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Homeownership in the immigrant population ☆

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Abstract

This paper analyzes the determinants of homeownership in immigrant households over the 1980–2000 period. The study finds that immigrants have lower homeownership rates than natives and that the homeownership gap widened significantly during that period. The differential location decisions of immigrant and native households, as well as the changing national origin mix of the immigrant population, helps explain much of the homeownership gap. The evidence also indicates that the growth of ethnic enclaves in major American cities could become an important factor in increasing immigrant demand for owner-occupied housing in many metropolitan areas.

JEL classification: J6; R21

Keywords: Housing demand; Homeownership; Immigration; Ethnic enclaves

1. Introduction

The social, demographic, and economic changes initiated by the resurgence of large-scale immigration to the US are of historic proportions. In 1970, 4.8% of the US population was foreign-born. By 2000, there were 28.4 million foreign-born persons in the US, pushing the foreign-born share to over 10% [24].

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Moreover, because of the decline in the birthrates of native families, immigration now accounts for nearly half of the growth in population. In short, immigration inevitably plays an increasingly important role in determining demographic and economic trends in the US.[2]

Although some observers have argued that the resurgence of immigration may offset the decline in the demand for owner-occupied housing that may occur as the baby boom ages [7,17], the studies that examine the economic performance of immigrants suggest that the link between immigration and housing demand may not be as straightforward as it seems. For instance, there exists a large gap between the wages of immigrant and native workers. In 1998, the typical immigrant worker earned 23% less than the typical native worker. Moreover, a great deal of research has documented that immigrants who arrived in the 1980s and 1990s are relatively less skilled—and have correspondingly lower wages—than immigrants who came in earlier waves [2]. Finally, the wages of immigrant and native workers tend to converge, but slowly. As a result, the immigrant waves that arrived in the 1980s and 1990s may have a 10–20% wage disadvantage over much of their working lives. All of these trends imply that a much more careful study of homeownership in the immigrant population is required before one can assess how immigration will affect the aggregate demand for owner-occupied housing.[3]

This paper uses data drawn from the 1980 and 1990 US Censuses and the 1998–2000 Current Population Surveys (CPS) to provide a comprehensive empirical study of the determinants of homeownership in the immigrant population. The analysis addresses two related questions. First, what are the trends in homeownership rates in the immigrant population? Second, which are the key factors that drive these trends?

It turns out that two variables—which been somewhat neglected in earlier studies of immigrant homeownership—play a central role in determining differences in homeownership rates between the immigrant and native populations: The na-

[2] The resurgence of large-scale immigration has generated a large literature that analyzes the economic impact of immigration, focusing particularly on the labor market consequences [4,11].

[3] Earlier studies of homeownership in the immigrant population include Alba and Logan [1], Coulson [8], Krivo [14], Myers and Lee [18,19], and Myers et al. [20]. Many of these studies focus on documenting the trends in the demand for owner-occupied housing in the immigrant population—and in comparing homeownership rates between immigrants and natives. Myers and Lee [18] and Myers et al. [20], for example, apply the econometric framework developed in the labor market literature to examine if the newer immigrant arrivals have different rates of homeownership than earlier immigrant waves, and to determine the rate at which a given immigrant cohort moves into owner-occupied housing. These studies typically find that more recent immigrant waves have somewhat lower homeownership rates than earlier waves, but that the immigrant population experiences relatively fast assimilation into homeownership. The important question of whether immigration affects housing prices in the localities where immigrants cluster remains unexplored. An important exception is Saiz [22], who investigates the impact of the Mariel flow of Cuban immigrants in 1980 on rental housing prices in Miami.

tional origin of immigrants and the residential location choices made by different immigrant groups. It is well known that different national origin groups experience very different socioeconomic outcomes *and* that different groups cluster in different localities. The empirical analysis reported below shows that these two variables are responsible for many of the key trends in immigrant homeownership rates in the past two decades, explaining why immigrant households are less likely to own their homes than native households and why the "homeownership gap" widened substantially since 1980. The evidence presented in this paper also suggests that the continuing growth of ethnic enclaves in American cities could increase demand for owner-occupied housing in immigrant communities in the years ahead.

2. Descriptive statistics

This section describes the basic trends in the demand for owner-occupied housing in the immigrant and native populations over the 1980–2000 period. The empirical analysis uses data drawn from the Public Use Microdata Samples of the 1980 and 1990 decennial US Census, and the 1998–2000 Annual Demographic Files of the CPS.

The unit of observation is the household. A household is classified as an immigrant household if the head of the household was born outside the US and is either an alien or a naturalized citizen; all other households are classified as "native" households.[4] The study is restricted to households that do not reside in group quarters and that live in one of the identifiable metropolitan areas in the Census or CPS data.[5] The household head must be at least 18 years old to be included in the analysis. I extracted a 1/100 random sample of native households and a 5/100 random sample of immigrant households from each of the two decennial Censuses. To increase the sample size in the CPS data, I pooled the data available in the 1998, 1999, and 2000 surveys. For descriptive convenience, I will refer to these pooled data as the "2000" CPS data.[6]

Table 1 summarizes the key trends revealed by these data. Homeownership rates are lower among immigrant households than among native households.

[4] I experimented with alternative definitions of the immigrations status of the household. For example, I used a more stringent definition of an "immigrant household" as a household where *all* persons are foreign-born. This alternative definition leads to results that are quite similar to those reported in this paper.

[5] Restricting the analysis to households residing in identifiable metropolitan areas affects relatively few households in the immigrant population. In 2000, for example, 94.2% of the immigrant households resided in these metropolitan areas, as compared to 75.2% for native households.

[6] The three CPS extracts contain roughly the same number of observations. I constructed household weights for the pooled sample by assuming that the total number of weighted households in each of the CPS calendar years was exactly equal to one-third of the total number of weighted households in the pooled sample.

Table 1
Homeownership rates in native and immigrant households (1980–2000)

	Homeownership rate		
	1980	1990	2000
Native households	63.2	64.2	67.2
Immigrant households	51.2	49.9	47.4
Immigrant households, by year of migration			
1995–1999	–	–	14.5
1990–1994	–	–	26.4
1985–1989	–	16.0	35.3
1980–1984	–	30.6	46.0
1975–1979	19.5	45.7	56.4
1970–1974	35.9	54.5	60.0
1965–1969	49.2	60.8	68.2
1960–1964	56.3	66.5	72.8
1950–1959	65.4	75.3	77.8
Number of observations			
Native households	572,125	593,532	94,056
Immigrant households	261,472	318,307	16,788
Percent of households that are foreign-born	8.4	9.8	13.1

Further, the homeownership gap between the two groups widened substantially between 1980 and 2000, with much of the widening occurring during the 1990s. In particular, the rate of homeownership among immigrant households declined during this period, at a time when homeownership rates increased steadily among native households. In 1980, for example, 51.2% of immigrant households owned their homes. This fraction fell to 49.9% in 1990, and to 47.4% by 2000. In contrast, the rate of homeownership for native households increased from 63.2% in 1980 to 67.2% by 2000. Put differently, the 12-percentage point gap in homeownership rates that existed between immigrants and natives in 1980 grew to a 20-point disadvantage by 2000.[7]

Table 1 also reports homeownership rates for various immigrant waves throughout the 1980–2000 period. The observed trends in homeownership

[7] Because much of the widening in the homeownership gap occurred between 1990 and 2000, some of the pattern could arise because of a data comparability problem: the 1990 homeownership rates are calculated using Census data while the 2000 rates are based on CPS data. It turns out, however, that there is a significant widening of the homeownership gap even when one considers only the trend contained in the CPS files. Prior to the mid 1990s, the CPS conducted occasional surveys that reported the immigration status of households. In general, the homeownership rates reported in the June 1988 CPS Supplement are quite similar to those reported by the 1990 Census. In 1988, the homeownership rate for native households was 63.6%, while the homeownership rate for immigrant households was 50.3% (as compared to 64.2 and 49.9% in the 1990 Census, respectively). The difference in the homeownership rate between these two data sets is not statistically significant for either native or immigrant households, and is not significant even within narrowly defined year-of-arrival immigrant cohorts.

rates for the various immigrant cohorts yield two key findings that will be explored further below. As in Myers and Lee [19], the data suggest that immigrant households experience a high rate of assimilation into homeownership. Consider, for instance, the homeownership rate of the immigrants who arrived between 1975 and 1979. In 1980, shortly after their arrival, only 19.5% of the immigrant households in this cohort owned their homes. By 1980, the cohort's ownership rate had increased to 45.7%, and by 2000 it had increased further to 56.4%. It is evident, therefore, that homeownership rates rise substantially over time for specific immigrant cohorts. Of course, this increase must be contrasted with the rise in homeownership experienced by comparably aged native households in order to determine if there is rapid assimilation into homeownership. Nevertheless, the data seem to suggest that there may well be a great deal of assimilation.

Second, it seems that more recent immigrant waves tend to have lower homeownership rates than earlier waves. This finding, of course, mirrors the well-known result of declining relative skills for successive immigrant waves, where it is typically found that later immigrant waves have relatively lower educational attainment and wages than earlier immigrant waves, holding constant the number of years the worker has resided in the US. To illustrate, the 1980 Census indicates that 35.9% of the immigrants who had been in the country between 5 and 10 years (i.e., the 1970–1974 arrivals) owned their homes. In contrast, the 1990 Census reveals that only 30.6% of the immigrants who had been in the country between 5 and 10 years owned their homes, and the 2000 CPS reveals that 26.4% of those who have been in the country between 5 and 10 years owned their homes. Over a 20-year period, therefore, the homeownership rate of immigrant households who have been in the country between 5 and 10 years fell by almost 10 percentage points.

2.1. Measuring cohort effects and assimilation

The intercensal tracking of immigrant cohorts conducted in Table 1 does not provide a complete description of the extent of assimilation into homeownership that actually takes place in the immigrant population. The intercensal comparison of a sample of immigrants who are aged 18 or above is contaminated by the fact that later Censuses include a number of persons who migrated as children. It is likely that immigrant children do not experience the same process of assimilation into homeownership as immigrants who entered the country as adults. Therefore, a better description of the assimilation experience of an immigrant cohort requires that the analysis also control for age at migration. In effect, one can then compare how an age-adjusted immigrant cohort performs relative to natives who are at the same stage of the life cycle. Myers and Lee [18] introduced this notion into the housing literature by conducting a "double-cohort" analysis of homeownership rates in the immigrant and native populations, which accounts for both calendar

Table 2
Assimilation and cohort effects in homeownership rates

Cohort	Age group	1980	1990	2000
Natives	25–34 in 1980	49.8	67.0	76.8
	35–44 in 1980	71.0	76.2	80.8
	45–54 in 1980	76.9	80.4	–
	25–34 in 1990	–	44.8	68.0
	25–34 in 2000	–	–	46.7
Immigrants: 1970–1974 arrivals	25–34 in 1980	31.9	58.4	70.9
	35–44 in 1980	46.1	65.4	72.3
	45–54 in 1980	46.6	61.6	–
Immigrants: 1975–1979 arrivals	25–34 in 1980	16.5	53.1	68.3
	35–44 in 1980	28.2	58.0	62.7
	45–54 in 1980	30.4	54.8	–
Immigrants: 1980–1984 arrivals	25–34 in 1990	–	24.4	48.1
	35–44 in 1990	–	38.9	56.8
	45–54 in 1990	–	42.6	47.8
Immigrants: 1985–1989 arrivals	25–34 in 1990	–	12.2	43.0
	35–44 in 1990	–	21.1	39.4
	45–54 in 1990	–	25.4	40.5
Immigrants: 1990–1994 arrivals	25–34 in 2000	–	–	22.3
	35–44 in 2000	–	–	33.7
	45–54 in 2000	–	–	38.2
Immigrants: 1995–1999 arrivals	25–34 in 2000	–	–	10.0
	35–44 in 2000	–	–	19.3
	45–54 in 2000	–	–	25.2

year of arrival and age-at-migration when tracking immigrant cohorts across Censuses.

Table 2 summarizes the descriptive evidence on assimilation for these narrowly defined immigrant cohorts over the 1980–2000 period. It is clear that tracking specific age groups across Censuses reveals the existence of sizable assimilation effects into homeownership in the immigrant population. Consider, for example, the sample of immigrants who arrived in the United States between 1975 and 1979 and who were 25–34 years old in 1980 (so that most household heads in this sample migrated as young adults). In 1980, just after entry, the homeownership rate for this group of immigrant households was 16.5%. By 1990, the homeownership rate for this cohort had risen to 53.1%, a remarkable rise during the first ten years in the country, and increased further to 68.3% by 2000. In contrast to the 52-point rise in homeownership rates experienced by this immigrant cohort, the homeownership rate of natives who were aged 25–34 in 1980 increased from 49.8% in 1980 to 76.8% in 2000, a 27-point increase. In short, the young immigrants who arrived in the late 1970s experienced a remarkable degree of assimilation into homeownership. It seems

as if homeownership is an important part of the "offer" of political, cultural, and economic benefits that draws immigrants to the US.

The remaining rows of Table 2 show the same rapid assimilation into homeownership for most immigrant cohorts, particularly those who arrived in the country in their 20s and 30s. Not surprisingly, the rate of assimilation is not as fast—although it is still sizable—for immigrants who entered the country at an older age. Consider, for instance, the experience of immigrants who arrived between 1985 and 1989 and who were 45–54 years old at the time of arrival. The homeownership rate for this cohort increased "only" from 25.4 to 40.5% between 1990 and 2000. Nevertheless, this 15-point rise in homeownership rates is substantial when compared with the 4.6 percentage point rise exhibited by comparably aged native households over the same time period, from 76.2 to 80.8%.

Finally, the descriptive data in Table 2 shows that cohort effects, with more recent cohorts having lower homeownership rates, remain important even after controlling for age-at-migration. Consider, for example, the experience of the immigrants who have been in the US fewer than five years and who are relatively young (25–34 years old) at the time of entry. The homeownership rate for this group of young arrivals was 16.5% in 1980, 12.2% in 1990, and 10.0% in 2000, a drop of 6.5 percentage points.[8] In contrast, the group of native households aged 25–34 had a homeownership rate of 49.8% in 1980 and 46.7% in 2000, a much slower decline than that observed among comparably aged immigrant cohorts. In short there is a persistent decline in homeownership rates across successive immigrant cohorts, both in absolute terms and relative to the trends in homeownership observed in the native population.

It is important to note that there is one crucial difference between the homeownership trends revealed by Table 2 and the assimilation and cohort effects that have been measured in studies of immigrant skills or labor market performance. Although both sets of results indicate that more recent waves perform relatively worse than earlier waves along some basic economic dimension, the two sets of findings differ in one fundamental way: there is a significant amount of assimilation into homeownership, but there is relatively little assimilation in wages or in skill accumulation. It would be of great interest to determine why this important difference in the assimilation experience arises. Unfortunately, there has been relatively little study of the variables that determine the rate of wage convergence between immigrants and natives. As a result, the available evidence provides little hint as to the underlying factors that facilitate or hamper the economic progress of immigrants.

[8] A potential data problem arises when one compares the homeownership rates of the "most" recent immigrants across data sets. Table 2 defines this cohort as immigrants who arrived between 1975 and 1979 in the 1980 Census; 1985 and 1989 in the 1990 Census; and 1995 and 2000 in the pooled 2000 CPS. Because the pooled 2000 CPS consists of the 1998, 1999, and 2000 surveys, these pooled data cannot provide a representative sample of persons who migrated between 1995 and 2000.

2.2. National origin differences in homeownership rates

Studies that examine the trends in immigrant economic performance in the US have often emphasized the importance of national origin in generating many of these trends [3]. The national origin mix of the immigrant population is an important part of any attempt to understand aggregate trends for two reasons. First, there are huge differences in skills and economic performance across national origin groups in the US, with groups that originate in the industrialized countries performing better in the US labor market than groups originating in less-developed countries. For example, immigrants from El Salvador or Mexico earn 40% less than natives, while immigrants from Germany or the United Kingdom earn 30 to 40% more [4, p. 1686]. Second, there has been a substantial "redistribution" of admissions, away from the traditional European countries and towards less-developed countries in Asia and Latin America. Over two-thirds of the legal immigrants admitted during the 1950s originated in Europe or Canada, 25% originated in Latin America, and only 6% originated in Asia. By the 1990s, only 14% of the immigrants originated in Europe or Canada, almost half originated in Latin America, and 31% originated in Asia. In view of these trends, therefore, it is not surprising that the changing national origin mix of immigrants can "explain" a large part of the decline in relative wages across successive immigrant waves.

The first four columns of Table 3 document the huge differences in educational attainment and log of household income across national origin groups in 1990. Mean years of schooling range from 8 years for immigrants originating in Mexico or Portugal, to about 15 years for immigrants originating in such diverse countries as India and the United Kingdom. Similarly, immigrants from El Salvador or Mexico have household income that is 30% lower than that of native households, while immigrants from the United Kingdom have 6% higher household income, and immigrants from India have 38% higher household income. Moreover, these differences cannot be attributed to the fact that some national origin groups have lived in the United States for longer periods. The data reported in Table 3 also shows that there is substantial dispersion in both educational attainment and household income even among immigrants who have been in the country more than 10 years.

In view of these huge differences in skills and household income among immigrant groups, it is not surprising that there are also huge differences in homeownership rates among national origin groups. The last two columns of Table 3 document some of these differences. In 1990, the homeownership rate was 78.8% for Italian immigrants, 70.5% for German immigrants, 56.5% for Chinese immigrants, 38.4% for Mexican immigrants, 17.3% for Salvadoran immigrants, and 14.2% for immigrants from the Dominican Republic. Moreover, as the last column of the table shows, these differences cannot be dismissed as reflecting the possibility that some groups have, on average, spent a longer time in the US and hence have had more time to assimilate. The national origin differences

Table 3
Differences across national origin groups in 1990

Country of birth	Educational attainment		Percent gap in household income between immigrants and natives		Homeownership rate	
	All immigrants	Pre-1980 arrivals	All immigrants	Pre-1980 arrivals	All immigrants	Pre-1980 arrivals
Canada	13.8	13.6	−2.6	−5.5	67.9	70.6
China	12.8	13.2	−6.3	11.2	56.5	71.0
Colombia	12.0	12.3	−12.1	−3.3	41.7	46.2
Cuba	11.7	12.3	−21.7	−13.5	52.0	57.7
Dominican Republic	10.3	10.5	−54.6	−50.9	14.2	18.4
El Salvador	8.6	9.6	−29.7	−23.1	17.3	28.5
Germany	13.9	13.7	−1.2	−1.8	70.5	72.9
Greece	11.8	11.6	−0.4	2.2	70.2	74.1
Haiti	11.2	12.2	−24.8	−7.2	32.4	45.8
India	15.9	16.6	38.4	66.4	58.3	79.9
Iran	15.5	15.9	9.3	27.1	50.0	59.7
Italy	10.9	10.7	−12.6	−13.6	78.8	80.3
Jamaica	12.0	12.4	−8.1	−4.4	46.7	55.1
Korea	14.3	14.9	−7.7	15.9	43.8	62.1
Mexico	7.6	7.6	−35.4	−29.6	38.4	49.5
Philippines	14.1	14.1	32.5	40.1	60.9	72.5
Poland	12.8	12.4	−18.7	−19.9	62.7	70.1
Portugal	8.3	8.4	3.2	3.9	62.1	68.7
USSR	14.2	14.2	−36.9	−28.3	50.2	60.3
United Kingdom	14.6	14.4	6.2	−.6	64.6	68.8
Vietnam	12.3	13.3	−15.4	9.9	43.8	61.9

The data on educational attainment refers to completed years of schooling among male workers aged 25–64, and is drawn from Borjas [4, p. 1686]. The percent gap in household income between the immigrant group and native households is defined as the difference in household log income between the two groups times 100.

in homeownership rates remain strong and significant even among immigrants who have been in the US at least 10 years. For instance, even after 10 years in the US, the homeownership rate of immigrants originating in Canada (70.6%) is more than 50 percentage points larger than the homeownership rate of immigrants originating in the Dominican Republic (18.4%).

The huge national origin differentials in homeownership rates raise a number of interesting issues that will be explored in what follows. In particular: What factors explain the sizable national origin differences in tenure choice? To what extent does the changing national origin mix of the immigrant population account for the aggregate decline in homeownership rates observed between 1980 and 2000? And do ethnic enclaves—which may capture a crucial interaction between national origin and the geographic location of immigrants—speed up or slow down the move to owner-occupied housing by immigrant groups?

2.3. Geographic clustering of immigrants

It is well known that immigrants and natives tend to live in different places. Table 4 illustrates the extreme geographic clustering that exists in the immigrant

Table 4
Metropolitan area differences in homeownership rates (ranked by size of immigrant population in each year)

	Homeownership rate		Percent of metropolitan area's population that is foreign-born	Percent of total native population living in the metropolitan area	Percent of total immigrant population living in the metropolitan area
	Native	Immigrant			
			1980		
New York, NY	34.0	30.5	22.0	5.6	17.2
Los Angeles–Long Beach, CA	53.9	39.4	19.4	4.6	12.0
Chicago, IL	60.6	54.0	11.6	4.3	6.1
Miami, FL	61.5	46.8	34.4	0.7	4.3
San Francisco, CA	56.3	54.4	13.8	2.3	4.0
Detroit, MI	73.1	74.4	8.2	2.7	2.6
Boston, MA–NH	54.6	47.5	12.0	1.5	2.3
Philadelphia, PA–NJ	70.3	68.5	6.2	3.0	2.1
Newark, NJ	60.4	55.4	12.8	1.2	1.9
Nassau–Suffolk, NY	82.3	79.9	9.9	1.6	1.9
			1990		
Los Angeles–Long Beach, CA	55.3	39.1	26.9	4.1	13.8
New York, NY	37.9	31.5	25.6	4.3	13.6
Miami, FL	62.7	50.2	43.7	0.7	5.1
Chicago, IL	63.2	55.5	13.6	3.2	4.7
Washington, DC–MD–VA–WV	64.7	51.0	10.9	2.3	2.6
Orange County, CA	66.2	50.5	17.8	1.3	2.5
Houston, TX	58.2	41.8	12.5	1.8	2.4
San Francisco, CA	52.3	48.1	20.1	1.0	2.3
San Diego, CA	57.8	46.6	13.9	1.4	2.1
Boston, MA-NH	58.9	46.4	12.1	1.6	2.0
			2000		
Los Angeles–Long Beach, CA	56.5	37.5	41.6	2.7	12.8
New York, NY	37.9	27.1	38.6	3.0	12.6
Miami, FL	58.2	50.8	61.6	0.4	4.5
Chicago, IL	66.5	55.8	15.3	3.5	4.2
Washington, DC–MD–VA–WV	68.1	49.9	17.1	2.0	2.8
Orange County, CA	70.2	40.1	28.0	1.0	2.7
Houston, TX	59.7	45.4	17.9	1.7	2.5
San Diego, CA	57.6	49.8	23.3	1.1	2.2
San Jose, CA	71.3	50.1	34.5	0.6	2.2
San Francisco, CA	49.8	39.2	26.6	0.8	1.9

population. In 1990, 32.5% of the immigrant population lived in only three metropolitan areas (Los Angeles, New York, and Miami). In contrast, only 9.1% of the native population was clustered in the three largest metropolitan areas housing natives (New York, Los Angeles, and Chicago).

Not surprisingly, there are sizable differences in homeownership rates across metropolitan areas, for both immigrant and native households. In 1990, the homeownership rate for immigrants in Los Angeles was only 39.1%, while the homeownership rate for immigrants in Chicago was 55.5%. In contrast, the homeownership rate for natives in Los Angeles was 55.3%, while the homeownership rate for natives in Chicago was 63.2%.

The extreme geographic clustering of immigrants—and the fact that homeownership rates vary dramatically across metropolitan areas—may be a particularly important determinant of the homeownership gap between immigrant and native households. In particular, even a superficial look at the data reported in Table 4 suggests that a relatively large number of immigrants tend to live in metropolitan areas where *even* native households have low homeownership rates. For example, the two metropolitan areas with the largest immigrant populations in 1990 were Los Angeles and New York (accounting for 27.4% of all immigrant households). It turns out, however, that the homeownership rate in these two metropolitan areas is relatively low even for native households—55.3% in Los Angeles and 37.9% in New York—far below the national average of 64.2%. As a result, it seems likely that part of the homeownership gap between immigrants and natives can be attributed to the fact that many immigrants just happen to live in areas that have relatively low homeownership rates—for reasons that may have much more to do with the structure of the housing market and housing costs in these areas, rather than with the specific disadvantages faced by immigrant households.

The extreme geographic clustering of immigrants is likely to play an important role in determining demand for owner-occupied housing for yet another reason. In particular, not only are immigrants—as a group—clustered in a few geographic areas, but different types of immigrants tend to be clustered in different places. A disproportionately large number of Mexican immigrants, for instance, reside in Los Angeles; a disproportionately large number of Cuban immigrants reside in Miami, and a disproportionately large number of immigrants from the Dominican Republic reside in New York. This geographic sorting of the immigrant population has given rise to the large ethnic enclaves that are a prominent characteristic of major American cities.

It is likely that the enclave economy alters the incentives for homeownership. After all, the enclave changes economic opportunities as well as provides a clustering of persons who share the same preferences and attitudes as the immigrants, thus perhaps affecting the value of the amenities that the local area has to offer. Section 4 will examine the empirical impact of the ethnic enclave on homeownership rates in the immigrant population.

3. Determinants of the homeownership gap

A voluminous literature examines tenure choice in the US [12,13,21]. This literature has shown that household income, credit constraints, labor market conditions, and housing prices play a crucial role in determining the household's tenure choice. In addition, the literature documents that many socioeconomic variables, such as educational attainment, household composition, race, and ethnicity, are important determinants of homeownership rates. I adopt the basic model used in this literature to examine the determinants of the homeownership gap between immigrants and native. In particular, consider estimating the following linear probability model *separately* in each cross-section data set:

$$H_{it} = X_{it}\beta_t + \delta_t I_{it} + \varepsilon_{it}, \tag{1}$$

where H_{it} indicates the homeownership status of household i at time t (set to one if the household lives in owner-occupied housing, and zero otherwise); X gives a vector describing the socio-economic background of the household (described below); and I_{it} equals one if the household is an immigrant household, and zero otherwise. For computational convenience, I use the linear probability model throughout the study. The regression models will often have large numbers of observations (in the hundreds of thousands) and contain many standardizing variables (over 400 regressors). I estimated somewhat similar models using the logistic specification in smaller, randomly drawn samples, and obtained numerically similar results. The linear probability specification implies that the coefficient δ_t gives the difference in homeownership rates between immigrants and natives at time t after adjusting for differences in the characteristics X between the two groups.[9] Since the regression in (1) is estimated separately in each cross section, the trend in the parameter δ_t will indicate if the adjusted homeownership gap is narrowing or widening.

Table 5 presents summary statistics describing differences in a large vector of background socio-economic characteristics between immigrants and natives in the various samples. It is clear that immigrants and native households differ in fundamental ways: immigrant households, for instance, have lower household income (about 18% lower in 2000), are larger (by about 0.7 persons per household), have more children (0.3 more children per household), and are more

[9] Because of the rotation sampling used by the CPS, 50% of the observations can theoretically appear in two consecutive March surveys. In practice, the fraction of observations that can be matched across years is considerably lower [16]. The regressions reported below do not adjust the standard errors of the regression coefficients estimated in the 2000 cross section for the correlation that this sampling methodology imparts in the residuals. To check the reliability of the evidence, I estimated some of the regression models on a sample of household heads that could not be matched across CPS surveys, ensuring that there were no repeat observations for the same household. The regression coefficients were quantitatively similar, and the key effects discussed in this paper remained statistically significant.

Table 5
Descriptive statistics

	1980		1990		2000	
	Native	Immigrant	Native	Immigrant	Native	Immigrant
Own home (%)	63.2	51.2	64.2	49.9	67.2	47.4
Age (%)						
18–24	8.3	5.4	5.3	4.5	5.4	5.5
25–34	23.8	20.1	22.5	23.1	18.3	23.5
35–44	18.0	18.3	22.6	24.3	23.2	26.3
45–54	16.5	14.8	15.9	17.2	19.7	18.5
55–64	16.2	12.6	13.6	12.0	12.8	11.6
>64	17.1	28.8	20.2	19.0	20.7	14.7
Educational attainment (%)						
<9 years	13.6	33.9	6.8	24.2	4.2	20.5
9–11	14.9	11.6	9.7	8.7	8.9	11.0
12	32.5	22.4	29.7	23.8	30.7	23.2
13–15	18.3	13.8	27.8	19.7	28.0	17.3
16	10.3	7.5	16.2	12.3	18.8	16.6
>16	10.3	10.8	9.7	11.3	9.5	11.4
Female-headed household (%)	27.7	28.1	32.0	28.4	55.8	60.5
Log household income	10.5	10.3	10.6	10.5	10.6	10.4
Number of persons in household	2.8	2.9	2.7	3.3	2.5	3.2
Number of persons under 18	1.0	1.0	0.9	1.2	0.7	1.0
Married, spouse present (%)	62.1	61.8	56.7	59.2	50.6	57.9
Married, spouse absent (%)	3.6	3.4	0.9	3.1	1.4	3.4
Years in the US	–	22.1	–	21.1	–	21.3
Sample size	572,125	261,472	593,552	318,307	94,056	16,788

likely to contain both spouses (51% of native household heads are married, spouse present, as compared to 58% of immigrant households).

It turns out, however, that these differences in socioeconomic characteristics do *not* play an important role in determining the homeownership gap between immigrants and natives. Table 6 summarizes the evidence. The first row of the table reports the unadjusted differences in homeownership rates, while the remaining rows use alternative specifications for the regression model in (1). The second row reports the coefficient δ after the regression controls for the detailed vector of socioeconomic variables summarized in Table 5, including the age, sex, and educational attainment of the household head; the household's log income; the number of persons and children in the household; and dummy variables indicating if the head is married spouse present, or married spouse absent.[10] The data reveal a surprising fact: differences in these socioeconomic variables between

[10] The full regressions (not shown in the table) suggest that the standardizing variables typically have the expected impact on homeownership. Homeownership rates are higher in high-income

Table 6
Homeownership gap between immigrants and natives

Homeownership gap	Year		
	1980	1990	2000
Unadjusted difference	−0.120	−0.144	−0.197
	(0.002)	(0.002)	(0.004)
Controls for socioeconomic characteristics	−0.121	−0.126	−0.164
	(0.002)	(0.002)	(0.004)
Controls for metropolitan area fixed effects	−0.060	−0.092	−0.135
	(0.002)	(0.002)	(0.004)
Controls for socioeconomic characteristics	−0.057	−0.066	−0.103
and metropolitan area fixed effects	(0.002)	(0.002)	(0.004)

Standard errors are reported in parentheses. The regression for 1980 has 833,597 observations; the regression for 1990 has 911,839 observations; and the regression for 2000 has 110,844 observations. The list of socio-economic characteristics includes the gender of the household head; the age of the household head (defined as a vector of dummy variables indicating if the head is 18–24, 25–34, 35–44, 45–54, 55–64, or >64 years of age); the educational attainment of the household head (defined as a vector of dummy variables indicating if the head has less than 9 years of schooling, 9–11 years, 12 years, 13–15 years, or at least 16 years); the log of household income; dummy variables indicating if the head is married spouse present, or married spouse absent; the number of persons in the household; the number of children (under age 18) in the household; and the number of years that the household has resided in the US (and its square). In the last three rows of the table, the homeownership gap between immigrants and natives is evaluated at the mean number of years that the household has resided in the US in each cross section. The metropolitan area fixed effects add a dummy variable for each metropolitan area observed in the data.

immigrants and natives explain relatively little of the gap in homeownership rates. In 2000, for example, the unadjusted gap is 19.7 percentage points, and falls to only 16.4 percentage points even after controlling for this extensive set of differences in socio-economic background between the two populations.[11]

However, the third row of Table 6 shows that there is one important variable—which has not been widely stressed in earlier studies—that explains a larger part of the homeownership gap: the difference in the residential location choices made by immigrant and native households. As I documented earlier, the rate of homeownership varies systematically across cities (e.g., homeownership rates are low in New York City and high in San Jose). These metropolitan area differences probably have little to do with immigration, and may be attributable to differences in the structure of the housing market or to regional differences in housing

households or in households where the head is highly educated, and are lower in households headed by a woman or a by relatively young person.

[11] The homeownership gap between immigrants and natives is evaluated at the point where the years-since-migration variable takes on the mean value for the immigrant population. The inclusion of the years-since-migration variable in the regression models helps to control for differences that may exist across immigrant waves due either to the process of assimilation or to cohort differences in homeownership rates.

costs. One can easily control for these differences in homeownership rates across metropolitan areas, *regardless of their source*, by simply including a vector of almost 300 metropolitan area fixed effects in the vector X. Table 6 shows that including a vector of dummy variables indicating the metropolitan area where the household resides in the regression model narrows the homeownership gap in each cross section: from 12.0 to 6.0% in 1980, from 14.4 to 9.2% in 1990, and from 19.7 to 13.5% in 2000.[12]

The evidence summarized in Table 6, therefore, provides one important insight into how the homeownership gap between immigrants and natives arises: immigrants and natives simply choose to live in different areas. In fact, the comparison of rows 2 and 3 of the table suggest that locational differences between the immigrant and native populations explain a far larger part of the homeownership gap than do differences in background characteristics. However, the table also indicates that the relative importance of locational differences declined somewhat between 1980 and 2000. In 1980, differences in location between the two populations explain almost one-half of the homeownership gap; by 2000, differences in location account for about a third of the gap. The available evidence suggests that immigration began to "spread" from the traditional gateway cities to many other locations in the US during the 1990s [6]. As a result, the location decision of the two populations could have become a somewhat less important determinant of the homeownership gap during this period. Note, however, that despite their declining importance, the differences in location decisions made by the two populations still play a crucial role in determining the homeownership gap, generating a six-point gap in homeownership rates in 2000.

Finally, the fourth row of the table includes both the socioeconomic variables and the vector of metropolitan area fixed effects. It is evident that there remains a great deal of unexplained variation in homeownership rates between immigrant and native households. More importantly, this unexplained gap is growing rapidly over time, from 5.7 percentage points in 1980 to 10.3 percentage points in 2000.

3.1. National origin

I showed earlier that there are substantial differences in homeownership rates among national origin groups. In addition, it is well known that the national origin mix of the immigrant population in the US changed substantially in recent decades. It is reasonable, therefore, to suspect that some of the aggregate trend in the homeownership gap may be linked to the changing national origin mix of immigrants.

[12] The F-statistic associated with the vector of metropolitan area fixed effects is 140.2 in 1980, 137.9 in 1990, and 18.7 in 2000, implying that metropolitan area fixed effects play a very significant role in determining homeownership rates.

Before proceeding to examine this relationship, it is instructive to examine the extent to which the differences in homeownership rates across national origin groups simply proxy for differences in socioeconomic or demographic characteristics. I estimated the following regression model separately in each of the cross sections:

$$H_{ijt} = X_{ijt}\beta_t + n_{jt} + \varepsilon_{ijt}, \tag{2}$$

where n_{jt} denotes a national origin fixed effect indicating if the household head was born in country j. I construct this vector of national origin fixed effects so that the left-out dummy variable indicates if the household is a native-born household. The coefficients of the fixed effects, therefore, give the adjusted difference in homeownership rates between a particular national origin group and the native population. I restrict the analysis to the 90 largest national origin groups.[13] These 90 national origin groups contain over 90% of the immigrants who entered the US between 1960 and 1990.

The top panel of Table 7 summarizes some of the results of the analysis. To simplify the presentation of the evidence—and because the qualitative nature of the results was quite similar across the various cross sections—Table 7 only reports the results obtained with the 1990 Census data. The two columns of the table represent alternative specification of the regression model in (2). The coefficients reported in the first column come from a regression that do not contain any explanatory variables in the vector X, so that the reported coefficients give simply the unadjusted difference in homeownership rates between the immigrant group and the native population. The second column includes the detailed vector of socioeconomic variables described earlier as well as the vector of metropolitan area fixed effects.

It is evident that the inclusion of the background variables and metropolitan area fixed effects explain part of the differences in homeownership rates across national origin groups. For example, the unadjusted gap between Mexicans and natives is 25.9 percentage points. This narrows down to 11.1 percentage points when the regression adjusts for differences in background characteristics and area of residence.

However, it is also evident that these explanatory variables do not account for most of the differences in homeownership rates across national origin groups. For instance, even after controlling for background characteristics and metropolitan area fixed effects, the homeownership gap was 16.5 percentage points for immigrants from the Dominican Republic, 8.2 percentage points for immigrants from India, and 12.0 percentage points for immigrants from Korea.[14]

[13] This restriction ensures that there are sufficient observations for each of the groups to reliably estimate the national origin differentials in homeownership rates.

[14] Although there exist sizable national origin differences in homeownership rates, the inclusion of the national origin fixed effects into the regression model does not alter the coefficients of most of

Table 7
Determinants of national origin differentials in homeownership rates (1990)

	Regression specification	
	(1)	(2)
Country of origin		
Canada	0.036	−0.004
China	−0.078	−0.038
Cuba	−0.123	−0.095
Dominican Republic	−0.501	−0.165
Germany	0.062	0.030
India	−0.060	−0.082
Korea	−0.205	−0.120
Mexico	−0.259	−0.111
Philippines	−0.034	−0.035
Poland	−0.016	−0.007
Summary statistics for national origin fixed effects		
Standard deviation (across 90 national origin groups)		
1980	0.144	0.091
1990	0.157	0.085
2000	0.146	0.077
R^2	0.017	0.308
F-statistic testing for significance of national origin fixed effects	–	37.5
Includes socioeconomic characteristics	No	Yes
Includes metropolitan area fixed effects	No	Yes

Because of the large sample size and the large number of regressors, the regressions summarized in this table use a 50% random sample of the native extract; the regression has 601,456 observations. The list of "socio-economic characteristics" includes the gender of the household head; the age of the household head (defined as a vector of dummy variables indicating if the head is 18–24, 25–34, 35–44, 45–54, 55–64, or >64 years of age); the educational attainment of the household head (defined as a vector of dummy variables indicating if the head has less than 9 years of schooling, 9–11 years, 12 years, 13–15 years, or at least 16 years); the log of household income; dummy variables indicating if the head is married spouse present, or married spouse absent; the number of persons in the household; the number of children (under age 18) in the household, and the number of years that the household has resided in the US (and its square). The metropolitan area fixed effects add a dummy variable for each metropolitan area observed in the data.

The bottom panel of the table presents some statistics that further describe the dispersion in the vector of the national origin fixed effects estimated from the regression model in Eq. (2). In particular, I present the standard deviation of the coefficients in this vector (weighted by the sample size of the national origin group in each particular Census year). The standard deviation in the unadjusted homeownership gap across the 90 national origin groups in 1990 is 0.157, and

the socio-economic background variables. In 1990, for example, the coefficient of log of household income is 0.128 in the absence of national origin fixed effects and 0.129 when the national origin fixed effects are introduced.

declines to 0.085 when all the explanatory variables are included in the regression model. In other words, an extensive set of observable characteristics describing the determinants of the homeownership decision explains only about half of the observable differences across national origin groups.

As noted earlier, the labor economics literature has documented the existence of national origin differences in many economic outcomes, and has stressed that as a result of these differences, the changing national origin mix of immigrants can help explain aggregate trends in the immigrant population. The available evidence, however, does not help us understand the *source* of much of the national origin differentials. Evidently, these differences persist even after controlling for a detailed set of background characteristics. It is plausible that such factors as discrimination against particular national origin groups, or differences in the way that the immigrant population is self-selected from each source country's population could be responsible for the remaining differences. The importance of national origin in determining tenure choice for the immigrant population suggests that the continuing study of these differences is an important area for further research.

3.2. National origin and the widening homeownership gap

The evidence reported in Table 6 suggests that differences in location decisions or background variables between the immigrant and native populations cannot account for the widening gap in homeownership rates between the two populations. To more directly ascertain the source of this increasing disparity, consider the following empirical exercise. Suppose we pool two of the cross sections, such as the 1980 Census and the 2000 CPS, and consider the linear probability regression model

$$H_{it} = X_{it}\gamma + \pi R_{it} + \delta_t I_{it} + \theta(I_{it} \times R_{it}) + \varepsilon_{it}, \tag{3}$$

where R_{it} is a dummy variable set to unity if the observation is drawn from the 2000 CPS, and zero otherwise.

The key feature of the regression specification in Eq. (3) is that it includes the immigrant dummy variable, a dummy variable indicating whether the observation was drawn from the 2000 CPS, *and* an interaction between these two variables. In the absence of any explanatory variables in the vector X, the coefficient of this interaction term (or θ) would measure how much faster the homeownership rate changed in the immigrant population relative to the change observed in the native population over the 1980–2000 period.

To give an example, the descriptive statistics presented earlier imply that the homeownership rate rose by 4.0 percentage points in the native population between 1980 and 2000. I will restrict the empirical analysis reported in this section to either native households or to immigrant households belonging to one of the 90 largest national origin groups. The data indicate that the homeownership rate of immigrants (in this restricted sample of 90 national origin groups) was

51.6% in 1980, and 47.7% in 2000, for a decline of 3.9 percentage points over the period. The coefficient θ would then give the difference-in-differences estimate of the widening in the homeownership gap, which equals -7.9 percentage points (or $-3.9 - 4.0$). In other words, the parameter θ measures the rate of change in the homeownership rate of the immigrant population relative to what was happening in the native population. The inclusion of socioeconomic variables in Eq. (3) does not change the basic interpretation of the coefficient θ; the coefficient now simply gives the relative rate of change in homeownership rates after adjusting for differences in background characteristics.

Table 8 reports the coefficient θ estimated from a number of alternative specifications of the regression model in (3) for the 1980–1990 and 1980–2000 periods, respectively. The first row indicates the value of the coefficient θ in the absence of any controls in the regression model. As we saw from the numerical exercise in the previous paragraph, the coefficient θ takes on a value of -7.9% for the 1980–2000 period.

Table 8
Explaining the widening homeownership gap between immigrants and natives

Regression specification	1980–1990	1980–2000
1. Unadjusted rate of widening	−0.029	−0.079
	(0.004)	(0.011)
2. Adjusted rate, controls for socioeconomic characteristics	−0.009	−0.051
	(0.003)	(0.009)
3. Adjusted rate, controls for metropolitan area fixed effects	−0.027	−0.080
	(0.004)	(0.011)
4. Adjusted rate, controls for metropolitan area fixed effects and interacts metropolitan area fixed effects with dummy variable indicating census year	−0.036	−0.077
	(0.004)	(0.011)
5. Adjusted rate, controls for immigrant's country of birth	0.025	0.003
	(0.004)	(0.011)
6. Adjusted rate, controls for immigrant's country of birth, socioeconomic characteristics, metropolitan area fixed effects and interacts metropolitan area fixed effects with dummy variable indicating census year	−0.003	−0.030
	(0.003)	(0.010)

Standard errors are reported in parentheses. Because of the large sample size and the large number of regressors, the regressions summarized in this table use a 33% random sample of the 1980 and 1990 native extracts; the regression for 1980–1990 has 878,725 observations; the regression for 1980–2000 has 509,622 observations. The list of "socio-economic characteristics" includes the gender of the household head; the age of the household head (defined as a vector of dummy variables indicating if the head is 18–24, 25–34, 35–44, 45–54, 55–64, or >64 years of age); the educational attainment of the household head (defined as a vector of dummy variables indicating if the head has less than 9 years of schooling, 9–11 years, 12 years, 13–15 years, or at least 16 years); the log of household income; dummy variables indicating if the head is married spouse present, or married spouse absent; the number of persons in the household; and the number of children (under age 18) in the household, and the number of years that the household has resided in the US (and its square). The metropolitan area fixed effects add a dummy variable for each metropolitan area observed in the data, and the national origin fixed effects add a dummy variable for each of the 90 national origin groups in the immigrant population.

The second row of the tables adds the detailed vector of background variables described earlier to the regression specification (including the age, sex, educational attainment, and marital status of the household head, the income of the household, the number of persons and children in the household; and the number of years that immigrants have resided in the US). The coefficient θ now takes on a value of -5.1 percentage points, so that the homeownership gap widened substantially even after controlling for differences in background characteristics between the two populations.[15] The third row includes only a vector of metropolitan area fixed effects in the vector X, and shows that the different location decisions of immigrants and natives do not help explain the widening of the homeownership gap *at all*. Put differently, the evidence indicates that the homeownership gap between immigrants and natives widened even within metropolitan areas.

The specification of the regression model in (3) implies that the metropolitan area fixed effects control for factors that are specific to the metropolitan area *and* that did not change over the 1980–2000 period. It is likely, however, that there were factors, such as housing prices, that changed within a metropolitan area, and that the rate of change varied across areas. In other words, there are likely to be trends in homeownership rates that are specific to metropolitan areas. To account for these varying trends across metropolitan areas in a very general way, consider the expanded regression model:

$$H_{it} = X_{it}\gamma + \pi R_{it} + \delta_t I_{it} + \theta(I_{it} \times R_{it}) + \rho_{ikt} + (\rho_{ikt} \times R_{it}) + \varepsilon_{it}, \quad (3')$$

where ρ_{ikt} denotes a vector of fixed effects indicating if the household resides in metropolitan area k, and $(\rho_{ikt} \times R_{it})$ denotes the interaction of this vector with the dummy variable indicating if the observation was drawn from the 2000 CPS. The coefficients of these interaction variables are fixed effects giving the adjusted rate of change in homeownership rates within a metropolitan area. The expanded specification in Eq. (3′), therefore, controls both for the fact that metropolitan areas are different at the beginning of the period, and that the homeownership rates were changing differentially across metropolitan areas. The fourth row of Table 8 reports the coefficients obtained from this more general specification. The verdict is clear: controlling for the varying trends in homeownership rates across metropolitan areas does not help explain the widening homeownership gap between immigrants and natives. There is still a 7.7 percentage point unexplained the widening over the period.

[15] It is worth noting that the vector of socioeconomic characteristics includes a variable indicating the length of time that immigrant households have resided in the US. The evidence reported in Table 8 indicates that changes in the mean number of years-since-migration do not explain the widening homeownership gap. The main reason is that this variable was roughly constant over the 1980–2000 period. The typical immigrant in 1980 had been in the US for 22.1 years, in 1990 for 21.1 years, and in 2000 for 21.3 years.

It is worth stressing that by interacting the period effect (R) with the metropolitan area fixed effects, Eq. (3) completely controls for the possibility that the 1980–2000 trend in homeownership rates varies systematically across metropolitan areas. Note that it would be statistically impossible to include either a measure of the price level in the metropolitan area as of 1980 or the change in the price level in the metropolitan area over the 1980–2000 period into this regression model. After all, these price indices would be perfectly collinear with the two vectors of metropolitan area fixed effects (ρ_{itk} and $\rho_{itk} \times R_{it}$) included in the regression model. The regression specification in Eq. (3), therefore, already controls for any factors that are specific to the metropolitan area either in the cross section or over time, *regardless of their source*.

It turns out, however, that there is an additional vector of variables that can be included in the regression model in (3) that can *completely* account for the widening homeownership gap. The fifth row of the table includes a vector indicating the country of birth of the immigrant household, so that the coefficient θ now estimates what happened to the homeownership gap *within* national origin groups. The coefficient reported in row 5 of the table for the 1980–2000 period is zero, both numerically and statistically. In other words, the homeownership gap was constant between 1980 and 2000 within national origin groups. It is evident, therefore, that the changing national origin mix of the immigrant population is the key variable that explains the widening homeownership gap between immigrants and natives. Put differently, we would not have observed an increase in the homeownership gap over these two decades had the national origin mix of immigrants remained constant over the period.

The evidence summarized in this paper, therefore, implies that the "newer" national origin groups tend to have relatively lower homeownership rates than "earlier" national origin groups, and that this difference helps explain why homeownership rates have declined in the immigrant population at a time when they were increasing in the native population. As with the literature that analyzes the labor market performance of immigrants, national origin plays a crucial role in the determination of the aggregate level of homeownership rates for the immigrant population.

The last row of Table 8 includes all of the explanatory variables in the regression in Eq. (3): background characteristics, metropolitan area fixed effects as well as fixed effects accounting for different trends in homeownership rates across metropolitan areas, and country of origin fixed effects. It is evident that the results of this most general specification do not change the key implication of the analysis. Much of the increasing gap in homeownership rates between immigrants and natives can be attributed to the fact that there are substantial differences in homeownership rates across national origin groups, and that the changing national origin mix of the immigrant population over the past two decades has led to a situation where the "average" immigrant now belongs to a national origin group that simply tends to have a low homeownership rate.

4. Ethnic enclaves

The evidence summarized in the previous section illustrated the importance of the geographic sorting of immigrants in the US as well as the national origin mix of the immigrant population in generating differences in homeownership rates between immigrants and natives. There is an additional sense in which the interaction between these two variables might influence the demand for owner-occupied housing. Because particular immigrant groups tend to cluster in particular cities, the geographic sorting leads to the creation and growth of ethnic enclaves. It is likely that ethnic enclaves affect the structure of the housing market and the amenities available in particular areas to different national origin groups.

There has been a great deal of debate over how ethnic enclaves affect the economic well being of immigrants in the US. One could argue that the geographic clustering and the "warm embrace" of the enclave helps immigrants escape the discrimination that they might have otherwise encountered in the labor and housing markets outside the enclave. This argument would suggest that clustering improves economic opportunities for immigrant families within the enclave. Moreover, the presence of other immigrants with similar preferences and attitudes in the neighborhood may make the neighborhood much more welcoming and desirable. These improvements in housing amenities and in economic opportunities could increase the demand for owner-occupied housing in immigrant enclaves.

One can also argue, however, that the clustering can have adverse economic effects. The ethnic enclave creates incentives for immigrants *not* to acquire the skills that might be useful in the larger national market. In other words, the clustering may effectively hinder the move to better-paying jobs by reducing the immigrants' incentives to learn the culture and language of the American labor market. In a sense, immigrants who live and work in an ethnic enclave are the victims of a monopsony, a "one-company" town. These adverse economic effects would presumably reduce the income of immigrant families living in the enclaves, lowering their demand for owner-occupied housing.[16]

This section estimates the link between ethnic enclaves and the demand for owner-occupied housing.[17] The empirical analysis exploits the information on national origin and metropolitan residence contained in the microdata sets used in the previous sections. However, because the sample size within a cell defined

[16] Although there has been a contentious debate over whether immigrants benefit from working in an ethnic enclave, a recent comprehensive study by Light and Gold [15, p. 70] concludes that "ethnic economies pay lower wages than the general labor market." A recent study by Borjas [5] provides additional evidence that there is a strong negative correlation between the earnings of immigrants and the fraction of the metropolitan area's population that belongs to the immigrant's ethnic group.

[17] Toussaint-Comeau and Rhine [23] conduct a case study of homeownership in an enclave of Hispanic immigrants in Chicago, and document that immigrants who are not English proficient will seek out Spanish-speaking lenders.

by metropolitan area and national origin is relatively small in the CPS data, the empirical study is restricted to the larger 1980 and 1990 Census extracts.

Define a particular immigrant group as the sample of foreign-born households with a head born in country j and who live in metropolitan area k. To ensure that there is a sufficiently large number of observations in each (j, k) cell, I again restrict the analysis to the 90 largest national origin groups in the US.

As I showed earlier, different national origin groups in the US tend to settle in different areas. To measure the extent of geographic ethnic clustering [9], I use an exposure measure of ethnic clustering defined by

$$\text{Exposure index} = S_{jk} = \frac{N_{jk}}{N_k}, \tag{4}$$

where N_{jk} gives the total number of persons who were born in country j and live in metropolitan area k at a particular point in time (either 1980 or 1990); and N_k gives the total number of persons (including natives) who live in metropolitan area k at that time. The counts N_{jk} and N_k are calculated using the *entire* population of persons aged 18–64 who were enumerated by each Census in metropolitan area k, regardless of their work status or gender. The exposure index, therefore, simply gives the fraction of the metropolitan area's adult-age population that belongs to the particular national origin group. Ideally, the analysis would relate homeownership rates to measures of ethnic concentration at a more finely detailed geographic level, but such data are not available.

4.1. Regression analysis

I initially investigate the empirical nature of the link between homeownership and ethnic enclaves by estimating the following linear probability model *separately* in the 1980 and 1990 census cross sections:

$$H_{ijkt} = X_{ijkt}\beta_t + \alpha_t S_{ijkt} + n_{jt} + \rho_{kt} + \varepsilon_{ijkt}, \tag{5}$$

where H_{ijkt} is a dummy variable indicating if an immigrant household i born in country j and living in metropolitan area k owns a home at time t; X is a vector of standardizing variables (described below); S_{jkt} is the exposure index; n_j denotes a vector of fixed effects indicating the household's country of origin; and ρ_k denotes a vector of fixed effects indicating the metropolitan area of residence.[18] Further, I estimate Eq. (5) using only the sample of immigrant

[18] I also conducted the analysis using an alternative measure of immigrant clustering that divides Eq. (4) by the fraction of the total US population that belongs to the national origin group. This index of "relative clustering" would equal one when the fraction of type-j immigrants who live in metropolitan area k is the same as the fraction of type-j immigrants in the entire population of the US. The empirical findings obtained with this alternative measure of the relative size of the ethnic group were similar to those reported in this section.

households that belong to one of the 90 largest national origin groups in the immigrant population.[19]

The coefficient α measures the link between homeownership and ethnic clustering. The regression model in Eq. (5) includes two crucial vectors of fixed effects. First, the model includes a vector of metropolitan area fixed effects. In any given cross section, these geographic fixed effects controls for the possibility that housing costs or the structure of the housing market varies across metropolitan areas. In other words, the metropolitan area fixed effects net out any area-specific effects on the demand for owner-occupied housing that equally affect all groups living in that metropolitan area. Second, the regression model includes a vector of national origin fixed effects. As show above, there are sizable unexplained differences in homeownership rates across national origin groups (just as there are sizable unexplained national origin differentials in many labor market outcomes). By including these fixed effects, the regression effectively isolates the impact of different levels of ethnic clustering on the *same* national origin group. Hence the impact of the ethnic enclave on homeownership is being identified from within-group variation, taking advantage of the fact that members of the same national origin group choose to reside in different metropolitan areas. In other words, the regression model in Eq. (5) addresses the following type of question: what happens to the probability of homeownership when, say, a Mexican household lives in Los Angeles, where there is a large Mexican population, rather than in Miami, where there are relatively few Mexican immigrants?

Of course, this methodological approach raises the obvious issue of endogeneity in the residential location of immigrants. After all, immigrants will likely move to metropolitan areas where they face better economic opportunities (and perhaps better conditions in the housing market). I will discuss the bias introduced by the endogeneity of residential location below.

The first row of Table 9 presents the coefficient α estimated from alternative specifications of the regression model in (5). The first column reports the coefficient estimated in the 1980 cross section, while the second column reports the coefficients estimated in the 1990 data. As before, the regressions control for a detailed vector of background variables, including the age, sex, educational attainment, and marital status of the household head, the log income of the household, and the number of persons and children in the household. In both census years, there is a numerically strong and statistically significant positive relation between the probability of homeownership and the relative size of the ethnic enclave in the metropolitan area.

Moreover, the evidence suggests that ethnic enclaves remain important even when we look at the trend in homeownership *within* a particular metropolitan

[19] Note that the sample of native households is not used in estimating the model. It would be of interest to investigate how the creation and growth of ethnic enclaves influenced homeownership rates among native households residing in those areas.

Table 9
Ethnic enclaves and homeownership (Impact of the exposure index on the probability of homeownership)

Group/year	Regression specification		
	1980	1990	Pooled
All immigrant households	0.285	0.061	0.138
	(0.061)	(0.047)	(0.045)
R^2	0.320	0.352	0.334
Refugee households	0.342	0.067	0.266
	(0.086)	(0.118)	(0.054)
R^2	0.320	0.349	0.326

Standard errors are reported in parentheses and are corrected for the clustering of immigrant cohorts within metropolitan areas. The exposure index is defined as the fraction of the metropolitan area's population that belongs to the household's national origin group. The regression estimated in the 1980 cross section has 234,432 observations (43,906 observations in the refugee sample); and the regression in the 1990 cross section has 297,944 observations (50,689 observations in the refugee sample). The list of "socioeconomic characteristics" includes: the gender of the household head; the age of the household head (defined as a vector of dummy variables indicating if the head is 18–24, 25–34, 35–44, 45–54, 55–64, or >64 years of age); the educational attainment of the household head (defined as a vector of dummy variables indicating if the head has less than 9 years of schooling, 9–11 years, 12 years, 13–15 years, or at least 16 years); the log of household income; dummy variables indicating if the head is married spouse present, or married spouse absent; the number of persons in the household; the number of persons under the age of 18 in the household, and the number of years that the household has resided in the US (and its square). All regressions contain a vector of metropolitan area fixed effects, and a vector of national origin fixed effects. In addition, the pooled regressions include a dummy variable indicating the survey from which the observation is drawn, and interact this period effect with the metropolitan area fixed effects.

area. In particular, consider the following empirical exercise. Suppose we pool the 1980 and 1990 cross sections and estimate the following regression model in these pooled data:

$$H_{ijkt} = X_{ijkt}\beta + \pi R_{it} + \alpha S_{ijkt} + n_{jt} + \rho_{kt} + (\rho_{kt} \times R_{it}) + \varepsilon_{ijkt}, \qquad (6)$$

where R_{it} is a dummy variable set to unity if the observation is drawn from the 1990 census, and zero otherwise. As before, the regression includes a vector of national origin fixed effects (n_j) and a vector of metropolitan area fixed effects (ρ_k). The specification in (6) also interacts the metropolitan area dummy variables with the dummy variable indicating the Census year (or $\rho_k \times R$). These interaction terms help to control for the fact that conditions in the housing market may have changed differentially across metropolitan areas over the 1980–1990 period. The coefficient α now measures the extent to which changes in the exposure index within a particular metropolitan area and national origin group affect homeownership in the immigrant population—after controlling for changes in the housing market within a metropolitan area that affect all persons living in that area equally.

The last column of Table 9 reports the coefficient estimated from the pooled data. The coefficient is positive and significant, indicating a strong positive correlation between the growth of ethnic enclaves over the 1980–2000 period and homeownership rates in the immigrant population. The significance of the coefficient α implies that the geographic clustering of immigrants has an independent effect on homeownership rates, even within national origin groups and within metropolitan areas.

To evaluate the numerical importance of ethnic enclaves, it is instructive to consider a simple simulation of the estimated regression model. In particular, consider the typical Mexican household living in Los Angeles, where the exposure index takes on a value of 0.169 (indicating that 16.9% of the population of the Los Angeles metropolitan area is of Mexican origin). This household's probability of homeownership would have *fallen* by 2.3 percentage points if this household had chosen to live in Philadelphia, where only 0.1% of the population is of Mexican origin.[20] Ethnic enclaves, therefore, seem to have a numerically important impact on homeownership rates.

As noted above, the results summarized in the first row of Table 9 might be biased because the residential choices of immigrants are likely to be endogenous. The measured impacts may simply reflect the fact that the same unobserved factors that lead to particular location choices also lead to particular socioeconomic outcomes. The problem has been difficult to resolve because there are few valid instruments that can help identify the relevant parameters [10].

It is unlikely that immigrants randomly choose which metropolitan areas to reside in when they enter the US. Most likely, their location decision will depend both on the presence of ethnic enclaves, which can transmit a great deal of information about job and housing opportunities, as well as on the economic and housing opportunities available in different areas. For example, suppose that immigrants have a strong desire to own their homes, and, as a result, tend to cluster in areas where it is relatively easy to enter the owner-occupied housing market. Ethnic enclaves would then form in areas that have relatively high homeownership rates, creating a spurious positive correlation between any measure of the size of the ethnic enclave and homeownership rates in the immigrant population.

The endogeneity issue can be partially addressed by focusing on the sample of immigrants who entered the country as refugees. Refugees typically have much less choice in deciding where to live in the US (at least at the time of their initial entry). The State Department assigns individual refugees to "sponsoring" private voluntary agencies that provide a variety of social services, including initial resettlement in the US [25]. The geographic location of the refugees' resettlement is determined by the sponsoring agencies, and depends partly on the

[20] The drop of 2.3 percentage points is obtained by multiplying the regression coefficient reported in column 3 (0.138) times the difference in the exposure index between Los Angeles and Philadelphia (0.168).

match between a refugee's socioeconomic background and the availability of jobs and services in particular localities—as perceived by the sponsoring agency—as well as on the location of the sponsoring agency itself. It is worth stressing that although the initial placement of refugees is perhaps more exogenous than that of traditional immigrants, part of the placement is surely motivated by the agency's desire to place refugees in areas where they are likely to thrive. An additional problem is that the US Census does not contain any information on the type of visa used by a particular person to enter the US. To approximate the refugee population, therefore, I classify all immigrants who originate in the main refugee-sending countries as refugees (all other immigrants are classified as non-refugees).[21]

The second row of Table 9 reports the estimate of the coefficient α when Eq. (6) is estimated in the subsample of refugees. Ethnic enclaves continue to have a positive impact on homeownership rates even in the refugee sample. If anything, the numerical impact of the ethnic enclave on homeownership rates is numerically larger in the refugee sample than in the entire immigrant population. The evidence, therefore, seems to reject the hypothesis that the strong positive correlation between ethnic enclaves and homeownership rates can be attributed solely to endogeneity bias.

5. Summary

This paper analyzed the determinants of homeownership in immigrant households. The empirical analysis used data drawn from the 1980 and 1990 Public Use Samples of the US Census, and from the 1998–2000 Current Population Surveys. The study yields a number of interesting empirical findings:

(1) Immigrant households have lower homeownership rates than native households and this "homeownership gap" widened significantly in the past twenty years.
(2) Only a relatively small part of the homeownership gap between immigrants and natives can be attributed to differences in such background variables as income and household composition between the two populations. A much more important factor in generating the sizable homeownership gap is the different location decisions made by immigrants and natives.
(3) There are sizable differences in homeownership rates among the national origin groups that make up the immigrant population. The changing national

[21] Thirteen countries account for 90% of the refugees awarded permanent residence status during the 1970s and 1980s: Afghanistan, Bulgaria, Cambodia, Cuba, Czechoslovakia, Ethiopia, Hungary, Laos, Poland, Romania, Thailand, the former USSR, and Vietnam.

origin mix of the immigrant population helps explain much of the widening in the homeownership gap observed between 1980 and 2000.

(4) The interaction between national origin and locational choices is perhaps most evident in the creation and growth of ethnic enclaves in major American cities. The evidence suggests that ethnic enclaves increase the probability that immigrant households own their homes.

The analysis in this paper suggests that immigration will play an increasingly important role in determining the demand for owner-occupied housing in the US. The role played by immigration, however, does not depend simply on the fact that more immigrants imply more households, which would then lead to an increase in housing demand. The impact of immigration on homeownership rates is much more subtle, and it clearly depends on the national origin mix of the immigrant population and on the locational choices made by immigrants. Moreover, the evidence presented in this paper suggests that the growth of ethnic enclaves in major American cities could become an important factor in determining the demand for owner-occupied housing in many metropolitan areas.

It is important to note, however, that the link between immigration and homeownership also depends on how immigrants affect housing prices. For instance, the increasing demand for owner-occupied housing in ethnic enclaves should lead to a rise in housing prices in the affected areas. These feedback effects will inevitably influence housing demand for both immigrant and native households. Surprisingly, the impact of immigration on housing prices has not yet been explored systematically.

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