Improving Homeownership Opportunities for Hispanic Families

Language, Agglomeration, and Hispanic Homeownership

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Acknowledgements

Table of Contents

Executive Summary

This paper investigates the degree to which language barriers contribute to well-known Hispanic-white gaps in homeownership that have been documented in numerous previous studies: as of the fourth quarter of 2005, data from the Current Population Survey indicate that 76 percent of white non-Hispanic families owned homes, but only 50 percent of Hispanic families. This paper's primary hypothesis is that low rates of homeownership in the Hispanic community create a self-reinforcing mechanism that contributes to this large disparity. This occurs because proximity to other homeowners facilitates access to information about how to become a homeowner, especially if nearby homeowners belong to a given family's social network. To test that idea, this study examines the degree to which a given Hispanic household is more likely to own a home if the family previously lived in a neighborhood populated with a greater concentration of Hispanic owner-occupiers. This idea is investigated using household-level data from the 2000 Decennial Census. A key part of the analysis is to determine whether the presence of homeowners in the family's 1995 place of residence has a systematic effect on the family's year-2000 propensity to own a home. In conducting this analysis, controls are provided for proximity to four types of homeowners in the 1995 place of residence: homeowners that are of the family's own ethnicity/race or not, and further, whether these homeowners are of weak English-speaking ability or not. Additional controls are provided for a host of family-specific attributes as well as for the family's year-2000 metropolitan area. To further ensure that the estimated influence of proximity to existing homeowners is indicative of *causal* effects, the estimating sample is restricted to just those families that moved out of state between 1995 and 2000.

Standard controls for the determinants of homeownership perform as expected. For example, families with more income are more likely to own, families with more investment income (a proxy for wealth) are more likely to own, but families with more welfare income—and therefore less wealth—are less likely to own. Similarly, the propensity to own increases with age and education, the presence of children in the family, and especially, married as opposed to single-headed households.

Somewhat different from the standard models, this study also controls for length of residency in the United States and the family's English-speaking ability. The findings here also accord with expectations and are consistent with findings from studies in the labor literature that examine the influence of immigration and linguistic ability on earnings: the propensity for homeownership is higher among families that are not recent immigrants, and also among families with strong English-speaking ability. These results begin to hint at the important role of language in gaining access to homeownership in the United States. It should also be emphasized that all of these results pertain to both a sample of non-Hispanic and Hispanic families, and also to a sample comprised of just Hispanic families. These results also hold for all levels of English-speaking ability of the individual family.

The study's most important finding is that proximity to weak English-speaking Hispanic homeowners in the 1995 place of residence increases the propensity of a Hispanic family to own a home in 2000. Moreover, this result holds regardless of the Hispanic family's own ability to speak English. Given the nature of the research design, two mechanisms seem especially likely to account for this result. The first is that the presence of weak English-speaking Hispanic homeowners signals the presence of local programs that facilitate homeownership among Hispanic households with limited English-language skills. The second is that weak English-speaking homeowners may provide powerful role model effects that encourage homeownership among other Hispanic families. However, it is not

possible to distinguish between these two mechanisms. Nevertheless, it seems clear that programs designed to educate and promote homeownership among weak English-speaking Hispanic families will have two important effects. First, and most obvious, such programs are likely to increase homeownership among the target families themselves. But second, and the focus of this study, elevating the homeownership rate among weak English-speaking Hispanic families is expected to have spillover effects that will further increase homeownership throughout the Hispanic community.

I. Introduction

This paper investigates the impact of language and access to information on Hispanic-white gaps in homeownership: as of the fourth quarter of 2005, 76 percent of white non-Hispanic families owned homes, but only 50 percent of Hispanic families were owner-occupiers.[1] Central to the study are four closely related ideas that will guide the research. First, to become a homeowner one must obtain information about the real estate market and financing opportunities. Second, in the U.S., English-speaking households will find it easier to obtain that information. Third, for various reasons, it is possible that information will be more readily available to Hispanic households as the size of the local Hispanic community increases—a scale effect. The fourth consideration is the influence of local peer groups on preference formation: if local peers are homeowners that may increase an individual's preference for homeownership.

Drawing on these ideas, this study will examine the impact of proximity to English and non-English speakers (both Hispanic and non-Hispanic) on the probability that a Hispanic family of a given language ability becomes a homeowner. To the extent that language barriers contribute to Hispanic-white homeownership gaps, those effects are likely to vary across neighborhoods and cities with the size of the local Hispanic community, and also the extent to which non-English-speaking Hispanic households live in linguistically isolated neighborhoods. Evidence of such effects could prompt spatially targeted policy efforts designed to overcome language barriers that restrict access to information about homeownership.

In the labor literature, a large number of studies have examined the degree to which an individual's own ability to speak English affects that worker's employment opportunities and earnings. These studies generally find that employment opportunities and earnings increase with the English-speaking ability of the household.[2] In the housing area, the inability to speak English has also been found to reduce the likelihood that a family owns their home (e.g. Coulson (1999), Flippen (2001), Krivo (1995), Myers and Lee (1998), and Painter et al. (2001)). Together, these studies provide compelling evidence that an individual's own ability to speak English is an important determinant of their economic outcomes, both in the labor and housing markets.

Of course, evidence that lack of English-speaking ability adversely affects an individual's economic outcomes does not by itself identify the *mechanism* by which this occurs. Two possible mechanisms seem especially plausible. The first is discrimination against non-English-speakers.[3] However, although the possible role of discrimination against non-English speakers is important, it is not a

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[1] *U.S. Housing Market Conditions* (Feb. 2006), Table 29, Department of Housing and Urban Development.

[2] See, for example, McManus, Gould and Welch (1983), Grenier (1984), McManus (1985), Kossoudji (1988), Tainer (1988), Chiswick (1991), Trejo (1997), Dvila and Mora (2000), and Sass (2000).

[3] Kenney and Wissoker (1994), for example, report evidence from paired tester studies conducted in the Los Angeles labor market. Testers applied for job openings advertised in the local newspapers. Those testers with Hispanic sounding last names were less likely to be invited to interview for the job openings. All other characteristics of the job applicants were held constant through the design of the tester methodology.

factor that this paper will be able to shed much light on.[4] Instead, this paper focuses on a second mechanism, access to information.

In a predominantly English-speaking world, an inability to speak English will clearly increase the cost of acquiring information. With regard to homeownership, the role of access to information is difficult to pin down. Nevertheless, Lee, Tornatzky, and Torres (2004) provide tentative evidence that access to information affects the propensity of Spanish-speaking Hispanic households to become homeowners. In addition, lack of knowledge among Hispanics about financial and real estate markets has been documented in the Congressional Hispanic Caucus Institute (2004) and National Council of La Raza (2002). Results from Fannie Mae's 2003 National Housing Survey also suggest that Spanish-only speaking Hispanics are less likely to have accurate information than other groups.[5] Additional studies of the impact of language and knowledge on homeownership are reported in Cortes, Herbert, Wilson, and Clay (2005). Together, these studies are at least strongly suggestive that limited access to information adversely affects the propensity for homeownership among Hispanic households.[6]

A feature of all of these studies is their focus on the ability of the individual in question to speak English. This study takes a different tact by focusing on the importance of proximity to other English- and non-English-speaking homeowners, both Hispanic and non-Hispanic. The idea behind this approach is that the presence of nearby homeowners belonging to the individual's social network will facilitate access to information necessary to navigate the home purchase process.

Our emphasis on the scale of the local population of Hispanic and non-Hispanic homeowners, both English and non-English-speaking, is motivated by recent studies of agglomeration economies. Most often, these studies have tested for the extent to which agglomeration of population and economic activity enhances productivity and growth (see Rosenthal and Strange (2005) for a recent example and Rosenthal and Strange (forthcoming) for extensive reviews of this literature). Underlying this work are long-standing arguments that knowledge spillovers and the related flow of information are important benefits that arise from spatial concentration of economic activity (Marshall (1920)).[7] As will become apparent, the empirical approach is designed to test for the presence of agglomeration effects on consumer decisions. In this respect, this study is most closely associated with work by George and Waldfogel (2003) and Waldfogel (2003, 2005). These studies find that local radio stations, newspapers, and restaurants are more likely to cater to the tastes of specific minority groups as the size of the local minority population increases. In the case of media services, evidence further

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[4] The manner in which we control for the possible effect of discrimination is described shortly.

[5] Haurin and Morrow-Jones (2005) also show that knowledge of the mortgage and homebuying process is important for prospective African American and white homeowners, but their sample did not include Hispanic families.

[6] This conclusion is consistent with Cortes, Herbert, Wilson, and Clay (2005) who also conclude that "Hispanics confront numerous barriers that are associated with information gaps about the home buying process and with their ability to access the housing and mortgage finance markets."

[7] Marshall argues that knowledge spillovers, an ability to share intermediate inputs, and labor market pooling (which results in reduced search costs and a more efficient matching of skilled labor and capital) are the dominant benefits that arise from spatial concentration of economic activity. Evidence of all three micro-foundations is provided in Rosenthal and Strange (2001).

indicates that this concentration results in higher rates of minority radio listening and newspaper readership.

We are aware of few studies that have explicitly examined the influence of the English-speaking ability of the local community on an individual's economic outcomes. In the labor literature, McManus (1990) reports that the presence of larger Hispanic enclaves enhances job opportunities for Hispanic men while reducing the importance of English-speaking ability.[8] Cortes, Herbert, Wilson, and Clay (2005) note that the concentration of Hispanic households into ethnic enclaves (or barrios) is a prominent characteristic of many Hispanic communities, but the study does not establish the effect of those enclaves on homeownership opportunities.

The impact of proximity to Hispanic and non-Hispanic homeowners on an individual Hispanic family's propensity for homeownership likely works at least in part by facilitating the flow of information pertinent to homeownership. For example, in areas with high concentrations of Hispanics, real estate brokers and mortgage lenders are able to spread out the fixed costs of making information available in Spanish. The same is true of the fixed costs associated with hiring Spanish speakers to facilitate transactions. These activities would be consistent with the findings of George and Waldfogel (2003) and Waldfogel (2003, 2005). Agglomeration could further reduce knowledge barriers because a larger number of firms would likely find it profitable to invest in marketing homes to Hispanics. The increase in the number of firms doing business in the Hispanic community would result in more aggressive competition and improved services. In addition, proximity to a high concentration of Hispanic homeowners would likely facilitate knowledge of the homebuying process through expanded word-of-mouth networks as well as various local civic organizations (e.g. religious establishments). All of these possibilities echo evidence in the urban agglomeration literature that proximity facilitates the flow of information.

A different mechanism by which proximity to existing homeowners might influence a family's propensity for homeownership is through peer group or "role model" effects. A large literature has considered the effect of peer groups on preference formation in other contexts, including for example, school performance and teen pregnancy (e.g. Winkler (1975), Evans, Oates, and Schwab (1992), Betts and Morell (1999), Epple and Romano (1998)). In the present context, we cannot rule out the possibility that proximity to homeowners in or outside of the individual's social network increases the individual's desire to become a homeowner.[9] We will return to this point later in the paper.

We examine these issues using the year 2000 Census five percent Integrated Public Use Micro Sample obtained over the web (www.ipums.org). The empirical model is designed to document the

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[8] This further implies that with a larger Hispanic enclave, job security would be enhanced, increasing income stability and the likelihood of homeownership.

[9] Agglomeration of minority populations could also reduce discrimination through the establishment of businesses that cater to local Hispanic customers and the establishment of local organizations that spell out individuals' rights. Black, Holtz-Eakin, and Rosenthal (2001), for example, find that minorities are more likely to be self-employed as the scale of the local minority population increases. Such patterns are consistent with the presence of consumer discrimination because minority entrepreneurs can only thrive in areas populated with people willing to patronize their businesses (although other mechanisms could generate this result as well).

degree to which proximity to existing homeowners affects an individual's own propensity to own a home. At the core of our model are four key variables. The first is the share of the local population that is of the individual's own ethnicity/race (e.g. Hispanic), speaks English well, and owns a home. We also control for the share of the local population that is of the individual's own ethnicity/race, speaks English poorly, and owns a home. Two analogous measures are included for homeowners that are not of the individual's ethnicity/race. We estimate the impact of these four measures on the propensity of a given individual to own a home.

A challenge in estimating this model is to control for unobserved factors and endogenous regressors that could bias estimates of the impact of proximity to existing homeowners. Omitting influential variables from the analysis could bias the estimation results because included variables that are correlated with the omitted factors will tend to "pick up" their effect. Endogenous variables are ones that are simultaneously determined within our general behavioral model that includes a household's choice of whether to own or rent. For example, the choice of neighborhood and location may be simultaneously made with tenure choice. We address these concerns in several ways. First, we control for a large battery of year-2000 individual-specific attributes (e.g. income, English-speaking ability, years in the United States, etc.). Second, we identify an individual's location at the Public Use Micro Area (PUMA) level. PUMAs are smaller than MSAs and this allows us to control for year-2000 MSA fixed effects, stripping away the effect of factors common throughout the MSA (e.g. MSA-wide levels of discrimination, fiscal policies, etc.). Third, proximity to existing homeowners is measured based on the 1995 place of residence. We then restrict the estimating sample to just those individuals who moved out of state since 1995. This helps to ensure that the 1995 proximity measures are exogenous. Finally, we apply various methods to further difference away unobserved factors that might bias the results. This includes comparisons between the influence of proximity to Hispanic and non-Hispanic homeowners of differing English-speaking ability. Additional details on these methods are provided later in the paper.

To the extent that agglomeration of English and non-English-speaking Hispanic households is found to affect Hispanic homeownership, there could be direct implications for policy. In commenting on homeownership policies, Cortes et al (2005) note that … "Some of these programs are designed to bridge the information gap through homeownership education and counseling and financial literacy programs that are targeted specifically at the Hispanic community through specialized outreach efforts and by offering materials and instruction in Spanish." Counseling programs are expensive, as are efforts to introduce trained Spanish-speaking intermediaries into institutions conducting business with the Hispanic community. Evidence, therefore, that the need for such assistance varies in a systematic manner across neighborhoods and cities could be valuable to policy makers. In particular, such evidence would imply that spatial targeting of government resources devoted to homeownership assistance programs would be efficient when attempting to meet the needs of the Hispanic population.

Against this backdrop, our results indicate that Hispanic families are more likely to become owner-occupiers if their 1995 place of residence was populated with a greater concentration of Hispanic homeowners. This result is consistent with the idea that the presence of Hispanic homeowners facilitates access to information pertinent to the homebuying process for other prospective Hispanic owner-occupiers. The result could also reflect the influence of peer group or role model effects.

Our estimates also imply that the presence of an additional Hispanic homeowner has a much larger spillover effect if that individual has weak rather than strong English-speaking skills. Given that weak English speakers must overcome greater barriers to become homeowners, their presence could proxy for an environment supportive of Hispanic homeownership, especially in a manner that continues to influence a family's propensity for homeownership even upon moving out of state.[10] Their presence could also provide a powerful example to other Hispanic families, encouraging homeownership among other Hispanic families. In aggregate, because there are many more strong rather than weak English-speaking Hispanic homeowners, the presence of each group in the local community has about the same total effect on the propensity of a given Hispanic family to own a home. On average, each group contributes about 2.5 percentage points to the likelihood that a typical Hispanic family becomes a homeowner, for a total effect of 5 percentage points.

We proceed as follows. The next section discusses the data for the analysis and also provides summary measures pertinent to the subsequent analysis. Section III presents the empirical methodology. Section IV discusses the estimation results and Section V comments on policy implications and concludes.

II.   Data and Summary Measures

The primary data source is the five percent Public Use Micro Sample from the 2000 Decennial Census. These files were accessed from the Integrated Public Use Micro Sample (IPUMS) project over the web at www.ipums.org. The five percent file contains a large amount of data, allowing us to measure the demographic, linguistic, and homeownership attributes of public use micro areas (PUMAs) throughout the United States. In the 2000 Census, there are just over 2,071 such areas identified in the United States. PUMAs are large geographically in rural areas, but are relatively small in densely developed cities where most Hispanic households are found.[11]

Cortes et al. (2005) show that most Hispanics live in the Southwest and California, while some are concentrated in a few metropolitan areas in the Northeast. Relative to non-Hispanic whites, Hispanics tend to concentrate in the central cities of large metropolitan areas. For example, Cortes et al. reports that 53 percent of Hispanic households live in the 30 largest metropolitan areas, compared with only 33 percent of non-Hispanic households. The concentration of Hispanics within MSAs varies substantially ranging from 80.8 percent in the most concentrated (McAllen-Edinburg-Pharr-Mission, TX), to 21.6 percent in the 15th most concentrated (Tucson, AZ), to 12.9 percent in the 30th most concentrated (Oakland, CA). Because Hispanic households are disproportionately concentrated in

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[10]   Such an environment could include the presence of local counseling and other programs that facilitate homeownership among Hispanic families, and/or the presence of local Spanish speaking loan officers. The presence of such conditions in the local community could have both a contemporaneous effect on the ability/desire of individuals to become homeowners, but also an influence that stays with the family even upon moving, as with knowledge of the homebuying and financing process. It is this latter effect that we seek to identify given that we use lagged local environment measures and restrict our estimating sample to recent out-of-state movers. This point is discussed further later in the paper.

[11]   The average population of a PUMA in 2000 was roughly 150,000 people in residence.

relatively large metropolitan areas, this enhances the variation in our data given that PUMAs are relatively small and numerous in the large cities.

It is also important to note that there is greater variation in the level of English language proficiency among Hispanic households relative to non-Hispanic households. This is evident in Table 1 taken from Cortes et al. (2005) based on data from the 2000 IPUMs. Note that English language proficiency is broken into five levels. Among non-Hispanic households, 97 percent either only speak English or speak English very well; this compares to just 55 percent among Hispanic households. Similarly, just 0.2 percent of non-Hispanic households do not speak English at all compared to 7.6 percent of Hispanic households.

Table 1
Immigration Characteristics of Hispanic and Non-Hispanic
Households in the U.S., 2000
(Source of Table: Cortes et al (2005), Exhibit 1-4)

	Percent of Hispanic Households	Percent of non-Hispanic Households
Nativity		
Native born	47.0%	91.9%
Foreign born	53.0%	8.1%
Citizenship Status		
U.S. citizen	67.8%	96.9%
Not a U.S. citizen	32.2%	3.1%
English-speaking		
Yes, speaks only English	17.8%	91.4%
Yes, speaks very well	37.1%	5.3%
Yes, speaks well	19.9%	2.0%
Yes, but not well	17.8%	1.1%
Does not speak English	7.6%	0.2%
Years in the U.S. for foreign born[a]		
0-5 years	12.8%	14.5%
6-10 years	14.8%	12.8%
11-15 years	18.7%	11.8%
16-20 years	16.2%	12.3%
21+ years	37.4%	48.6%

[a]Only includes households with immigrant heads of household, defined as any person who was foreign born, including persons born in Puerto Rico or other U.S. outlying areas and persons born abroad to U.S. parents.

Data Source: Integrated Public Use Microdata Series (IPUMS) data from U.S. Census 2000 PUMS 1% sample.

As noted above, the PUMA in which an individual lives is reported in the IPUMs. We also observe the 1995 location for each household in the IPUMS; this is identified as the 1995 PUMA (or

migpuma5) in the dataset, but in many instances is actually an agglomeration of adjacent PUMAs, presumably to protect confidentiality.[12] We use this information to characterize attributes of the 1995 place of residence as follows. First, we aggregate the attributes of all households in the 2000 Census by PUMA, applying household sampling weights to ensure representative measures. This enables us to determine the demographic, linguistic, and homeownership attributes of each PUMA in the United States. We then assume that the aggregate attributes of the individual PUMAs (e.g. linguistic ability) are unchanged between 1995 and 2000. By merging the PUMA aggregate attributes with the individual-level data using the 1995 PUMA of residence to match data files, we are able to describe the attributes of the family's 1995 location.

We focus on four factors that describe various attributes of the family's 1995 "PUMA" of residence. These are the percentage of household heads in the 1995 place of residence that are:

    i.   Homeowners with STRONG English-speaking skills and who are of the individual's own ethnicity/race;

    ii.   Homeowners with WEAK English-speaking skills and who are of the individual's own ethnicity/race;

    iii.   Homeowners with STRONG English-speaking skills and who are NOT of the individual's own ethnicity/race; and

    iv.   Homeowners with WEAK English-speaking skills and who are NOT of the individual's own ethnicity/race.

Individuals are coded as having strong English-speaking skills if they speak English very well or only speak English. Individuals are coded as having "weak" English-speaking skills if they speak English not at all, not well, or "well." This classification is designed to single out those individuals who exhibit a deficiency in English language ability.[13] In constructing these variables we use the household weights available in the IPUMs to ensure accurate counts of different types of households present in each PUMA. These count measures are then divided by the total number of households in each PUMA to convert the PUMA-specific attribute variables into percentages.

Finally, in addition to the information above, the PUMS data contain a rich set of household demographic and financial attributes, including various measures of the components of income, education, and family structure. These variables will be used to control for the "traditional" determinants of whether a family is an owner-occupier.

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[12]   The 1995 PUMA of residence is identified as the migpuma5 in the IPUMS data file (see www.ipums.org). In many instances, the PUMA95 geographic boundaries are the same as used to define year-2000 PUMAs. But in other instances the Census agglomerates several adjacent year-2000 PUMA boundaries when defining a PUMA95 region.

[13]   The classification of speaking English "well" is judgmental. Table 1 shows that the ability to speak well (20% of the Hispanic population) reflects some deficiency in English language ability as the majority of Hispanic households speak English very well or only. Our classification thus leads to a test of the impact of language deficiencies on the probability of being a homeowner.

III. Empirical Method

We estimate the following model,

$$Own_{ij} = a_1 X_i + a_2 H_i + e_i \tag{1}$$

where *Own* is a 1-0 variable that denotes whether household head *i* in MSA *j* owns or rents their home (1 if own and 0 if rent). The vector *X* denotes attributes of individual *i* in 2000 (e.g. income). The vector *H* denotes proximity to existing homeowners. A central goal of the empirical work is to obtain unbiased and consistent estimates of the causal effect of *H* on the propensity of an individual to own a home.

Two obvious challenges arise when estimating this model. These are the twin problems of endogenous covariates and unobserved factors, both of which could bias estimates of the coefficients on *H*. In part, these issues are dealt with in the traditional way by including numerous indicators of the individual's own attributes in the *X* vector (e.g. income, ethnicity/race, English-speaking ability, years in the U.S., etc.). This likely reduces concerns about unobserved heterogeneity that could bias the results, but does not eliminate the problem. For example, as noted earlier, non-English speakers may be subject to discrimination completely apart from the difficulty of obtaining information in an English-speaking country. This observation seems especially pertinent when studying Hispanic households for whom discrimination has been documented in various markets (e.g. HUD (2000), Yinger (1998), Kenney and Wissoker (1994)). Moreover, it is plausible that unobserved levels of discrimination could be correlated with the concentration of Hispanic homeowners in a given location. As such, Hispanic families with a strong taste for homeownership may seek out locations where discrimination is less, with corresponding implications for the level of the Hispanic population in the chosen area. Such correlation would bias the estimated impact of proximity to Hispanic and non-Hispanic homeowners.[14] Accordingly, it is important to further control for unobserved factors and related endogeneity problems.

To further address these issues, we adopt a combination of MSA fixed effects, lagged regressors, and differencing methods. We begin by observing the household's current (year 2000) place of residence. For these purposes, place of residence is measured by the public use micro area (PUMA) in which the individual resides. Measuring current location in this way, it is possible to control for year-2000 MSA fixed effects based on the PUMA of residence in that year. Our estimating equation becomes,

$$Own_{ij} = \theta_j + a_1 X_i + a_2 H_i + e_i \tag{2}$$

Including the MSA fixed effects, θ_j, strips away unobserved factors common to households in the family's present metropolitan area. This includes, for example, MSA-wide levels of discrimination against Hispanic and weak-English-speaking households, local fiscal policies, the MSA-wide price of

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[14] It should also be stressed that the policy responses to discrimination are likely to be quite different from those motivated by language barriers.

housing, and more. But including MSA fixed effects also greatly increases the number of parameters to be estimated. For that reason, we estimate linear probability models in which the dependent variable is the individual household head's current housing tenure status (1 if own and 0 otherwise).[15]

Our next adjustment is to measure H, proximity to existing concentrations of homeowners, with a lag. Specifically, we measure the concentration of homeowners in the individual's 1995 place of residence rather than the current year (2000) place of residence. This location is reported retrospectively in the IPUMS. It should be emphasized that this is the only variable in the model that is measured with a lag. Our dependent variable – the individual's current (year-2000) homeownership status – and all of the other covariates are measured using the year-2000 values. Our model is written as,

$$Own_{ij}^{2000} = \theta_j^{2000} + a_1 X_i^{2000} + a_2 H_i^{1995} + e_i^{2000} \tag{3}$$

With serial correlation in unobserved factors, we still cannot rule out the possibility that H_i^{1995} might be correlated with the error term in equation (3).[16] To reduce such effects, we restrict our estimating sample to just those individuals who moved out of state since 1995. If proximity to existing homeowners facilitates learning, that knowledge should in most instances stay with the households as they move to their new state. Location specific factors specific to the 1995 place of residence, however, would not travel with the individual.[17] This helps to ensure that H_i^{1995} is exogenous.

Our final empirical strategy is to compare results across estimates obtained for different groups on the basis of ethnicity/race and linguistic ability. Primarily, this involves comparisons of the influence of proximity to different types of homeowners on the homeownership propensity of a given group. In addition, our model is estimated for several different groups such as for Hispanic and non-Hispanic families, with strong and weak English-speaking skills, respectively. This allows us to make additional comparisons across sample groups. Suppose now that families with unusually strong tastes for homeownership seek out locations populated with large concentrations of existing homeowners, even after controlling for the other covariates in the model. This would upward bias the influence of

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[15]   Note also that the cumulative distribution function of the standard normal is approximately linear over the range from 0.2 and 0.8. With Hispanic homeownership rates typically in this range, the linear probability model provides a good approximation to results that would otherwise be obtained from a probit model. However, whereas it is easy to estimate linear probability models with numerous fixed effects, the large number of MSA fixed effects in our model make it difficult to work with a Probit specification.

[16]   Serial correlation in the unobserved factors implies that their values persist over time and thus the influence of these unobserved factors (and hence their biasing effect) could spillover from 1995 to 2000. For that reason, simply using a 1995 measure of proximity to concentrations of homeowners might continue to contain the unwanted and biasing effects of unobserved factors if we include in the analysis households whose location was unchanged between 1995 and 2000. This problem is reduced (if not eliminated) by limiting the sample to households that moved out-of-state during this period.

[17]   Specifying the model in this fashion also reduces possible concerns about endogenous sorting of individuals into neighborhoods filled with homeowners. For example, a family planning to own a home upon moving to a new state likely would locate in a neighborhood conducive to homeownership, and therefore, be filled with homeowners. For that reason, the homeownership attributes of the individual's current location likely are correlated with the individual's current unobserved taste for owning a home.

proximity to existing homeowners regardless of ethnicity/race and linguistic attributes. But, suppose that social ties are closer between Hispanic families as opposed to between Hispanic and non-Hispanic households, as seems likely. Then a prospective Hispanic homebuyer is likely to learn more from nearby Hispanic homeowners as compared to nearby non-Hispanic homeowners. Comparing these effects isolates the importance of proximity to Hispanic homeowners, with the implied enhanced access to information. Analogous arguments can be made with respect to the English-speaking ability of nearby homeowners.

In all cases, the estimating samples are restricted to just households that moved to a new state in the last five years. In addition, the estimating samples are further restricted to household heads between the ages of 18 and 65.

IV. Results

4.1 Proximity to Existing Homeowners

We begin by reviewing summary measures of the four key variables that characterize the concentration of different types of homeowners in a given individual's 1995 place of residence. The first of these variables is the percentage of all households who are homeowners of the individual's own ethnicity/race with weak English-speaking ability.[18] Analogous measures also are calculated for the presence of homeowners with strong English-speaking ability, and those who are not of the individual's own ethnicity/race. Values for each of these variables are calculated using the entire set of households in the 2000 IPUMS along with household weights to ensure representative results. Values for the four measures are reported in Table 2a for the estimating sample, which, as noted earlier, is composed only of household heads who moved out of state between 1995 and 2000. Additional values are reported for just the Hispanic component of that sample, Hispanics who speak only English at home, and Hispanics who do not speak only English.

Several general patterns are worth noting in Table 2a. First, for the full sample and also for Hispanics who speak only English, roughly fifty percent of households in the 1995 place of residence were homeowners of the individual's own ethnicity/race with strong English-speaking ability. This is not surprising given the high homeownership and English-speaking rates throughout the U.S. For Hispanic families who do not speak English well, however, only 39 percent of households in the 1995 place of residence were homeowners of the individual's own ethnicity/race with strong English-speaking ability. This is indicative of the tendency of Hispanic families to reside in areas heavily populated with Spanish-speaking Hispanic families, and also with lower homeownership rates.

The second point to take note of in Table 2a is the low share of households in the 1995 place of residence who are homeowners of the individuals own ethnicity/race with weak English-speaking ability. At the median, this value is just 0.6 percent for the full sample, and 0.7 percent among

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[18]   Note that this is not a group-specific homeownership rate because, for all cases, it is the ratio of the number of homeowners in a particular group to the total number of households in the 1995 PUMA.

Hispanic families. These low values reflect the low rates of homeownership among families with weak English-speaking skills, regardless of whether they are Hispanic or not.

Table 2b provides sample means for the remaining variables used in the estimations to follow for each of the same sample groups just discussed. Values for these variables are largely as would be expected: Hispanic families have lower earned and investment income, but higher welfare income. Those differences are even greater when comparing Hispanic families who do not speak only English to all families. It should also be noted that the sample means in Table 2b are not weighted and may therefore may not be representative of the out-of-state mover sample given non-representative aspects of the Census sample design.

Table 2a
Percentage of Homeowners among All Households in the 1995 Place of Residence[a]

	% 1995 household heads who are homeowners and who are …	Mean	P10	P25	P50	P75	P90
Full Sample: Hispanic + Non-Hispanic	Own ethnicity/race & WEAK English Ability	0.008	0.002	0.003	0.006	0.009	0.016
	Own ethnicity/race & STRONG English Ability	0.520	0.237	0.413	0.548	0.654	0.716
	NOT own ethnicity/race & WEAK English Ability	0.023	0.002	0.004	0.010	0.034	0.062
	NOT own ethnicity/race & STRONG English Ability	0.098	0.020	0.039	0.085	0.137	0.197
Hispanic: All Households	Own ethnicity/race & WEAK English Ability	0.009	0.003	0.004	0.007	0.010	0.022
	Own ethnicity/race & STRONG English Ability	0.411	0.160	0.237	0.419	0.550	0.657
	NOT own ethnicity/race & WEAK English Ability	0.050	0.005	0.011	0.037	0.071	0.087
	NOT own ethnicity/race & STRONG English Ability	0.124	0.036	0.078	0.114	0.149	0.219
Hispanic: Speak Only English	Own ethnicity/race & WEAK English Ability	0.008	0.003	0.004	0.006	0.009	0.016
	Own ethnicity/race & STRONG English Ability	0.469	0.216	0.365	0.488	0.596	0.684
	NOT own ethnicity/race & WEAK English Ability	0.036	0.003	0.007	0.023	0.046	0.082
	NOT own ethnicity/race & STRONG English Ability	0.114	0.032	0.066	0.103	0.146	0.216
Hispanic: Do Not Speak Only English	Own ethnicity/race & WEAK English Ability	0.010	0.003	0.005	0.007	0.010	0.022
	Own ethnicity/race & STRONG English Ability	0.389	0.160	0.237	0.390	0.541	0.647
	NOT own ethnicity/race & WEAK English Ability	0.055	0.006	0.015	0.041	0.075	0.104
	NOT own ethnicity/race & STRONG English Ability	0.128	0.039	0.080	0.123	0.151	0.227

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000, identify their U.S. place of residence in 1995, and are 18 to 65 in age.

Table 2b
Sample Means[a]

	Hispanic and Non-Hispanic	Hispanic: All English Abilities	Hispanic: Speak Only English	Hispanic: Do NOT Speak Only English
Own Home	0.4580	0.3498	0.3767	0.3399
Total family income	54,450	43,520	49,410	41,360
Total family income squared	6.64E+09	4.44E+09	5.34E+09	4.11E+09
Investment income	2,694	1,061	1,579	871
Investment income squared	2.15E+08	7.76E+07	1.30E+08	5.83E+07
Welfare income	57.18	83.92	80.78	85.08
Welfare income squared	4.04E+05	5.05E+05	5.26E+05	4.98E+05
Age of Head	41.06	38.10	36.44	38.71
Age of Head squared	1,924	1,631	1,491	1,682
Asian	0.0384	0.0000	0.0000	0.0000
African American	0.0875	0.0000	0.0000	0.0000
Other Non-White Race	0.0688	0.0000	0.0000	0.0000
Hispanic	0.0329	1.0000	1.0000	1.0000
White	0.7724	0.0000	0.0000	0.0000
Married	0.5238	0.5715	0.5183	0.5911
Children under 18 present	0.1173	0.1669	0.1427	0.1757
Less than College	0.2998	0.5111	0.3296	0.5778
Some College	0.3044	0.2556	0.3405	0.2244
College Degree or more	0.3958	0.2333	0.3300	0.1978
Less than 10 years in U.S.	0.0346	0.1556	0.0279	0.2025
10 to 19 years in U.S.	0.0377	0.1844	0.0340	0.2396
20+ years in U.S. or Nat. Citizen	0.9277	0.6601	0.9381	0.5579
Speak English: Not at all or not well	0.0210	0.1741	0.0000	0.2380
Speak English: Well	0.0273	0.1606	0.0000	0.2196
Speak English: Very well	0.0897	0.3967	0.0000	0.5424
Speak English: Only English	0.8621	0.2686	1.0000	0.0000
Observations	312,110	10,278	2,761	7,517

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000, identify their U.S. place of residence in 1995, and are 18 to 65 in age. For the squared variables, scientific notation is used to display their means.

4.2 "Standard" Determinants of Homeownership

Table 3 presents the linear probability (with MSA fixed effects) models for the entire sample of out-of-state movers. It is worth emphasizing that because we adopt a linear specification, both in Table 3 and in the tables to follow, the estimated coefficients can be interpreted as probabilities. For example, the coefficient on "Married" in the first column of Table 3 (the Full Sample model), is 0.1955. This indicates that the probability that an individual owns a home is 19.55 percentage points higher if the individual is married.

Note also that all of the samples in Table 3 include both Hispanic and non-Hispanic families that moved out-of-state between 1995 and 2000 and were present in the United States in 1995. The first column reports results for the full sample, while the second and third columns report results for families who speak only English, and those who do not speak only English, respectively. Analogous regressions are provided in Table 4 for just the Hispanic out-of-state movers who were present in the United States in 1995. All of the models in Tables 3 and 4 include a large number of descriptors of the family's socio-economic attributes, as well as the agglomeration variables noted earlier. Model estimates based on specifications that omit the agglomeration variables are provided in the Appendix. Results from those models are largely similar to those presented in Tables 3 and 4. Finally, in all of the models, standard errors used to calculate the corresponding t-ratios are clustered on the 1995 U.S. place of residence.

Household attributes included in the model are as follows:

- Total family annual income and its square;
- Investment income and its square;
- Welfare income and its square;
- Age of the Head and its square;
- Ethnicity and race (Asian, African American, Hispanic, and other non-white race, with white as the omitted category);
- Whether the Head is married (1 if yes);
- Whether children under 18 are present in the household (1 if yes);
- Education of the Head (college degree or more, some college, and high school degree or less as the omitted category);
- Number of years the Head has been in the U.S. (20+ years or a natural born citizen, 10 to 19 years, and fewer than 10 years as the omitted category); and
- Household head's English-speaking ability (speak English not at all or not well, well, very well, and only English as the omitted category).

Table 3
Probability of Homeownership - Hispanic Plus Non-Hispanic Households
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

	Full Sample	Speak Only English	Do Not Speak Only English
Total family income ($100,000)	0.3390	0.3330	0.3530
	(42.54)	(41.14)	(22.83)
Total family income squared. ($100,000E+5)	-0.0547	-0.0543	-0.0534
	(-23.90)	(-24.15)	(-11.07)
Investment income ($100,000)	0.5160	0.4950	0.6890
	(21.73)	(20.48)	(10.10)
Investment income squared. ($100,000E+5)	-0.4280	-0.4140	-0.5180
	(-23.68)	(-22.89)	(-9.56)
Welfare income ($100,000)	-4.03	-4.26	-3.09
	(-19.86)	(-19.04)	(-7.40)
Welfare income squared ($100,000E+5)	19.30	20.80	13.20
	(12.95)	(12.46)	(4.28)
Age of Head	0.0241	0.0252	0.0170
	(59.37)	(59.14)	(20.83)
Age of Head squared (100s)	-0.0177	-0.0188	-0.0116
	(-42.35)	(-42.67)	(-13.06)
Asian	-0.0339	-0.0215	-0.0284
	(-6.65)	(-2.95)	(-4.45)
African American	-0.1020	-0.1022	-0.0945
	(-19.51)	(-19.05)	(-9.58)
Other Non-White Race	-0.0399	-0.0388	-0.0462
	(-11.40)	(-9.12)	(-6.65)
Hispanic	-0.0377	-0.0366	-0.0422
	(-7.35)	(-4.38)	(-5.88)
Married	0.1955	0.2050	0.1407
	(70.44)	(72.02)	(24.16)
Children under 18 present	0.0302	0.0301	0.0277
	(11.44)	(10.41)	(4.17)
Some college	0.0180	0.0181	0.0185
	(8.83)	(8.38)	(3.22)
College Degree or more	0.0409	0.0456	0.0136
	(13.92)	(14.69)	(2.30)
10 to 19 years in U.S.	0.0622	0.0531	0.0713
	(9.37)	(3.63)	(10.55)
20+ years in U.S. or Nat. Citizen	0.0755	0.0496	0.0832
	(11.94)	(5.08)	(11.67)
	Continued on next page		

Table 3 *Continued*

Probability of Homeownership - Hispanic Plus Non-Hispanic
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

	Full Sample	Speak Only English	Do Not Speak Only English
Speak English: Not at all or not well	-0.0769		-0.0527
	(-10.52)		(-7.81)
Speak English: Well	-0.0225		
	(-4.13)		
Speak English: Very well	-0.0227		-0.0078
	(-6.82)		(-1.41)
% 1995 household heads who are homeowners and who are …			
Own ethnicity/race and WEAK English Ability	2.2675	2.3494	2.0131
	(11.67)	(10.64)	(8.48)
Own ethnicity/race and STRONG English Ability	0.0539	0.0470	0.0760
	(3.89)	(2.75)	(5.80)
NOT own ethnicity/race and WEAK English Ability	-0.1093	-0.0916	-0.1778
	(-2.05)	(-1.40)	(-2.87)
NOT own ethnicity/race and STRONG English Ability	0.0521	0.0457	0.0608
	(1.78)	(1.39)	(1.47)
Number of MSA Fixed Effects	298	298	298
Observations	312,110	269,074	43,036
R-squared (adjusted)	0.2883	0.2941	0.2264
Root MSE	0.4203	0.4195	0.4225

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000, identify their U.S. place of residence in 1995, and are 18 to 65 in age).

[b]t-ratios are based on standard errors clustered on the 1995 place of residence.

Table 4
Probability of Homeownership - Hispanics Household Heads Only
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

	Full Sample	Speak Only English	Do Not Speak Only English
Total family income ($100,000)	0.4220	0.4810	0.4060
	(10.97)	(10.31)	(10.29)
Total family income squared ($100,000E+5)	-0.0717	-0.0983	-0.0642
	(-5.48)	(-6.90)	(-5.02)
Investment income ($100,000)	0.8510	0.9170	0.7360
	(4.91)	(2.94)	(3.45)
Investment income squared. ($100,000E+5)	-0.6030	-0.7090	-0.4670
	(-4.65)	(-2.84)	(-2.82)
Welfare income ($100,000)	-2.20	-4.33	-1.27
	(-2.51)	(-2.82)	(-1.21)
Welfare income squared ($100,000E+5)	10.60	19.70	6.38
	(1.94)	(2.08)	(0.95)
Age of Head	0.0150	0.0191	0.0131
	(8.93)	(5.53)	(6.08)
Age of Head squared (100s)	-0.0090	-0.0123	-0.0075
	(-4.80)	(-3.14)	(-3.17)
Married	0.1426	0.1688	0.1313
	(11.33)	(7.30)	(9.64)
Children under 18 present	0.0204	0.0424	0.0077
	(1.85)	(1.65)	(0.59)
Some college	0.0384	0.0221	0.0444
	(3.81)	(0.96)	(3.44)
College Degree or more	0.0724	0.0815	0.0635
	(5.42)	(3.33)	(3.78)
10 to 19 years in U.S.	0.0798	0.2072	0.0726
	(5.64)	(3.73)	(4.92)
20+ years in U.S. or Nat. Citizen	0.0751	0.1369	0.0717
	(5.86)	(3.14)	(4.89)

Continued on next page

Table 4 *Continued*
Probability of Homeownership - Hispanics Household Heads Only
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

	Full Sample	Speak Only English	Do Not Speak Only English
Speak English: Not at all or not well	-0.0669		
	(-4.35)		
Speak English: Well	0.0048		0.0710
	(0.32)		(5.20)
Speak English: Very well	-0.0085		0.0604
	(-0.76)		(4.39)
% 1995 household heads who are homeowners and who are …	2.4694	2.7853	2.4493
Own ethnicity/race and WEAK English Ability	(4.66)	(2.13)	(4.14)
	0.0613	0.1065	0.0468
Own ethnicity/race and STRONG English Ability	(1.73)	(1.54)	(1.30)
	-0.0570	-0.0091	-0.0715
NOT own ethnicity/race and WEAK English Ability	(-0.46)	(-0.03)	(-0.50)
	0.0110	0.0528	0.0248
NOT own ethnicity/race and STRONG English Ability	(0.13)	(0.35)	(0.26)
	282	242	272
Observations	10,278	2,761	7,517
R-squared (adjusted)	0.2351	0.2833	
Root MSE	0.4171	0.4103	0.4191

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000, identify their U.S. place of residence in 1995, and are 18 to 65 in age)

[b]t-ratios are based on standard errors clustered on the 1995 place of residence.

We focus first on the Full Sample results in the first column of Table 3. In general, the household specific control variables perform as would be expected. Families are more likely to own if they have more total income and more investment income – a proxy for financial wealth – but are less likely to own if they have more welfare income—a proxy for limited financial wealth. The quadratic terms on these variables are also always negative and significant indicating that the various forms of income influence the propensity for homeownership at a declining rate. The same is true for age and age squared, the coefficients on which are positive and negative, respectively. This is consistent with the tendency of older families to acquire more wealth and also to become less mobile, both of which enhance the propensity to own a home.

Coefficients on the ethnicity/race variables also are consistent with expectations. Relative to white families (the omitted category), all else equal, African American families are 10.2 percentage points less likely to own a home, while Asian, Hispanic, and Other non-white Race families are 3.39 percentage points, 3.77 percentage points, and 3.99 percentage points less likely to own a home, respectively. This is consistent with well documented patterns in the literature that even after controlling for observables, African Americans and other minorities are less likely to be owner-occupiers (see Haurin, Rosenthal, Duda, and Herbert (2005), for example).

Two additional sets of controls are especially important to take note of given the focus in this study on Hispanic homeownership. These are the number of years since the family immigrated to the United States and the household head's English-speaking ability. With regard to the former, as expected, the propensity for homeownership increases with the number of years in the U.S. Relative to the omitted category, less than 10 years in the U.S., families are 6.22 percentage points more likely to own a home if they have been in the U.S. 10 to 19 years, and 7.55 percentage points more likely to own if they have been in the U.S. 20 or more years, or are natural born citizens.

As would also be expected, the ability to speak English has an important effect on the propensity to own a home. Relative to families that only speak English (the omitted category), families that speak English very well are 2.27 percentage points less likely to own a home while those who speak well are 2.25 percentage points less likely to own; those families who do not speak English at all or at best not well are 7.69 percentage points less likely to own a home. These estimates are broadly consistent with literature noted in the Introduction that limited English-speaking skills tends to diminish a family's housing opportunities (e.g. Coulson (1999), Flippen (2001), Krivo (1995), Myers and Lee (1998), and Painter et al. (2001)).

We consider the influence of the agglomeration variables shortly. First, however, note that the remaining columns of Table 3 repeat the regression for household heads who speak only English and those who do not speak only English. Results are consistent with those just discussed. Similarly, Table 4 presents estimates of these models for just Hispanic families. Once again, results are largely similar to those outlined above for the full sample of Hispanic plus non-Hispanic households. The primary difference is that the Hispanic sample is much smaller causing the t-ratios to be correspondingly smaller as well.

4.3   The Influence of Proximity to Homeowners in 1995

Both Tables 3 and 4 also control for the percent of the household heads in the family's 1995 place of residence that are homeowners and are of either the family's own or other race/ethnicity, and of weak or strong English-speaking ability. These estimates appear at the bottom of Tables 3 and 4 and are reproduced in Table 5 to facilitate comparisons. We focus on that table below.

Several patterns are immediately apparent in Table 5. First, notice that for each of the different variables, estimates are quite similar across columns, regardless of whether the household head is Hispanic and regardless of the Head's English language ability. In part, this similarity reflects the fact that Hispanic families make up a very large share of weak English-speaking homeowners in the United States. As a result, most of the families in Table 3 who reside in close proximity to weak English-speaking homeowners of their ethnicity/race are in fact of Hispanic origin. For that reason, the similarity between the estimates from the full sample (Hispanic plus non-Hispanic households) and the Hispanic-only sample should be viewed with some care.

On the other hand, focusing on the Hispanic-only sample regressions, an important pattern is evident. At the margin, proximity to homeowners in 1995 of the individual's own ethnicity/race (Hispanic in this case) and of weak English-speaking ability substantially elevates a Hispanic family's propensity to own a home. Moreover, this result holds regardless of whether the individual speaks only English or does not speak only English. In the far right column, for example, a Hispanic family in 2000 who does not speak only English is 2.4 percentage points more likely to own a home if the population in the family's 1995 place of residence contained one percentage point more households who were Hispanic homeowners with weak English-speaking ability. This estimate is only slightly larger for Hispanic families who themselves speak only English as seen in the adjacent column (2.78 percentage points versus 2.45 percentage points).

Observe also that proximity to strong English-speaking homeowners of a family's own ethnicity/race has a positive effect on the year-2000 propensity to own a home, but at the margin, this effect is much smaller. Among Hispanic families, a one percentage point increase in the 1995 presence of strong English-speaking Hispanic homeowners would increase the current homeownership propensity by just 0.1 percentage points. Interestingly, this effect is of the same sign and similar in magnitude to the influence of proximity to strong English-speaking homeowners that are not of the individual's own ethnicity/race. In contrast, proximity to weak English-speaking homeowners not of the individual's own ethnicity/race has a small negative influence on the current propensity to own a home.

At the margin, these results clearly indicate that proximity to weak English-speaking Hispanic homeowners has a large impact on the propensity of other Hispanic families to own a home. But, it is also important to consider the total impact of proximity to different types of homeowners. We do this by multiplying the sample means from Table 2b by the respective coefficients from Table 5. Using the full sample of both Hispanic and non-Hispanic families, proximity to homeowners of the family's own ethnicity/race with weak English-speaking ability increases the propensity of the typical family to own a home by 1.81 percentage points. The effect arising from proximity to homeowners of the family's own ethnicity/race but with strong English-speaking skills is 2.80 percentage points. Restricting the sample population to just Hispanic households, the analogous estimates are 2.22 and 2.52 percentage points, respectively. These estimates indicate that, although at the margin, the

Table 5
Probability of Homeownership – Proximity to Homeowners in 1995
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

% 1995 household heads who are homeowners and who are …	Hispanic and Non-Hispanic Households			Hispanic Households		
	Full Sample	Speak Only English	Do Not Speak Only English	Full Sample	Speak Only English	Do Not Speak Only English
Own ethnicity/race and WEAK English Ability	2.2675	2.3494	2.0131	2.4694	2.7853	2.4493
	(11.67)	(10.64)	(8.48)	(4.66)	(2.13)	(4.14)
Own ethnicity/race and STRONG English Ability	0.0539	0.0470	0.0760	0.0613	0.1065	0.0468
	(3.89)	(2.75)	(5.80)	(1.73)	(1.54)	(1.30)
NOT own ethnicity/race and WEAK English Ability	-0.1093	-0.0916	-0.1778	-0.0570	-0.0091	-0.0715
	(-2.05)	(-1.40)	(-2.87)	(-0.46)	(-0.03)	(-0.50)
NOT own ethnicity/race and STRONG English Ability	0.0521	0.0457	0.0608	0.0110	0.0528	0.0248
	(1.78)	(1.39)	(1.47)	(0.13)	(0.35)	(0.26)
Observations	312,110	269,074	43,036	10,278	2,761	7,517

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000, identify their U.S. place of residence in 1995, and are 18 to 65 in age).

[b]t-ratios are based on standard errors clustered on the 1995 place of residence.

presence of another weak English-speaking homeowner has an unusually large spillover effect, in total, the presence of weak and strong English-speaking homeowners of the individual's own ethnicity/race is approximately the same. That similarity arises because there are many more strong English-speaking homeowners than weak English-speaking homeowners.

In considering these results, it is important to bear in mind that the explanatory variables pertain to the 1995 place of residence, not the current (year 2000) place of residence. In addition, the estimating sample is restricted to families who moved out of state between 1995 and 2000. For these reasons, it seems unlikely that the pattern of estimation results arise because of endogenous sorting of homeowners into neighborhoods already populated with owner-occupiers. To understand why, suppose that families with a strong taste for homeownership do in fact choose to locate in PUMAs heavily populated with homeowners, both in 1995 and in 2000. Although such behavior could cause 1995 local homeownership rates to be endogenous even after conditioning on the other control variables and MSA fixed effects, that possibility seems unlikely to account for our key findings. Specifically, at the margin, we find that the presence of weak-English-speaking Hispanic homeowners in the 1995 location has a particularly large impact on the propensity of Hispanic families to own a home in 2000, especially in comparison to the 1995 presence of other types of homeowners. Moreover, this holds regardless of whether the Hispanic family in question has weak- or strong English-speaking skills. This suggests that there is something special about the presence of weak English-speaking Hispanic homeowners apart from the presence of homeowners in general.

Two underlying mechanisms seem likely to account for these effects. The first is that the presence of weak English-speaking Hispanic homeowners may itself signal the presence of energetic local policies designed to provide information about how to become a homeowner. This interpretation seems especially likely given that weak English-speaking Hispanic homeowners must somehow have overcome the barriers they faced. Because we restrict the estimating sample to recent out-of-state movers, the nature of that information must also not be specific to a given locale, but instead must be more generic to the home purchase/ownership process. Alternatively, a second mechanism is that the presence of weak English-speaking homeowners of the individual's own ethnicity/race provides a powerful role model effect, encouraging other families of similar ethnicity/race to become homeowners regardless of their linguistic ability.

V.   Policy Implications and Conclusions

As noted at the outset, the primary goal of this paper was to investigate the impact of language and access to information on Hispanic-white gaps in homeownership. In that regard, our most compelling finding is that the presence of weak English-speaking Hispanic homeowners in the 1995 place of residence appears to have a positive impact on the propensity for homeownership among Hispanic families who have recently moved out of state. Moreover, this finding holds regardless of the English-speaking ability of the Hispanic family in question. Because of the research design, and especially the use of lagged place-of-residence attributes and current MSA fixed effects (along with a host of family-specific control variables), we believe this result is largely free of an endogenous attraction of homeowners to certain types of neighborhoods. Instead, we believe these results are indicative of causal effects of proximity to weak English-speaking Hispanic homeowners.

How should these results be interpreted, and what are the policy implications? Two mechanisms seem especially likely. First, the presence of weak English-speaking Hispanic homeowners may signal the presence of local policies and conditions that support homeownership among the Hispanic community. This could include, for example, local education and information campaigns that promote homeownership among Hispanic families. The second mechanism is that of role model effects. It is possible that the presence of weak English-speaking Hispanic homeowners could provide powerful examples to Hispanic families of all linguistic abilities that it is feasible (and presumably, beneficial) to become a homeowner. Regardless of which mechanism is operating, it is clear that these effects stay with the household upon moving out of state.

Our data and research methods unfortunately do not enable us to separate out these two possible mechanisms. Nevertheless, from a policy perspective, it seems clear that local programs designed to educate and promote homeownership among weak English-speaking Hispanic families will have two important effects. First, although not directly addressed in this study, such programs are likely to increase homeownership among the target families themselves. Second, and a primary focus of this paper, such programs are likely to foster spillover effects that will encourage homeownership throughout the Hispanic community regardless of English-speaking ability. This could occur through word of mouth networks that inform individuals about the home purchase process, or simply through role model effects. In this regard, it is important to recognize that policies designed to facilitate access to homeownership likely elevate homeownership among the direct beneficiaries of such policies, as well as others who come in contact with those families

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Appendix A: Supplemental Tables

	Full Sample	Speak Only English	Do Not Speak Only English
Total family income ($100,000)	0.3450	0.3340	0.3260
	(41.49)	(42.94)	(17.81)
Total family inc squared ($100,000E+5)	-0.0558	-0.0546	-0.0517
	(-25.74)	(-25.37)	(-12.89)
Investment income ($100,000)	0.5880	0.5090	0.9820
	(22.87)	(21.83)	(11.84)
Investment income squared. ($100,000E+5)	-0.4740	-0.4210	-0.7130
	(-25.34)	(-24.11)	(-12.17)
Welfare income ($100,000)	-3.63	-4.07	-2.75
	(-15.27)	(-18.02)	(-7.47)
Welfare income squared ($100,000E+5)	17.00	20.10	11.60
	(11.68)	(12.36)	(5.68)
Age of Head	0.0212	0.0246	0.0117
	(23.21)	(57.02)	(6.66)
Age of Head squared (100s)	-0.0152	-0.0181	-0.0070
	(-17.72)	(-41.24)	(-4.02)
Asian	-0.0423	-0.0241	-0.0267
	(-2.55)	(-2.74)	(-1.46)
African American	-0.0998	-0.0992	-0.0826
	(-20.22)	(-19.34)	(-11.62)
Other Non-White Race	-0.0336	-0.0385	-0.0416
	(-8.54)	(-9.45)	(-5.86)
Hispanic	-0.0289	-0.0486	-0.0321
	(-5.85)	(-5.6)	(-4.43)
Married	0.1738	0.2020	0.0924
	(32.77)	(72.42)	(12.4)
Children under 18 present	0.0260	0.0305	0.0183
	(10.34)	(11.1)	(4.09)
Some college	0.0155	0.0171	0.0176
	(8.05)	(8.07)	(3.69)
College Degree or more	0.0255	0.0412	-0.0125
	(6.94)	(13.43)	(-1.37)
10 to 19 years in U.S.	0.1026	0.0964	0.1158
	(8.55)	(6.31)	(10.11)
20+ years in U.S. or Nat. Citizen	0.1156	0.0957	0.1283
	(12.6)	(7.98)	(13.88)

Table A-1
Probability of Homeownership – Without Agglomeration Controls
Hispanic Plus Non-Hispanic Households
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

Continued on next page

	Full Sample	Speak Only English	Do Not Speak Only English
Table A-1 *Continued* **Probability of Homeownership – Without Agglomeration Controls Hispanic Plus Non-Hispanic (t-ratios in parentheses are based on standard errors clustered by the 1995 U.S. place of residence)[a,b]**			
Speak English: Not at all or not well	-0.0887		
	(-9.17)		
Speak English: Well	-0.0367		0.0526
	(-5.03)		(9.35)
Speak English: Very well	-0.0316		0.0560
	(-8.23)		(6.71)
Number of MSA Fixed Effects	298	298	298
Observations	378,983	290,402	88,581
R-squared (adj)	0.2954	0.2912	0.2284
Root MSE	0.4142	0.4201	0.3863

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000 and are 18 to 65 in age.

[b]t-ratios are based on standard errors clustered on the 1995 place of residence.

Table A-2
Probability of Homeownership – Without Agglomeration Controls
Hispanics Household Heads Only
(t-ratios in parentheses are based on standard errors
clustered by the 1995 U.S. place of residence)[a,b]

	Full Sample	Speak Only English	Do Not Speak Only English
Total family income ($100,000)	0.4100	0.4550	0.3930
	(12.98)	(8.70)	(12.81)
Total family inc squared ($100,000E+5)	-0.0719	-0.0946	-0.0664
	(-7.69)	(-6.41)	(-7.29)
Investment income ($100,000)	1.1100	1.1200	1.0800
	(7.58)	(3.56)	(6.00)
Investment income squared. ($100,000E+5)	-0.7980	-0.8510	-0.7510
	(-7.25)	(-3.41)	(-5.51)
Welfare income ($100,000)	-1.84	-4.80	-1.31
	(-3.35)	(-3.55)	(-2.37)
Welfare income squared ($100,000E+5)	10.10	23.00	7.27
	(2.70)	(2.44)	(1.80)
Age of Head	0.0080	0.0170	0.0063
	(2.84)	(5.49)	(2.27)
Age of Head squared (100s)	-0.0025	-0.0109	-0.0009
	(-0.91)	(-3.15)	(-0.32)
Married	0.0962	0.1644	0.0826
	(8.47)	(8.73)	(7.98)
Children under 18 present	0.0129	0.0430	0.0057
	(1.88)	(2.04)	(0.70)
Some college	0.0366	0.0292	0.0361
	(4.84)	(1.41)	(4.56)
College Degree or more	0.0589	0.0871	0.0482
	(4.83)	(3.93)	(3.58)
10 to 19 years in U.S.	0.0903	0.1473	0.0884
	(7.49)	(3.38)	(7.32)
20+ years in U.S. or Nat. Citizen	0.1037	0.1445	0.0978
	(8.45)	(7.24)	(7.77)
Speak English: Not at all or not well	-0.0462		-0.0696
	(-3.62)		(-9.62)
Speak English: Well	0.0207		
	(1.53)		
Speak English: Very well	0.0061		-0.0102
	(0.59)		(-1.03)
Number of MSA Fixed Effects	285	251	279
Observations	20,178	3,374	16,804
R-squared (adj)	0.2373	0.2811	0.2251
Root MSE	0.3853	0.4024	0.3807

[a]Samples are restricted to household heads who moved out of state between 1995 and 2000 and are 18 to 65 in age.

[b]t-ratios are based on standard errors clustered on the 1995 place of residence.