—have higher homeownership rates than all other subgroups. As the table shows, though, within the Hispanic population homeownership rates vary considerably. Among the native born, 66 percent of Cuban householders are homeowners, compared to only 44.7 percent of South American householders. Among the foreign born, the Cuban homeownership rate is second only to that of white, non-Hispanics. As existing literature would suggest, natives overall have a higher homeownership rate than immigrants, but the variation across groups suggests that, at a minimum, time in the U.S. since immigration is likely an important factor and,

most likely, some of the gap may be due to differences in socio-economic characteristics or demographic factors.

With all the focus on nativity and race/ethnicity gaps in homeownership, one pressing underlying question – and motivation for the current study – is the extent to which the foreclosure crisis has acted as a “game-changer” in the landscape of homeownership and nativity/race/ethnicity. While immigrants may be more susceptible to such backsliding (i.e. transitioning out of homeownership via foreclosure) for socioeconomic reasons, recent work by Kochar and colleagues (2009) suggests that homeownership rates for immigrants have not dropped as sharply as they have for other groups since the start of the housing crisis. Native Hispanics, however, have experienced a reversal in homeownership trends, with a small drop in homeownership rates among that group in the late 2000s. The present comparison of factors influencing homeownership and foreclosure will shed light on the potential for a widening gap in homeownership rates between whites and Hispanics should the current housing and foreclosure crisis continue or worsen.

Foreclosure Risk at the Neighborhood Level

While research on neighborhood-level factors associated with foreclosure and foreclosure risk is still in its infancy, as the current housing crisis continues, the identification of such factors becomes very relevant to discussions on homeownership as well—particularly on making homeownership opportunity equitable across different racial, ethnic, and economic groups. Many of the findings regarding correlates of homeownership are relevant to investigations of foreclosure risk: by definition, only homeowners are susceptible to foreclosure. Over the last decade, however, extending homeownership opportunities to individuals who were not traditionally candidates for homeownership took place in the context of predatory lending and subprime mortgages, which in turn have played a central role in the foreclosure crisis. Homeownership under such conditions has led to extremely high foreclosure rates in some neighborhoods. The next section extends the above discussion on factors related to homeownership to address those specifically associated with higher levels of foreclosure and foreclosure risk.

Foreclosures and Race/Ethnicity

Prior research has found that foreclosures are concentrated mainly in low income, minority neighborhoods (Aalbers, 2009; Avery, Brevoort, & Canner 2007; Kaplan & Sommers, 2009; Newman & Wyly, 2004; Schloemer, 2006; Smith, 2008). Mayer and Pence (2008) identified clusters specifically in neighborhoods with large black or Hispanic populations and in areas with rapid population growth, including Florida. Rugh and Massey’s (2010) recent work offers an insightful analysis of the topic, focusing specifically on the geography of Hispanic residential patterns. While concurring that a number of oft-noted factors (e.g., subprime lending, weak financial regulation, and falling home values) certainly are significant contributors to the ongoing foreclosure crisis, the authors suggest that residential segregation has to date been an overlooked element of the crisis. The geography of Miami-Dade County’s ethnic and racial groups suggests residential segregation (see Figures 1 and 2)—indeed, the index of dissimilarity⁴ for the county suggests moderate levels of segregation between whites and Hispanics ($D=0.48$) and high levels of segregation between black, non-

Hispanics and Hispanics⁵ ($D=0.725$). Minority neighborhoods, then – including those with many immigrants – may be at greater risk for high foreclosure rates.

Until very recently, no research had been done on the relationship between *nativity* and foreclosures. Kochar et al.'s (2009) county-level analysis considered the role of immigrant status in foreclosure, finding that counties with larger shares of immigrant populations tend to have higher-than-average foreclosure rates. In fact, they identify the proportion of immigrants in a county as the factor most closely associated with foreclosure rates. High unemployment and high income-to-home value ratios were also associated with higher county foreclosure rates. The authors caution that their findings do not indicate that immigration *per se* is the cause of foreclosures, but that areas with more immigrants tend to also have higher foreclosure rates. Recent work in this vein has not yet identified a definitive set of factors that might explain this relationship.

More recently, Allen (2011, 2011b) used mortgage data from Minneapolis, Minnesota to investigate the relationship between nativity and foreclosures, finding that foreign-born Hispanics foreclosed less frequently than other households on refinanced loans, but more frequently on mortgages for home purchase. Allen (2011b) offers several possible explanations for this inconsistency, tied most strongly to length of time that immigrants have spent in the United States: those who have been in the U.S. longer are more likely to have stable employment, greater accumulated wealth, and to have lived in their homes for longer, making refinancing a viable option.

McConnell and Akresh (2010) concur on the importance of considering length of time in the United States. Their work found that Hispanic immigrants had relatively similar housing cost burdens to individuals from Western Europe. The authors suggested this similarity could be tied to the length of time legal immigrants are in the United States; many immigrants from Latin countries have resided in the U.S. for longer than a decade, during which time assimilation increases and human capital grows, leading to a decrease in housing cost burdens. Following these insights, we employ a measure of length of time in the U.S. for different immigrant groups in our analyses of foreclosure rates.

In the last decade, some research has suggested that immigrants—especially those who arrive with higher socioeconomic status than most immigrants in the past—may self-select into immigrant ‘enclaves’ and that these enclaves are locations of higher-than-average homeownership rates (Borjas, 2002; Logan, Alba, and Zhang, 2002; Haan, 2005). Foreclosure rates may be lower where immigrant enclaves with higher levels of human and social capital exist; this may be especially true in places like Miami, where more than half of the residents are foreign-born, fully half of the foreign born have been in the United States for two or more decades, and the population is relatively segregated along racial and ethnic lines. The approach of the current work, in considering the relationship between nativity,

⁴The index of dissimilarity measures segregation between population groups; values closer to 1 indicate higher levels of segregation. See Denton and Massey (1988) for an explanation of the index.

⁵The index is calculated for only two racial/ethnic groups at once. Segregation between whites and blacks is also considered high ($D=0.726$).

ethnicity, and foreclosures at a neighborhood level, allows investigation into whether such enclave effects may exist.

The Role of Subprime Lending

No discussion of foreclosures would be complete without at least a brief discussion of the role of subprime lending. Several researchers have shown a significant connection between subprime home loans—with higher fees and interest rates—and foreclosures at both the individual and neighborhood level (Gerardi, Shapiro, and Willen, 2007; Immergluck and Smith, 2004, 2005; Mayer and Pence, 2008; Newman and Wyly, 2004). Because most available mortgage-level data do not include demographics on borrowers, especially related to nativity status, the analysis below does not consider neighborhood rates of subprime lending specifically. However, understanding the hypothesized role of subprime lending and its spatial patterns provides important context to the current research.

Many non-whites receive subprime mortgages—whether due to lack of solid credit, existing savings, or lack of steady income—and are thus likely to be at greater risk of foreclosure, regardless of race or ethnicity (Gerardi and Willen, 2009). In addition, minorities at different income levels are equally likely to receive higher-priced loans, regardless of economic status, while higher economic status among whites cuts their risk of higher priced loans in half (Kochar et al., 2009).

One recent study also found the practice of predatory lending, often associated with subprime mortgages, to be spatially clustered (Crossney, 2010). Moreover, Gerardi and Willen (2009) argue that subprime lending to minorities, including blacks and Hispanics, did not result in greater minority homeownership but instead resulted in highly unstable homeownership situations, exacerbated by the burst of the housing bubble and resulting decline in housing values in many areas. Recent work by Brown and Webb (2012) also suggests that high subprime mortgage rates are not associated with increasing homeownership levels. The concentration of the borrower default risk, growth in subprime mortgages, and predatory lending practices have led to a spatial concentration of foreclosures, especially in low income, non-white neighborhoods.

The Geography of Race/Ethnicity and Foreclosures in Miami-Dade County

Figures 1–3, based on data from the 2005–2009 American Community Survey, provide a glimpse into the high levels of residential segregation discussed above. Figure 1 maps the percent of foreign born residents by census tract for 2005–2009, revealing the high percentage of foreign-born within the City of Miami and also to the west and south of the city. Fewer foreign-born residents live to the immediate north of the City. Figures 2 and 3 provide maps of Cuban residents and black, non-Hispanic residents, respectively, and show that the patterns for each group are nearly opposite one another. Cuban residents (and Hispanic residents in general, though not shown) cluster in the southern and western parts of the county. Black, non-Hispanic residents, on the other hand, tend to cluster in the northern part of the county, with a small pocket of census tracts with high percentages of black non-Hispanics in the extreme southern part of the county.

This clear segregation of race and ethnicity in Miami-Dade County may contribute to higher levels of foreclosures among certain minority groups, as suggested by Rugh and Massey (2010). In addition, the 2009 map of foreclosures (Figure 1) shows that rates are high in both Cuban and black neighborhoods, indicating that the relationship between demographics and foreclosures may have more to do with minority and low income status than with nativity itself. These overlapping spatial patterns are the subject of our statistical analysis below, as we investigate the strongest factors influencing neighborhood foreclosure rates in the county.

Figure 4 provides a map of foreclosure rates—or the percent of residential parcels that experienced foreclosure in each tract—by census tract for 2001 and 2009. The maps highlight the extreme increases experienced throughout the county in foreclosure rates over the period, and also reveal that high foreclosure rates are spatially clustered. The City of Miami proper has relatively low foreclosure rates compared to surrounding areas. In addition, areas to the south appear to have higher foreclosure rates in 2009 than areas to the north of the city. Figure 5 maps the average original price of a foreclosed home in 2001 and 2009. The maps indicate that not only did home prices increase dramatically over the period, but that homeowners in more expensive housing were not immune to the trends. Such higher-priced housing has traditionally been available only to the very wealthy but has recently become more accessible via exotic mortgage products. In 2001, few census tracts saw foreclosures of homes purchased for over \$200,000, but by 2009 a large number of tracts saw foreclosures of homes priced over \$500,000.

3. DATA

Homeownership

The homeownership models below are based on individual-level data from the 2000 decennial census and use files prepared by IPUMS at the University of Minnesota (Ruggles et al., 2010) from the five percent sample released by the U.S. Census Bureau. Census microdata, called Public Use Microdata Sample (PUMS) data, are released for a sample of housing units in the United States and provide a wide range of information for every individual living in the sampled housing unit. In exchange for extensive individual-level detail, housing units are stripped of specific geographic details and are simply allocated to a Public Use Microdata Area, or PUMA, which contains approximately 100,000 individuals. Our data are for the twenty PUMAs associated with Miami-Dade County, one of which also includes neighboring Monroe County. It is impossible to exclude Monroe County without also losing some portion of the Miami-Dade observations. We restrict the sample to householders aged 18 and above. We also exclude individuals living in group quarters. The resulting sample is 38,759 individuals. All descriptive table values are calculated using the individual survey weights provided. Table 3 provides a list of all variables used in the homeownership models, as well as definitions and sample means (standard deviations are provided for continuous variables, as well).

The dependent variable for all homeownership models is dichotomous and classifies all householders as owners (1) or renters (0). Four types of independent variables are included in the analysis. Demographic variables include the sex of the householder, a categorical

variable for age cohort, marital status (married, single, divorced, or widowed), and the number of children under age 18 present in the household. Socio-economic variables include the log of household income, categorical variables for educational attainment, and two indicator variables for employment status: whether the individual is not in the labor force and whether he or she is in the labor force but unemployed.

Because Miami-Dade County is so much more diverse than the U.S. on average, we disaggregate race and ethnicity categories more than has typically been done in other studies. This is done partly because we wish to isolate the differential experience of Cubans compared to other Hispanic groups. In all, we use eight race and ethnicity categories. There are four non-Hispanic categories: White, Black, Asian, and Other and there are four Hispanic categories: Central American, South American, Cuban, and other Hispanic. The weighted proportional breakdowns for householders across all groups can be seen in Table 1.

Migratory background variables include categorical variables for native-born and foreign-born by number of years in the U.S. In addition, variables are calculated for non-movers: those who were in the same house in 2000 as 1995. This is an important consideration, as those who have recently moved may be less likely to be homeowners, independent of race/ethnicity or immigrant background. Of course, care must be taken in interpreting results for this variable, as homeownership is also likely to affect the probability of moving (that is, reverse causality is likely). Finally, we include an indicator variable for those householders who were born in Florida. Designation of “immigrant” households follows Borjas (2002) and Nolan (2003): households are classified as immigrant if the householder is an alien or naturalized citizen. This means that those born in Puerto Rico or the U.S. Virgin Islands, for example, are considered native-born.⁶ We also include a non-citizen variable, which captures whether the householder is not a U.S. citizen.

Foreclosures

The foreclosure data were obtained from the Clerk of Courts for Miami-Dade County. The data included the date of all foreclosure starts (first *lis pendens* notice sent) and completions (foreclosure sale) for the County since 2003. The data also included several other variables regarding the foreclosed properties, including original price paid for the home, the sale price of the foreclosed home, square footage of the lot for the foreclosed home, and some limited information about the owner(s).⁷ Table 4 provides a yearly summary of the measures associated with the foreclosure data and shows that the foreclosure crisis was worst in Miami-Dade County in 2010, with foreclosures that year double the number from 2009. The table also demonstrates that foreclosures in the condo market steadily constituted a larger portion of all foreclosures throughout the study period, with more than half of the foreclosures on condo units by 2010. This dovetails with the observed yearly changes in the average lot size, which dropped over 3,000 square feet from 2001 to 2010. Finally, average

⁶For more information on classification of native and foreign born, see: <http://www.census.gov/population/www/socdemo/immigration.html>.

⁷In order to match the foreclosure data to a geographic location, the research team used included information on the parcel of the location. We spatially matched each foreclosure to the correct parcel, and then matched parcels to census tracts. We created foreclosure rates using the total number of residential parcels in census tracts, available from Miami-Dade County.

purchase price of foreclosed units more than quadrupled, while the time to first foreclosure notice (*lis pendens*) dropped slightly over the period.

For our analysis, we averaged foreclosure sales in each census tract over the period 2005–2009 to correspond with the period covered by census data used in the analysis. The dependent variable, then, is the average foreclosure rate for 2005–2009 by census tract. The data contain 346 census tracts that were used to estimate the foreclosure models. We also included in the analysis the original price paid for the housing unit, the lot square footage, and the number of months to the first *lis pendens* (foreclosure) notice, all averaged over the 2005–2009 period for each census tract. One additional housing measure – owner occupancy – is included, although its source is the American Community Survey (ACS) data at the tract level for 2005–2009 and not the Miami-Dade County foreclosure data.

To estimate the neighborhood setting for foreclosures we use American Community Survey (ACS) data at the tract level for 2005–2009 for Miami-Dade County. Because ACS annual sample sizes are small, data for tract geography is only available for pooled years 2005–2009. While we attempt to make the foreclosure models follow the homeownership analyses as closely as possible, due to data limitations, the variables included are not exactly the same for both parts of the analysis. Following the homeownership models, we include standard socioeconomic variables as controls, including sex, age, median household income, and education status (college education and less than a high school education). These are measured not for homeowners themselves, but in the aggregate by census tract.

Concentrations of individuals with college degrees or higher typically have access to higher-paying jobs, more job security, and greater benefits from their employment. A more highly educated population is likely to be less ethnically segregated, and can benefit from externalities that the skilled population provides as a group (Borjas, 1997). Less well-educated individuals have fewer economic opportunities, are more likely to face financial hardships over their lifetime, and tend to live in more ethnically segregated areas, reducing the positive externalities that might benefit them from living in a more diverse neighborhood. These factors can indirectly lead to a number of negative outcomes for the community as a whole, including higher levels of foreclosures.

The data also include a variable indicating whether residents have a long commute (percent of workers 16 and older commuting 45 minutes or more to work). The long commute variable is used to identify those areas that might be on the outskirts of the county with lower priced housing that is more attractive to less wealthy homeowners. These outlying areas tend to have more new construction and have also fared worse in the foreclosure crisis than closer-in communities (Kochar, et al., 2009). This is partially because while these areas have homes that are more affordable, long commutes can exact other cost burdens on residents, such as transportation costs, that affect the overall financial situation of a family. In addition, homes in construction boom areas have tended to lose value more quickly than homes in established neighborhoods closer to economic centers in the County.

Similar to the homeownership models, the foreclosure models use race and ethnicity variables that have been disaggregated into the same eight categories (with white, non-

Hispanic as the reference group) with three non-Hispanic groups – black, Asian, and Other – and four Hispanic groups—Cuban, Central American, South American, and Other. The variables on migratory background differ slightly for the foreclosure analysis.

Because of interest in the effects of nativity status on neighborhood-level foreclosures and because many of the foreign born in Florida are Hispanic, we hypothesize that Hispanic foreign-born residents might have a different relationship with foreclosure rates than other foreign-born residents. Therefore, we include measures specifically of Hispanic foreign-born residents by year of arrival. Descriptive statistics for all variables included in the foreclosure models are provided in Table 5.

4. CLOSING THE GAP? ANALYSIS OF HOMEOWNERSHIP IN MIAMI-DADE COUNTY

We estimate two types of homeownership models. Both are probit models using the homeowner variable as the dependent variable. The first model includes all observations and controls for race/ethnicity using a set of indicator variables, along with the range of other variables discussed in the data section (Table 6). The relationship between immigrant status and race/ethnicity is measured with a set of interaction terms. The socio-economic and demographic variables have the expected influence on the probability that a householder is a homeowner. The probability of owning a home increases with age (relative to the omitted 25–34 age cohort), income, and the possession of at least a college degree. Single, divorced, and widowed householders are all less likely to be homeowners than their married counterparts, as are those who are unemployed or out of the labor force (compared to those who are employed). Linguistic isolation decreases the probability of homeownership considerably, reinforcing results found in Alba and Logan (1992). The effect of not having moved in the past five years on the probability of homeownership is positive and highly significant; movers are more likely to rent before transitioning to homeownership, holding other factors constant. The relationship between these two variables is, by nature, mutually reinforcing (and so caution is due in interpreting this result): homeownership itself decreases the probability of migration. The effect of being a Florida native, which does not mean an individual has never moved out of state, is also positive: those with a longer term connection to the state are more likely to be homeowners.

Where race, ethnicity, and nativity are concerned, the results are intriguing. Members of almost all minority race/ethnic groups are less likely to be homeowners than white, non-Hispanics, even holding other factors constant. The exception is found between whites and Cubans, where, in fact a homeownership gap exists – but is in favor of Cubans. The observed gap is greatest between whites and blacks⁸. With regard to nativity, immigrant status has a negative impact on the probability of owning a home, as does being a non-citizen (relative, in this case, to all citizens, including immigrants who have naturalized). However, the results show that, for immigrants, length of time in the U.S. increases the probability of homeownership and that this effect declines only slowly over time. Looking at the interaction terms for race/ethnicity and immigrant status, it is clear that the two sets of

⁸Based on interpretation of the marginal effects of each race/ethnicity variable on the probability of homeownership.

variables work together in different manners for each group. Being immigrant and black, for example, has a positive impact on homeownership, reflecting the existence of an important distinction between native and immigrant blacks in terms of, at least, homeownership. For whites and Central and South Americans, the interaction terms are not statistically significant, suggesting that there is little difference between natives and immigrants in predicting homeownership for those groups. For Cubans, on the other hand, immigrants are at a substantial disadvantage, relative to their settled (and perhaps better endowed from the outset, given shifts over time in characteristics of immigrants from Cuba) native brethren.

Second, we estimate the homeownership model for selected sub-groups in order to assess the differential impact of nativity and length of time in the U.S. for selected race/ethnicity groups (Table 7). Results for these models suggest that the impact of nativity on the probability of homeownership does indeed vary by subgroup. Across all groups, non-citizens are less likely than citizens to be homeowners. Comparing immigrants versus natives, being an immigrant has a fairly strong negative impact on the probability of owning a home for Central Americans, Cubans, and whites, holding other factors constant. As seen in the previous model, the exception is for blacks, where immigrants are more likely to be homeowners than natives, and also for South Americans – although the coefficients lack statistical significance for either group. For all groups, length of time has a positive and significant impact on homeownership.

PUMAs are larger than neighborhoods and are therefore not ideal for capturing the effects of living in racial or ethnic enclaves on the likelihood of homeownership. However, given the strong clustering that exists in Miami-Dade County of various groups, a variable was included in the models of the percent of the PUMA population belonging to the householder's race/ethnicity. The results are mixed and suggest that living in areas with more of one's own group is positive for homeownership for blacks and Cubans, but negative for whites (and not of statistical significance for other groups).

It is worth noting other differences across race/ethnicity subgroups in terms of homeownership predictors. For example, across all groups, the youngest age cohort (householders aged 18–24) is less likely to own a home than the 25–34 cohort, but for South Americans age appears to be a relatively poor predictor of homeownership, except for the 55–64 cohort. In the Cuban case, householders 65 and up are significantly less likely to own their homes than those aged 25–34. These results suggest that the Myers and Lee (1998) argument regarding the importance not only of age and nativity but also age at immigration may be an important one. In terms of the impact of educational attainment on the probability of homeownership, possessing at least a college degree increases the probability of owning a home for all groups (relative to the omitted category: high school diploma), but the effect is strongest for black, non-Hispanics—as is the negative effect of possessing less than a high school diploma. These findings have important implications for the neighborhood-level risk of foreclosures, the analysis of which we turn to in the next section.

5. WIDENING THE GAP? NEIGHBORHOOD-LEVEL FORECLOSURE IN MIAMI-DADE COUNTY

Because many immigrants arrive in the U.S. lacking significant human or social capital, they tend to more frequently be the targets of predatory lending, receive subprime loans, and are more likely to suffer with the economic downturn. However, the models presented above demonstrate that foreign-born residents are likely to meet or surpass the homeownership rates of their native peers after a period of time spent in the U.S. When spatially concentrated, foreclosures can lead to problems for the entire community, including disinvestment, vacant properties, and blight. The goal, then, of the ecological analysis of foreclosure rates in Miami-Dade County below is to assess the influence of nativity and ethnicity on foreclosure at the community level.

We first estimate ordinary least squares (OLS) regression models to assess the influence of the different control variables, and then add race/ethnicity and nativity terms. All models use the average foreclosure rate for 2005–2009 at the census tract level as the dependent variable. Negative binomial models of foreclosure *counts* by census tract were also estimated. The results of the count modeling closely concurred with the OLS models of foreclosure *rates* and are thus not presented here.⁹

Table 8 presents the results of five OLS models of the foreclosure rate at the census tract level for 2005–2009 (average foreclosures per 100 residential parcels). Model 1 includes only the control variables, and the subsequent models add additional variables of interest. Model 5 contains all controls and variables of interest.

The first model has relatively low explanatory power but shows that several standard measures used to explain foreclosures are significant and in the expected direction. Neighborhoods with a large percentage of residents in the 25–34-year-old range (the omitted age category) are the most susceptible to foreclosure; neighborhoods with concentrations of other age groups are less likely to experience foreclosure. The measure of commute time – a proxy for living in the outer suburbs where new construction draws residents in search of more affordable housing – is significantly positive, indicating that, as expected, these areas have higher rates of foreclosure. One interesting result to note is that the measure of unemployment is not significant in Model 1, suggesting that, in Miami-Dade County, concentrated job losses may not be a strong determinant of foreclosures at the aggregate level. Because the data series ends near the beginning of the foreclosure crisis, it may be that unemployment had not grown enough by that point to have a significant impact on the foreclosure level, or that recently-lost jobs had not yet resulted in economic hardship great enough to cause foreclosure to significant numbers of homeowners.

Model 2 includes race and ethnicity variables, and explains a slightly larger portion of the variation in the dependent variable. The additional explanatory variables had a very small impact on the control variables compared to Model 1. Areas with larger shares of the non-Hispanic Other race group are at greater risk for foreclosure, but this group is a very small

⁹The negative binomial results are available from the authors upon request.

portion of the overall population of Miami-Dade County, so the impact of foreclosures among these residents on neighborhood-level foreclosure rates is likely to be very small. On the other hand, the percentage of Cuban residents in a neighborhood significantly decreases foreclosure rate and no other race or ethnicity variables are found to be significant.

Model 3 adds measures of time spent in the U.S. for the Hispanic foreign-born population. While the results for the control variables remain relatively unchanged, with the addition of the time-in-U.S. variables, percent Cuban is no longer significant. This makes sense, since much early immigration to the Miami area was from Cuba, allowing ethnicity and time in U.S. to be confounded. In addition, the model suggests that neighborhoods with large numbers of immigrants who have arrived most recently have the lowest risk of foreclosure. This is likely because they have not yet had time to purchase a home, have arrived with limited economic means, or have not yet decided where to purchase a home.

To examine the impact of the housing and foreclosure variables alone, Model 4 does not include race/ethnicity or time in United States variables. The model performs better than the previous three models, and does not have a large impact on the performance of the control variables. Only one foreclosure measure is significant in this model: months to the first foreclosure (*lis pendens*) notice, albeit with a relatively small coefficient. Neighborhoods where foreclosures occur relatively quickly may result in higher than normal levels of resident turnover, increasing a community's overall risk of foreclosure.

Finally, Model 5 includes all variables—control, race and ethnicity, time in the United States, and housing/foreclosure measures. Model 5 explains the highest percent of variance in the foreclosure measure, indicating that this set of variables does a relatively good job of identifying which places have higher foreclosure rates than others, given certain homeownership and ethnicity factors. While most variables performed similarly in Model 5 as in previous models, a few results are worth highlighting. First, the percent Cuban variable is significant in Model 5, as are two time-in-U.S. variables (arriving after 2000 and arriving in the 1980s). The negative significance of the percent Cuban term is likely due to the fact that Cuban immigrants tend to have higher levels of economic capital when they arrive in the United States, having immigrated for reasons other than improved financial opportunity. In addition, many Cubans have been in the Miami-Dade County area for several decades, giving them time to establish financial security in the United States and purchase a home. Areas with a large percentage of Cubans, then, tend to have lower foreclosure rates. The significance of the recent arrival variable, also significant in Model 3, is likely because this portion of the population has not yet had time to purchase a home—whether due to time required to secure stable employment, build savings, or make decisions on where to purchase a home. As demonstrated in earlier models, areas with large numbers of new immigrants have relatively low foreclosure rates.

Model 5 also suggests that areas with a large proportion of long-term immigrant residents (who arrived in the 1980s) also have lower rates of foreclosure. Individuals arriving in the 1980s were likely able to purchase a home prior to the most recent housing boom and bust cycle; they may have been able to purchase homes before prices skyrocketed, and may have made significant payments towards their mortgages already. Individuals in this situation

have had time to build equity in their homes and are therefore more protected from foreclosures than recent purchasers.

Finally, the months to first foreclosure notice is again significant: areas where homes fall into foreclosure quickly are more susceptible to additional foreclosures. This variable is likely identifying areas with, for instance, lots of new construction, where buyers bought just prior to the start of the foreclosure crisis and were quickly hit with decreasing home values and untenable mortgage situations. In newly-constructed neighborhoods, many neighbors are often in the same boat.

Although not included here, we estimated models of foreclosure rates that included interaction terms to determine the differential impact of income levels by race/ethnicity group. These terms were not significant, suggesting that the effects of income are relatively stable across groups. This was true of the homeownership models as well, indicating that, regardless of racial or ethnic background, income levels are important factors in both opening homeownership opportunities and preventing foreclosure situations for all individuals.

Finally, we tested different methods for calculating the foreclosure rate in order to determine the models' sensitivity to different foreclosure measures. We developed three additional foreclosure rates, using as the base 1) all owner-occupied units; 2) all occupied units, and 3) all housing units. We estimated separate OLS models for each of these dependent variables, using the same independent variables used for the models shown in Table 8. The results from the full model (Model 5 presented in Table 8) and from models created for each of the three additional rates are provided in Table 9.

The robustness of the models varied: the model predicting foreclosure rates based on residential parcels explained the most variation of all four models, and had a higher number of significant variables. Many of the significant variables were consistent across models, however, including Hispanics arriving in the 1980s, which has a significant and negative effect on foreclosures, regardless of the rate used. Receiving a foreclosure notice soon after home purchase is also associated with higher neighborhood rates of foreclosure, regardless of which rate is used.

Finally, while some ethnicity variables were significant, the exact measures were not consistent across models. Neighborhoods with larger Cuban and Central American populations tend to have lower foreclosure rates, while neighborhoods with South American populations have higher rates of foreclosure, depending on the foreclosure measure used. These results suggest that more investigation into the implications of using different foreclosure measures is warranted—perhaps renters in some areas are more susceptible to living in a home that is foreclosed, and the rates based on occupied or all housing units might be picking up that effect. Further investigation in this vein, however, is beyond the scope of the current work.

6. DIFFERENT EFFECTS OF NATIVITY ON HOMEOWNERSHIP AND FORECLOSURE

The homeownership models confirm much of the previous work done in this area, with standard control variables in the expected direction, including age, income, education, and marital status. The control variables in the foreclosure models perform similarly, with most controls significant and in the expected direction (save for unemployment, which was not significant in any models). Because the foreclosure models were conducted at the neighborhood level, one possibility for the unemployment finding is that the measure is associated with areas that are less well-off economically; these areas likely have lower levels of homeownership, and therefore fewer foreclosures. While economic means certainly is a main determinant of foreclosure at the individual level, the relationship is less straightforward at the neighborhood level.

The analysis of homeownership by subgroup, however, reveals some noteworthy differences by race/ethnicity; namely that, with the exception of Cubans, all subgroups are less likely to be homeowners than white, non-Hispanics. In addition, in the full foreclosure model, only Cuban neighborhoods had foreclosure rates significantly *lower* than rates in white, non-Hispanic neighborhoods. As many Cubans immigrate to the U.S. for non-economic reasons and tend to arrive with more resources – both financial and otherwise – this finding was wholly expected.

Time in the U.S. was important in both homeownership and foreclosure models; for homeownership models, the longer an individual was in the U.S., the greater his/her probability of owning a home, which (in 2000) was true for all race/ethnic groups. For foreclosures, the relationship is a bit more complicated. Areas with large numbers of recent arrivals (after 2000) or with large numbers of early arrivals (during 1980s) both have lower foreclosure rates. Those who have been in the U.S. for a short period of time are less likely to own homes, and foreclosure rates in these areas are thus lower. On the other hand, those who have been in the U.S. for a long period of time are more likely to be homeowners, creating a larger pool of individuals at risk of foreclosure. But individuals who have been in the U.S. for more than two decades had a greater opportunity to build sufficient equity in their homes, significantly lowering their foreclosure risk. Nativity appears to have a stronger effect on homeownership than on neighborhood foreclosure levels.

7. CONCLUSIONS: INCREASING HOMEOWNERSHIP WHILE PREVENTING FORECLOSURE

This work has demonstrated the importance of considering nativity, race, and ethnicity in efforts to increase homeownership opportunities among minorities and to make homeownership less risky financially. With very few subprime loans being offered in the current mortgage climate, the current focus should be on creating equitable homeownership opportunities and continuing to close the homeownership gap that still exists between white non-Hispanics and other racial/ethnic groups. These efforts should ideally take place at both the individual and neighborhood levels.

The slowing of sub-prime mortgages and a tightening of lending criteria and regulation that has occurred in the current housing bust make it less likely that such mortgages will be available to individuals who are not good candidates (e.g., those with unstable employment, little to no savings, or bad credit history). Because homeownership is one mechanism through which equitable access to quality housing and immigrant assimilation can be promoted (Allen, 2011b), making homeownership possible is certainly important. Current foreclosure risks, however, suggest promoting financial stability prior to homeownership. One driver of homeownership, especially among low income individuals and families, is the fear that rents will rise to unaffordable levels and the perception that eviction is common and/or likely in the U.S. Educating individuals on their rights as renters and the laws that protect them can help decrease rental avoidance, and establishing a good rental history can even help individuals improve their credit scores.

Not surprisingly, income levels were associated with homeownership and neighborhood foreclosure levels. Focusing efforts on securing and maintaining stable employment, then, might be one of the best first steps to both encouraging homeownership and preventing foreclosures. While the impact of job skills training or career assistance on both homeownership and foreclosures might be indirect or occur over a long time horizon, such efforts can improve not only homeownership levels in the aggregate but can also increase well-being for individuals and communities in a number of different domains. Other efforts to increase financial stability, such as encouraging families to use banks instead of alternative, high-cost financial services like payday loans and auto title loans, can also assist in the move towards building and maintaining good credit and building savings, as prerequisites to homeownership. Focusing efforts on building financial stability before encouraging homeownership can help make owning a home less risky, and will help decrease individual risk of foreclosure.

At the community level, the effort to decrease the homeownership gap should go hand in hand with foreclosure prevention outreach. Because one foreclosure can have spillover effects on nearby properties – decreasing the value of neighboring homes, for instance – educating all homeowners on foreclosure prevention is important. Educating existing homeowners on available resources for help, for example, in maintaining their properties in the face of economic hardship, can help lessen the impact of foreclosures in communities, as can educating communities on mortgage counseling services that are available in the area. In the current economy, mortgage counseling and assistance services may not have the capacity to reach all homeowners, so their work should be focused in communities that have been the hardest hit, including minority neighborhoods.

Finally, policies that help hold rents stable or provide more affordable housing to low-income families can help reduce the risk of renting becoming unaffordable, and let families build savings and financial stability before making the step into homeownership. Policies that encourage mortgage lenders to make prime mortgage products available in communities where subprime loans are traditionally more common also can help lower the risk of foreclosure in those communities.

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FIGURE 1.
Percent foreign-born residents by census tract, 2005–2009

FIGURE 2.
Percent Cuban residents by census tract, 2005–2009

FIGURE 3.
Percent black residents by census tract, 2005–2009.

FIGURE 4.
Foreclosure rate per 100 housing units by census tract, 2001 and 2009, Miami-Dade County

FIGURE 5.
Average purchase price of foreclosed homes by census tract, 2001 and 2009, Miami-Dade County

TABLE 1

Householder Population Composition Miami-Dade County Area, 2000

2000 Race/Ethnicity	Percent of Total Population	Native Born	Foreign Born	Years in the U.S.					
				0-5	6-10	11-15	16-20	21+	
Asian	1.3	7.9	92.1	15.8	15.4	15.7	16.3	28.8	
Black	15.9	64.1	35.9	2.5	5.4	6.5	8.5	13.1	
White	26.8	83.0	17.0	3.1	2.0	1.8	1.8	8.3	
Other Race, non-Hispanic	1.8	33.8	66.2	10.3	10.6	10.5	13.3	21.4	
Central American	11.2	36.0	64.0	6.5	11.1	19.8	12.0	14.5	
Cuban	31.5	7.6	92.4	10.0	9.1	5.3	14.9	53.1	
South American	6.6	6.2	93.8	22.6	14.1	12.8	14.1	30.2	
Other Hispanic	5.0	17.2	82.8	11.7	10.5	16.0	13.7	31.0	
Total	100.0	40.8	59.2	7.6	7.3	7.4	9.9	26.9	

Note: Rates calculated from weighted householder data. N=38,759.

TABLE 2

Homeownership Rates for Householders in Miami-Dade County Area by Race/Ethnicity and Nativity, 2000

Race/Ethnicity	Native	Foreign Born	Difference *	Unweighted Sample Sizes
Asian, non-Hispanic	68.1	59.8	8.3 *	469
Black, non-Hispanic	47.1	54.1	-6.9 *	6,416
White, non-Hispanic	71.3	65.8	5.5 *	10,185
Other Race, non-Hispanic	52.7	45.3	7.5 *	683
Central American	49.3	39.8	9.5 *	4,269
Cuban	66.0	60.6	5.4 *	12,400
South American	44.7	50.9	-6.2 *	2,440
Other Hispanic	54.8	51.9	2.9 *	1,897
Total	61.9	55.9	6.0 *	38,759

Note: Rates calculated from weighted householder data.

* Indicates difference is statistically significant at 99 percent confidence level.

TABLE 3

Definitions and Summary Statistics for Variables Used in Homeownership Models

Variable Name	Variable Definition	Sample Mean (St. Dev.)
<i>Dependent Variable</i>		
Home Ownership	1 if owner	0.59
<i>Demographic and Socio-Economic Variables</i>		
Male	1 if householder is male	0.62
Age 18–24	1 if householder aged 18–24	0.03
Age 25–34	1 if householder aged 25–34 (omitted)	0.16
Age 35–44	1 if householder aged 35–44	0.23
Age 45–54	1 if householder aged 45–54	0.20
Age 55–64	1 if householder aged 55–64	0.15
Age 65+	1 if householder aged 65 and up	0.23
Log Household Income	Log of household income	10.11 (2.01)
Number of Children in Household	Number of children (under 18) in household	0.71 (1.09)
Widow	1 if householder is widowed	0.11
Divorced	1 if householder is divorced or separated	0.22
Single	1 if householder is single or never married	0.17
Married	1 if householder is married (omitted)	0.51
College degree or Higher	1 if householder possess at least a college degree	0.24
High School	1 if householder possesses a high school diploma (omitted)	0.11
Less than High School	1 if householder has less than a high school degree	0.22
Diploma		0.17
Linguistically Isolated	1 if householder is linguistically isolated	0.51
Non-Mover	1 if householder was in same house 5 years ago	0.24
Florida Native	1 if householder was born in Florida	0.03
Unemployed	1 if householder is unemployed	0.38
Not in Labor Force	1 if householder is not in labor force	
<i>Nativity/Race/Ethnicity</i>		
Foreign Born (Immigrant)	1 if born outside the U.S, Puerto Rico, or Virgin Islands and parents were not U.S. citizens	0.59
Non-Citizen	1 if not a U.S. citizen	0.25
Years in U.S.	Years of residence in the U.S. for immigrants; 0 for native born, including Puerto Ricans	12.86 (14.81)
Years in U.S. Squared	Years in U.S. squared	384.74 (634.28)
Asian, non-Hispanic	1 if Asian	0.01
Black, non-Hispanic	1 if Black	0.17
Central American	1 if Central American	0.11
Cuban	1 if Cuban	0.32
Other Hispanic	1 if Other Hispanic	0.05
Other Race, non-Hispanic	1 if Other Race, non-Hispanic	0.02
South American	1 if South American	0.06

Variable Name	Variable Definition	Sample Mean (St. Dev.)
Percent Own-Group (PUMA)	Percent of weighted PUMA householder population that is of householder's race/ethnicity, using categories above	33.55

TABLE 4

Yearly Foreclosure Characteristics, Miami-Dade County, 2001–2010

Year	Number of Foreclosures	Foreclosures of Condos (%)	Foreclosures of SFHs or Duplexes (%)	Average Lot Size (Sq Ft)	Average Purchase Price (\$)	Average months to first foreclosure notice
2001	4,012	17%	81%	6,169	75,658	48
2002	3,653	17%	81%	5,768	75,295	47
2003	2,244	19%	79%	5,669	84,860	48
2004	1,355	22%	76%	5,350	99,889	47
2005	617	23%	75%	5,558	118,833	41
2006	710	24%	73%	5,304	187,839	33
2007	4,073	34%	65%	4,556	300,340	22
2008	11,159	37%	62%	4,281	323,038	28
2009	10,907	47%	52%	3,291	301,875	35
2010	23,604	52%	47%	2,960	343,491	42

TABLE 5

Summary statistics used in analysis of foreclosures in Miami-Dade County

Variable	Mean	SD	Variable definition
<i>Dependent variable</i>			
Avg. foreclosure rate, 05–09	1.09	0.66	Avg. foreclosures per 100 residential parcels, 2005–2009
<i>Control variables</i>			
Male	48.31	4.46	Percent male
Under 18 years	23.13	7.02	Percent under 18 years of age
Age 18–24	9.77	7.35	Percent between 18 and 24 years of age
Age 35–44	14.68	3.38	Percent between 35 and 44 years of age
Age 45–54	13.63	3.20	Percent between 45 and 54 years of age
Age 55–64	10.47	3.12	Percent between 55 and 64 years of age
Age 65+	14.62	6.75	Percent over 65 years of age
Log household income	10.67	0.48	Log of median household income
College degree or higher	25.73	17.23	Percent over 25 years old with at least a college degree
Less than HS diploma	23.71	13.52	Percent over 25 years old with less than a high school diploma
Unemployed	4.84	2.60	Percent over 16 years old who are unemployed
Long commute	20.58	8.98	Percent of workers with a commute of at least 45 minutes
<i>Race, ethnicity variables</i>			
Black, non-Hispanic	19.84	28.71	Percent Black, non-Hispanic
Asian, non-Hispanic	1.46	1.88	Percent Asian, non-Hispanic
Other Race, non-Hispanic	0.98	1.26	Percent other race, non-Hispanic
Cuban	30.81	23.78	Percent Cuban
Central American	16.55	11.16	Percent Central American
South American	9.31	8.21	Percent South American
Other Hispanic	2.32	1.78	Percent other Hispanic ethnicity
<i>Hispanic foreign born</i>			
Arrived 2000 or after	11.04	7.24	Percent of Hispanic foreign born population who arrived after 2000
Arrived 1990–1999	11.35	6.31	Percent of Hispanic foreign born population who arrived between 1990 and 1999
Arrived 1980–1989	9.57	4.89	Percent of Hispanic foreign born population who arrived between 1980 and 1989
<i>Housing, foreclosure measures</i>			
Owner-occupied	58.64	23.61	Percent of housing units that are owner-occupied
Lot size (sq. ft)	5,696.43	7,454.07	Square footage of lot
Original purchase price	\$260,375	\$199,194	Original purchase price in \$
Months to first foreclosure notice	30.91	15.50	Months from purchase date until first lis pendens notice

TABLE 6

Homeownership Determinants in the Miami-Dade County Area, 2000

	Coefficient	Robust Standard Errors
Male	0.054 ***	(0.018)
Age 18–24	–0.301 ***	(0.049)
Age 35–44	0.203 ***	(0.024)
Age 45–54	0.326 ***	(0.026)
Age 55–64	0.483 ***	(0.030)
Age 65+	0.402 ***	(0.033)
Log Household Income	0.102 ***	(0.005)
Number of Children in Household	0.023 ***	(0.008)
Widow	–0.200 ***	(0.030)
Divorced	–0.444 ***	(0.021)
Single	–0.507 ***	(0.024)
College degree or Higher	0.232 ***	(0.020)
Less than High School Diploma	–0.257 ***	(0.020)
Linguistically Isolated	–0.299 ***	(0.021)
Non-Mover	0.716 ***	(0.016)
Florida Native	0.071 ***	(0.027)
Unemployed	–0.229 ***	(0.043)
Not in Labor Force	–0.095 ***	(0.019)
Foreign Born (Immigrant)	–0.264 **	(0.112)
Non-Citizen	–0.270 ***	(0.024)
Years in U.S.	0.025 ***	(0.002)
Years in U.S. Squared	–0.000 ***	(0.000)
Asian, non-Hispanic	–0.239 *	(0.123)
Black, non-Hispanic	–0.539 ***	(0.032)
Central American	–0.355 ***	(0.042)
Cuban	0.163 ***	(0.053)
Other Hispanic	–0.116	(0.082)
Other Race, non-Hispanic	–0.370 ***	(0.091)
South American	–0.236 *	(0.123)
Immigrant *Black	0.282 **	(0.114)
Immigrant *Central American	0.019	(0.116)
Immigrant *South American	0.068	(0.164)
Immigrant *White	0.108	(0.115)

	Coefficient	Robust Standard Errors
Immigrant *Cuban	-0.222 *	(0.119)
Immigrant *Other Hispanic	-0.068	(0.137)
Percent Own-Group (PUMA)	-0.001 **	(0.000)
Constant	-0.958 ***	(0.078)
Observations	38,759	
Pseudo R-squared	0.264	
Log Likelihood	-19330	

Dependent variable is housing tenure (1=owned; 0=rented). Model estimated is probit with robust standard errors. Models include controls for 20 PUMAs.

 $p < 0.01$

**
 $p < 0.05$

*
 $p < 0.1$.

TABLE 7

Homeownership Determinants by Selected Race/Ethnicity Categories in Miami-Dade County Area, 2000

	Black, non-Hispanic	Central American	Cuban	South American	White, non-Hispanic
Male	0.085** (0.042)	0.058 (0.054)	0.149*** (0.035)	0.008 (0.071)	-0.036 (0.035)
Age 18-24	-0.200* (0.110)	-0.370*** (0.116)	-0.354*** (0.110)	-0.166 (0.170)	-0.409*** (0.111)
Age 35-44	0.254*** (0.059)	0.219*** (0.060)	-0.036 (0.050)	0.077 (0.082)	0.393*** (0.051)
Age 45-54	0.528*** (0.063)	0.311*** (0.070)	-0.032 (0.054)	0.131 (0.093)	0.572*** (0.053)
Age 55-64	0.725*** (0.074)	0.374*** (0.088)	-0.001 (0.058)	0.217* (0.120)	0.818*** (0.063)
Age 65+	0.961*** (0.085)	0.416*** (0.109)	-0.237*** (0.062)	0.095 (0.149)	0.791*** (0.067)
Log Household Income	0.102*** (0.011)	0.105*** (0.020)	0.140*** (0.012)	0.080*** (0.018)	0.086*** (0.009)
Number Children in Household	0.024* (0.015)	0.034* (0.020)	-0.002 (0.018)	0.055* (0.031)	0.078*** (0.023)
Widow	-0.089 (0.075)	-0.079 (0.118)	-0.293*** (0.051)	-0.301** (0.152)	-0.246*** (0.059)
Divorced	-0.482*** (0.051)	-0.372*** (0.065)	-0.420*** (0.039)	-0.372*** (0.082)	-0.567*** (0.043)
Single	-0.572*** (0.053)	-0.334*** (0.070)	-0.381*** (0.049)	-0.230** (0.093)	-0.589*** (0.046)
College Degree or Higher	0.485*** (0.063)	0.302*** (0.065)	0.243*** (0.038)	0.221*** (0.070)	0.205*** (0.034)
Less than High School Diploma	-0.285*** (0.047)	-0.197*** (0.055)	-0.168*** (0.032)	-0.100 (0.093)	-0.259*** (0.061)
Linguistically Isolated	-0.417*** (0.090)	-0.208*** (0.054)	-0.160*** (0.030)	-0.205*** (0.065)	-0.270*** (0.088)
Non-Mover	0.835*** (0.040)	0.535*** (0.046)	0.646*** (0.030)	0.672*** (0.067)	0.829*** (0.034)
Florida Native	0.073 (0.047)	0.048 (0.137)	0.041 (0.100)	0.354 (0.259)	0.249*** (0.043)
Unemployed	-0.171* (0.096)	-0.160 (0.110)	-0.314*** (0.075)	-0.117 (0.162)	-0.207* (0.112)
Not in Labor Force	-0.089* (0.046)	-0.099* (0.054)	-0.189*** (0.033)	0.034 (0.071)	-0.036 (0.044)
Foreign Born (Immigrant)	0.069 (0.132)	-0.490*** (0.128)	-0.401*** (0.097)	0.100 (0.171)	-0.319** (0.135)
Non-Citizen	-0.403*** (0.069)	-0.240*** (0.068)	-0.315*** (0.037)	-0.465*** (0.074)	-0.027 (0.101)
Years in U.S.	0.033*** (0.009)	0.046*** (0.010)	0.033*** (0.004)	0.026*** (0.009)	0.032*** (0.007)
Years in U.S. Squared	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Percent Own-Group (PUMA)	0.020** (0.009)	-0.006 (0.008)	0.031** (0.014)	-0.263 (0.216)	-0.003** (0.002)
Constant	-2.258*** (0.230)	-1.262*** (0.278)	-1.461*** (0.261)	-0.490 (0.540)	-0.838*** (0.164)

	Black, non-Hispanic	Central American	Cuban	South American	White, non-Hispanic
Observations	6,416	4,269	12,400	2,440	10,185
Pseudo R-squared	0.316	0.245	0.268	0.225	0.255
Log Likelihood	−3040	−2207	−6076	−1310	−4525

Dependent variable is housing tenure (1=owned; 0=rented). Model estimated is probit with robust standard errors. Coefficients are reported with standard errors in parentheses. Models include controls for 20 PUMAs.

 $p < 0.01$

**
 $p < 0.05$

*
 $p < 0.1$.

TABLE 8

Determinants of Foreclosure in Miami-Dade County, Florida ($N=346$)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Constant	6.831***	1.229	5.959***	1.505	6.763***	1.549	6.177***	1.644	6.015***	1.762
<i>Control variables</i>										
Male	-0.012	0.008	-0.020**	0.008	-0.022**	0.008	-0.006	0.008	-0.014*	0.008
Under 18 years	0.000	0.008	-0.002	0.008	-0.005	0.008	-0.002	0.008	-0.005	0.008
Age 18-24	-0.024***	0.008	-0.025***	0.008	-0.026***	0.008	-0.023***	0.009	-0.018**	0.008
Age 35-44	-0.011	0.012	-0.001	0.012	0.001	0.012	-0.023**	0.011	-0.009	0.012
Age 45-54	-0.043***	0.011	-0.038***	0.010	-0.037***	0.010	-0.034***	0.010	-0.027***	0.010
Age 55-64	-0.022*	0.012	-0.024**	0.012	-0.025**	0.012	-0.034***	0.012	-0.032***	0.011
Age 65+	-0.033***	0.008	-0.023***	0.009	-0.025***	0.009	-0.033***	0.008	-0.025***	0.008
Log household income	-0.338***	0.117	-0.213*	0.128	-0.270**	0.131	-0.281*	0.152	-0.192	0.155
College degree or higher	-0.006*	0.003	-0.011***	0.004	-0.012***	0.004	-0.005	0.004	-0.014***	0.004
Less than HS diploma	-0.001	0.005	0.004	0.005	0.006	0.005	0.000	0.004	0.006	0.005
Unemployed	0.003	0.014	-0.004	0.015	-0.007	0.015	0.021	0.013	0.006	0.014
Long commute	0.014***	0.004	0.012***	0.004	0.011***	0.004	0.014***	0.003	0.011***	0.003
<i>Race, ethnicity variables</i>										
Black, non-Hispanic			-0.003	0.003	-0.002	0.003			-0.004	0.003
Asian, non-Hispanic			0.026	0.017	0.029*	0.017			0.036**	0.015
Other Race, non-Hispanic			0.047*	0.025	0.043*	0.025			-0.022	0.024
Cuban			-0.007**	0.003	-0.004	0.003			-0.008***	0.003
Central American			-0.003	0.005	0.002	0.005			-0.003	0.004
South American			-0.001	0.006	0.007	0.006			0.003	0.006
Other Hispanic			-0.013	0.019	-0.010	0.019			0.002	0.017
<i>Hispanic, foreign born</i>										
Arrived 2000 or after					-0.014**	0.007			-0.012*	0.006
Arrived 1990-1999					-0.002	0.007			0.006	0.007

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Arrived 1980–1989					–0.010	0.009			–0.014*	0.008
<i>Housing, foreclosure measures</i>										
Owner-occupied							0.000	0.002	–0.001	0.002
Lot size (Sq. ft)							0.000	0.000	0.000	0.000
Original purchase price							0.000	0.000	0.000	0.000
Mo. to first forecl. notice							–0.004**	0.002	–0.004**	0.002
Adj. R^2		0.37		0.40		0.41		0.44		0.48

Dependent variable: Average foreclosures rate per 100 housing units by tract, 2005–9

* $p < 0.1$

** $p < 0.05$

*** $p < 0.01$

TABLE 9
Determinants of Foreclosure in Miami-Dade County, Florida ($N=346$), Using Different Rate Bases

Foreclosure rate based on...	Residential parcels		Owner occupied housing units		Occupied housing units		All housing units	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Constant	6.015***	1.762	2.046	5.448	-0.193	1.478	1.224	1.472
<i>Control variables</i>								
Male	-0.014*	0.008	0.009	0.030	-0.004	0.008	-0.005	0.006
Under 18 years	-0.005	0.008	0.004	0.030	0.007	0.008	0.004	0.006
Age 18-24	-0.018**	0.008	-0.035	0.032	-0.003	0.009	-0.005	0.007
Age 35-44	-0.009	0.012	-0.012	0.045	0.015	0.012	0.009	0.010
Age 45-54	-0.027***	0.010	-0.035	0.038	-0.016	0.010	-0.019**	0.008
Age 55-64	-0.032***	0.011	-0.073*	0.042	-0.019	0.011	-0.020**	0.009
Age 65+	-0.025***	0.008	-0.010	0.032	0.002	0.008	-0.006	0.007
Log household income	-0.192	0.155	-0.031	0.459	0.154	0.124	-0.002	0.129
College degree or higher	-0.014***	0.004	0.003	0.016	-0.012***	0.004	-0.010***	0.004
Less than HS diploma	0.006	0.005	0.021	0.021	0.002	0.005	0.003	0.004
Unemployed	0.006	0.014	-0.004	0.055	-0.007	0.015	-0.008	0.012
Long commute	0.011***	0.003	0.009	0.013	0.009**	0.004	0.006**	0.003
<i>Race, ethnicity variables</i>								
Black, non-Hispanic	-0.004	0.003	0.006	0.011	-0.001	0.003	0.000	0.002
Asian, non-Hispanic	0.036**	0.015	0.038	0.060	0.020	0.016	0.024*	0.013
Other Race, non-Hispanic	-0.022	0.024	-0.047	0.094	-0.003	0.025	0.000	0.020
Cuban	-0.008***	0.003	-0.008	0.011	-0.004	0.003	-0.002	0.002
Central American	-0.003	0.004	0.057***	0.017	0.001	0.005	0.003	0.004
South American	0.003	0.006	0.012	0.023	0.016***	0.006	0.012***	0.005
Other Hispanic	0.002	0.017	-0.007	0.066	-0.003	0.018	0.001	0.014
<i>Latino foreign born</i>								
Arrived 2000 or after	-0.012*	0.006	-0.009	0.023	-0.008	0.006	-0.004	0.005

Foreclosure rate based on...	Residential parcels		Owner occupied housing units		Occupied housing units		All housing units	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Arrived 1990–1999	0.006	0.007	0.028	0.026	−0.008	0.007	−0.006	0.006
Arrived 1980–1989	−0.014*	0.008	−0.073***	0.030	−0.019**	0.008	−0.017**	0.007
<i>Housing, foreclosure measures</i>								
Owner-occupied	−0.001	0.002	0.000	0.000	0.000	0.000	0.005***	0.002
Lot size (Sq. ft)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Original purchase price	0.000	0.000	−0.010	0.006	−0.003*	0.002	0.000	0.000
Months to first forecl. notice	−0.004**	0.002	0.000***	0.000	0.000***	0.000	−0.003**	0.001
Adj. R^2		0.481		0.169		0.240		0.286

*
 $p < 0.1$ **
 $p < 0.05$ ***
 $p < 0.01$