

# Does Immigration Induce Urban Sprawl in the U.S.?

*Zhou YU* \*

Lusk Center for Real Estate  
School of Policy, Planning, and Development  
University of Southern California,  
Los Angeles, CA 90089-0626

## ABSTRACT

This article, utilizing U.S. Census data in 1980 and 1990, probes the relationship between immigration and urban sprawl. The preliminary findings reveal that population growth caused by immigration is not likely the major causal factor to urban sprawl. The lifestyle of native-borns is more prone to inducing urban sprawl, since native-borns have generated most of the growth in the number of households, owner-occupied housing, suburban residency, demand for new housing, and private automobile usage for work-trips. The article also shows that household behavior is a critical factor in causing urban sprawl. Household growth rather than population growth has a stronger causal linkage with urban sprawl. Future research, implementing microdata, is necessary to better disentangle the complex relationship.

\* Doctoral Student in the School of Policy, Planning, and Development.

Contact information: VKC363, University of Southern California, Los Angeles, CA 90089.

E-mail: [zyu@usc.edu](mailto:zyu@usc.edu), Tel: 213 821 1465, Fax: 213 821 1466.

The author acknowledges financial assistance from the HUD Early Doctoral Student Research Grant and research facility provided by the Population Dynamic Group at the School of Policy, Planning, and Development. The author is grateful for suggestions from Paul Rabé, Greg Halich, Scott Mangum, Dowell Myers, Harry Richardson, and Lihong Yang that have improved this draft considerably. Remaining errors are my own.

"Nobody denies that there is a relationship between population growth and urban sprawl. Furthermore, nobody disputes that immigration is the single largest factor in U.S. population growth. Therefore, it is essential that immigration policies be evaluated when I try to deal with urban sprawl". -- Dan Stein Executive Director of F. A. I. R. 09/00

## Introduction

Immigration and urban sprawl have typically been pursued as two fairly distinct research and policy endeavors. Their relationship has rarely been discussed until recently when controversial ads claim that immigration caused urban sprawl (USA Today, 2000a). Recent debates in the New York Times indicate that the relationship between immigration and urban sprawl has become a centerpiece of public discussion (Krugman, 2001; Steine, 2001). These discussions become increasingly relevant given the fact that foreign-born population has reached its largest share in past several decades. The first objective of this study is to explore what we know so far about the relationship between immigration and urban sprawl through a brief review of the literature.

The general perception is that immigration<sup>1</sup> causes population growth, and therefore, urban sprawl. Debate over this supposed link is typically grounded on the assumption that native-borns and foreign-borns are homogeneous in their lifestyles such as household formations, tenure choices, preferences of residential location, and transit usage. Therefore, the second

---

<sup>1</sup> Immigrants and foreign-borns are used interchangeably in this analysis, so as U.S. borns and native-borns. The term "foreign-borns" instead of "foreign-born population" is used when describing foreign-born population and foreign-born households as a whole. The paper uses definitions from the decennial census on place of birth and citizenship to classify the population into two categories: native- and foreign-born. The latter group referred as immigrants were not U.S. citizens at birth. Natives were born in the United States or a U.S. Island Area such as Puerto Rico, or born abroad of at least one parent who was a U.S. citizen. The census place-of birth question asked respondents to report the (U.S.) state, commonwealth, or territory, or the foreign country, in which they were born. Individuals born outside the United States were asked to report their place of birth according to current international boundaries. These data will be reported as immigrant place of birth.

objective is to test this underlying assumption through a demographic analysis. The third objective is to specifically investigate whether there is any causal linkage between immigration-generated population growth and urban sprawl. In lieu of the forthcoming Census 2000 data, it also presents a framework of implementing dynamic demographic analysis in the study of urban form.

The preliminary findings do not substantiate the perceived relationship between immigration-generated population growth and urban sprawl. Native-born and foreign-born populations have very different lifestyles. Consequently, growth of foreign-born population does not necessarily cause urban sprawl. Household growth rather than population growth has a much stronger causal linkage with urban sprawl. Accumulating evidence suggests that the lifestyle of native-born population is more prone to inducing urban sprawl.

## **Structure of the Paper**

The paper proceeds as follows. In the following section, it reiterates current public debates over immigration and urban sprawl, and discusses respective policy implications. Secondly, the paper reviews relevant research. Then, the paper implements a national level demographic analysis and examines the perceived relationship between immigration-generated population growth and urban sprawl. As far as the data permit, detailed analysis is conducted to test the assumed homogeneity between native-borns and foreign-borns in stimulating urban sprawl. Finally, the paper draw preliminary conclusions based on this study and suggest topics of further research.

## Public Discussions

The relationship between immigration and urban sprawl has captured increasing public attention because of the rapidly growing foreign-born population. According to the Census 2000 Supplementary Survey, about 44 percent of the nation's 30.5 million foreign-born residents, or 13.3 million people, arrived here in the 1990's (The Bureau of Census, 2001). Immigrants make up 11 percent of the country's population, the largest share since the 1930s (Fields, 2001).

Because of such dynamic population changes in recent decades, people start to ponder the impact of immigration on American society in general, and urban development in particular (Glasser, 2001; USA Today, 2000b). Some people argue for stricter immigration regulations, insisting current immigration policies have introduced too many new immigrants in a short time. Recently those people have begun to contend that immigrants have generated unchecked population growth, and therefore, induced excessive urban sprawl and dragged down the quality of life of all American people. They suggest that fewer immigrants would help curtail population growth so as to ameliorate sprawl (F. A. I. R., 2001a; Fields, 2001; USA Today, 2000a). Their logic follows conventional wisdom which holds that, everything else constant, a growing population induces more houses, more cars, and increased demand for land. Therefore, there has to be suburban expansion or urban sprawl in order to accommodate these new demands. Without rigorous examination, this perception is widely accepted among immigration restrictionists and growth control advocates (F. A. I. R., 2001b; Sierra Club, 2001).

Contesting this notion, Paul Krugman, in a recent New York Time Op-Ed, argues that population growth is the secondary contributor to current dispersed land-use pattern, citing mismanagement rather than population growth should be responsible for the sprawl problems,

such as those in Atlanta and Houston (Krugman, 2001). Gordon and Richardson suggest that the linkage between immigration and urban sprawl cannot withstand serious scrutiny. They claim that, instead of population growth, increased development is the primary cause of sprawl. Demand for new development is a reflection of consumer preference and more accessible residential mortgage (Gordon and Richardson, 2000). In addition, recent surveys show that Americans are less concerned about population growth than they were 25 years ago. The general public does not connect environmental problems to population growth (Maher, 1997). Despite such intense public debates, there is scant research that substantiates either side of the argument.

### **Policy Implications and Definitions of Urban Sprawl**

Is the connection between immigration and urban sprawl justifiable? If so, remedies may be necessary in order to uphold the quality of life of the general public. If the allegations were misguided, any public policy aimed at curbing immigration would not curtail urban sprawl or ameliorate urban decay. If the incorrect public policy were implemented, there would be few benefits arising from immigration control. The social ills that immigration restrictionists and growth control advocates fought against would still be prevalent and the American labor force would lose a key dynamic component- new immigrants. Therefore, this issue is important to urban planners and policy makers because of the significant implications for the nation's immigration policy, urban landscape, and economic activity.

In order to check the relationship between immigration and urban sprawl, a clear definition of the issue is essential. One of the greatest challenges in dealing with urban sprawl is that the definition of urban sprawl has been particularly vague and overly misused. Urban sprawl could have various connotations to different people. Growth control advocates usually articulate

the negative side of urban sprawl through definition. For instance, according to the Sierra Club, “suburban sprawl is irresponsible, poorly planned development that destroys green space, increases traffic, crowds schools, and drives up taxes ”(Sierra Club, 2001). This normative definition is less constructive in academic research since it leaves less room for further discussion about specific characteristics of urban sprawl. Some other researchers define the term vaguely. Jan Brueckner identifies urban sprawl as “excessive spatial growth of cities ”(Brueckner, 2000). However, it is difficult to reach consensus on what constitutes “excessive”. Enrico Marcelli implies that any suburban growth constitutes urban sprawl (Marcelli, 2001). Under this definition, the causes of sprawl become almost irrelevant. This definition is not in accordance with the mainstream sprawl discussion. In current academic research, urban sprawl is broadly referred to as dispersed development occurring on the urban fringe. For instance, Edwin Mills suggest the proportion of metropolitan residents who live and work outside the central city as a way to measure sprawl (Mills, Edwin S., 1999). This development is usually characterized as low density (Audirac, Shermeyen, and Smith, 1990; Ewing, 1997). There have been attempts to identify other measurements for urban sprawl (for instance, see (Galster, Hanson, Wolman, Coleman, and Freihage, 2000)). Because these alternative measurements are either immature or difficult to quantify with available data, density is still widely accepted as the standard to gauge sprawl. However, the meaning of low density and scattered development varies by region. For example, even experts on this topic could not agree on whether or not Los Angeles is an example of sprawl, because of the disagreement on the density (Ewing, 1997; Gordon and Richardson, 1997a; Gordon and Richardson, 1997b; Myers and Kitsuse, 1999). The disagreement is primarily due to their different understandings over *urban areas*. This paper uses the Metropolitan Area as the geographical boundary of urban area. The method of defining sprawl refers to land resources consumed to accommodate new urbanization or suburban expansion. As a dynamic process,

urban sprawl denotes a faster urban land expansion than respective population growth. The process of urban sprawl is characterized as decreasing density in urban areas over a period of time.

## **Relevant Research**

Excessive suburban expansion is evident in many U.S. metropolitan areas. During the last two decades the amount of urbanized build-up land in the US grew by more than 40 percent, which is 2.5 times faster than the population growth in the same period (Fulton, Pendall, Nguyen, and Harrison, 2001). The suburban expansion is in an accelerating phase. More than half of the suburban growth took place between 1992 and 1997. More than 100,000 new homes were built in 21 metropolitan areas between 1990 and 1997 (Wasserman, 2000). More than 80 percent of new housing construction took place in the suburbs (von Hoffman, 1999). Excessive suburban expansion, often defined as “urban sprawl”, has drawn criticism as some people argue that such excessive suburban expansion has caused environmental degradation, social inequity, and economic inefficiency. Unchecked sprawl is both socially and financially burdensome to the society (Burchell, 1997; Freilich and Peshoff, 1997). Some researcher argues that sprawl is a byproduct of public subsidies and market deficiencies, instead of representing a market equilibrium condition. (Ewing, 1997). More specifically, the concerns include traffic congestion, encroachment of open space, air pollution, excessive dependence on non-renewable energy, and disproportionate service costs for new suburban development (Ciscel, 2001; Downs, 1998; Sierra Club, 2001; Stoel, 1999). Compared with urban sprawl, contained development or managed growth could reduce land consumption and be more cost beneficial to the region in a long run

(Burchell, 1997). Past research also shows a positive association between the managed growth and economic performance (Nelson and David, 2000).

Rebutting the previous assessment on urban sprawl, many urban economists argue that, given the condition of urban land markets, sprawl reflects human needs and an efficient equilibrium condition. They suggest that better pricing policies for public services should be given preference over governmental regulations. In other words, any interference with the market mechanism would only hinder the efficiency of the economic system (Gordon and Richardson, 1989; Gordon, et al., 2000; Mills, Edwin S., 1999). Previous research also finds that traffic congestion is more closely associated with economic performance rather than urban form (Cervero, 2001). In addition, urban researchers provide ambivalent results over the claim that higher-density urban form promotes social equity and stronger social ties (Burton, 2000; Freeman, 2001). It is also inconclusive whether urban sprawl, by encroaching farmland, has an adverse impact on the environment or the economy as a whole (Knaap, 2000). Furthermore, Downs suggests that sprawl has little or no impact on urban decline (Downs, 1999). Past research also indicates that urban containment policies may have an unintended consequence on housing affordability as cities approach their limits and land prices appreciate faster than they would otherwise (Brueckner, 2000; Kahn, 2001; Knaap and Hopkins, 2001).

Despite such hot debates on whether urban sprawl is a negative form of urban development, there is seldom disagreement on the notion that population growth is the major contributor to urban sprawl (Downs, 1998; Ewing, 1997; Levine, 1997; Mieszkowski and Mills, 1993). This also presents a great need for research on the nature and causes of urban sprawl (Nelson and Dueker, 1993). Anthony Downs describes that population growth caused U.S. metropolitan areas to grow rapidly after 1940, while many large older cities also experienced a



decline in population (Downs, 1997). Thurston and Yezer find that suburbanization of the residential population is enhanced by rising income and suburbanization of employment. Suburbanization of the population promotes decentralization of the service and retail sectors (Thurston and Yezer, 1994). Furthermore, Jan Brueckner considers population growth one of the three fundamental forces of urban sprawl, in addition to the rise in household incomes and the decline in the cost of commuting (Brueckner, 2000). Through an economic analysis, Brueckner reaffirms his argument that population growth should be responsible for urban sprawl (Brueckner, 2001). Since immigration has been the main source of recent population growth, it is consequential to establish a causal relation between immigration and urban sprawl. Furthermore, a recent Bank of America report identifies that population growth in California has fueled the traditional suburban development patterns, namely urban sprawl. Although not clearly stated, immigration, as a source of population growth was blamed as one cause of such unchecked development (Bank of America, 1995, p.3). It is residential development characterized as lowered density on the urban fringe that causes urban sprawl. Therefore, these arguments are based on the assumption that population growth was the direct cause of household growth on the urban fringe. Different from the large number of studies that connect population growth with urban sprawl, one study suggests that the relation is rather complex between population growth and changes in density (Fonseca and Wong, 2000). Their study finds that the most densely populated states and places have become even more densely populated. Population growth has caused densification in very few highly populated areas.

Most of the research connecting population growth with urban sprawl is also based on the assumption that the population is homogeneous in its lifestyles. The following demographic analysis is to check whether such homogeneity exists among different groups of people. The

research hypothesis is that there is a significant heterogeneity between native-born and foreign-born populations in terms of their lifestyles. Therefore, immigrants who have been the major contributor to population growth may not necessarily have induced urban sprawl. Without carefully analyzing the demographic components of the population growth, it is risky to draw any causal connection between immigration and urban sprawl.

Very few researchers so far have utilized demographic analysis in the study of urban form. Dowell Myers suggests that demographic changes have not been properly recognized in urban theory and policy. Dynamic demographic analysis pertaining to a changing population is particularly important to urban policy (Myers, 1999). Presented in the following section, this study incorporates dynamic demographic analysis, probing the general relation between immigration and urban sprawl through a macro level study of the whole U.S.

## **Data Sources, Definitions, and Geography of the Analysis**

### *Data Source*

Primarily based on the Census PUMS (Public Use Micro Sample)<sup>2</sup> data in 1980 and 1990, this demographic analysis is to reveal the changes between 1980 and 1990, check the underlying assumption of homogeneous lifestyles between native-born and foreign-born populations, and examine how immigration-generated population growth is connected with urban sprawl. Specifically, this paper looks at population and household growth, household formation, tenure choice, occupancy of new residential development, choices of residential location, and transit usage for work-trips.

---

<sup>2</sup> Both the 1% and the 5% data will be utilized in the analysis. PUMS 5% data in 1990 does not provide a comparable geography for the central city as that in 1980. Therefore, the 1% data will be used in 1980.

## *Geography and Comparability*

This analysis breaks down the primary residential location into three major groups which are those who reside inside the central city, outside the central city and inside the metropolitan area, and outside the metropolitan area. This analysis focuses on the U.S. as a whole and uses the Metropolitan Area (MA)<sup>3</sup> geographic construct instead of the Urbanized Area (UA)<sup>4</sup> construct to define the metropolitan boundary. This is because the metropolitan area boundaries are much more consistent between 1980 and 1990 and provide a much better comparability of areas over time than the urban area boundaries (Kasarda, Appold, Sweeney, and Sieff, 1997; Myers, 1992). Rural area is referred as region outside the metropolitan area boundary.

Although the metropolitan area boundaries were fairly consistent between 1980 and 1990, the geographic matching could still be problematic under certain circumstances as observed by Ellis, Reibel, and Wright (Ellis, Reibel, and Wright, 1997; Ellis, Reibel, and Wright, 1999). They note that, due to the boundary adjustment by the Census Bureau, some metropolitan areas grew larger and some became smaller from 1980 to 1990. Such problems could be significant in smaller areas or rapidly growing regions. At the local level, boundary shifts across metropolitan areas compromise the integrity of the data for comparative urban analysis over time. Ellis, Reibel, and Wright also observe that the mismatch problem is substantial when the research is conducted at the PUMA level. The problem could also be significant when the study looks at very narrowed subjects such as women's labor participation and interurban migration analysis, which are very

---

<sup>3</sup> According to the Census Bureau, Metropolitan Area (MA) refers to a core area with a large population nucleus, plus adjacent communities having a high degree of economic and social integration with that core.

<sup>4</sup> According to the Census Bureau, (UA) An area consisting of a central place(s) and adjacent territory with a general population density of at least 1,000 people per square mile of land area that together have a minimum residential population of at least 50,000 people. The Census Bureau uses published criteria to determine the qualification and boundaries of UAs.

sensitive to the boundary shifts (Ellis, et al., 1999). Despite these concerns, the boundary shifts are not expected to present a problem in this analysis. Most immigrants lived in large metropolitan areas, such as Los Angeles, San Francisco, and New York where the geographic boundary shifts between 1980 and 1990 were not significant. The boundary mismatch problem has a crossing-out effect at the national level. In addition, this paper conducts the analysis on major data categories such as population and number of households, which are not so sensitive to the boundary shifts. Although it would be ideal to have the boundaries of all metropolitan areas perfectly matched between 1980 and 1990, there has not been such an adjustment procedure<sup>5</sup>. Consequently, this analysis follows the available Metropolitan Area boundaries without any adjustment. This is in accordance with most previous comparative studies at the Metropolitan Area level (for example, see (Barnard and Krautmann, 1988; Fonseca, et al., 2000; Gordon, Richardson, and Yu, 1998; Long and Nucci, 1997b; Long and Nucci, 1997a; Mills, Edwin S. and Lubuele, 1995)).

One part in the following section analysis utilizes the Central City construct<sup>6</sup>. The boundaries of the central cities<sup>7</sup> present another concern regarding the geographic changes in the 1980s. Ottensmann notes that there has been a significant change in the concept of central city between 1980 and 1990 (Ottensmann, 1996). He found that the new definition added 107 new central cities while 21 municipalities lost their central city designations between 1980 and 1990.

---

<sup>5</sup> Perhaps the most widely used boundary adjustment procedure is provided by Ellis, Reibel, and Wright (1999), which covers 101 MAs and 64% of all the U.S. population. However, this procedure does not include small Metropolitan Areas where a large percentage of native-borns live. In this analysis, implementing the procedure in Ellis et. al (1999) may generate a different type of bias by under-bounding native-borns which could be even more problematic than the boundary mismatch.

<sup>6</sup> The central city construct in 1990 is available only at the PUMS 1% data. Therefore, we use the PUMS 1% dataset when the central city construct is involved.

<sup>7</sup> According to the Census Bureau, central city refers to the largest place in a metropolitan area and, in some areas, one or more additional places that meet official standards. A few primary metropolitan statistical areas do not have a central city.

Ottensmann (1996) observes that central cities as a whole experienced a 10.6 percentage increase in population after adding all the new central cities. There have been attempts to adjust for this problem. Alba et. al. adjust the geography based on a series of simulation procedure (Alba, Logan, Stults, Marzan, and Zhang, 1999). Since their research has to utilize the PUMS 5% data to achieve more detail information on race-ethnicity, the adjustment procedure suffers from loss of territory from 1980 to 1990. Therefore, it is not suitable for this analysis. Some other studies choose only a limited number of central cities in their sample for comparison in order to avoid the mismatch problem (for instance, see (Galster, Metzger, and Waite, 1999; Kasarda, et al., 1997)). These methods are not appropriate for this analysis either, since the selection process is subjective and the selected central cities may not be representative of the central cities in general. As with the argument in the previous section, the geographic shifts of the central cities are not a major concern in this study, since this analysis only focuses on trends at the national level and includes all the population into the sample. In addition, enlarged central cities would only strengthen the results if there were significant out-migration from the central cities. In this case, the geography of the central cities has been enlarged and the total area outside central cities while inside metropolitan areas shrunk from 1980 to 1990. Many studies at national level do not deliberately adjust for the geography (for example, see (Hill, E. W., Brennan, and Wolman, 1998; Hill, Edward W. and Wolman, 1997)). However, it is necessary to interpret the demographic analysis with caution and keep in mind the potential implications of the geographic shifts problem.

### *Demographic Methods, Categorization, and Time Horizon*

The subsequent analysis employs two methods to analyze the changes between 1980 and 1990. The first follows a "cohort approach" to compare settled immigrants in 1990 with all (settled plus new) immigrants in 1980. Immigrant cohorts are fixed in membership, defined by the

member's immigration status or recency of arrival, such as arrived in the U.S. before 1980 or after 1980. This is to discover the longitudinal progress of the immigrant cohort arrived in the U.S. before 1980 in the 10-year period between 1980 and 1990, as well as examine how newly arrived immigrant cohort behaved in 1990<sup>8</sup>. The second approach is called "immigrant group approach", which compares the settled immigrants in 1980 with the settled immigrants in 1990, as are the new immigrants (arrived in the last 10 years) in 1980 and 1990. This comparison is to see the compositional changes of immigrants between 1980 and 1990. The two approaches will also capture the changes of U.S. -borns in the 10-year period between 1980 and 1990. The two methods treat U.S. -borns in the same way, since the membership and immigration status of U.S. -borns remained the same between 1980 and 1990 except for aging. The two approaches look at different perspectives of the changes and form various contrasts<sup>9</sup>. To be consistent with previous research, the household status in this analysis is dependent on the immigration status of the householder<sup>10</sup>.

---

<sup>8</sup> For research utilizing similar method, please see MYERS, D. (1999). "Demographic Dynamism and Metropolitan Change: Comparison of Los Angeles, New York, Chicago, and Washington, D.C." *Housing Policy Debate* 10(4), pp. 919-955.

MYERS, D. and PARK, J. (1999). "The Role of Occupational Achievement in Homeownership Attainment by Immigrants and Native Borns in Five Metropolitan Areas." *Journal of Housing Research* 10(1), pp. 61-93.

<sup>9</sup> In line with the two demographic methods, this analysis utilizes two ways to categorize population and households based on their immigration status or recency of arrival. The first way follows the cohort approach, categorizing all the people into three groups which are U.S. -borns (born in the U.S.), immigrants who arrived before 1980, and immigrant who arrived after 1980. The membership is fixed in both 1980 and 1990. The second approach follows the immigrant group approach, separating people into three groups which are U.S. -borns, settled immigrants who arrived here more than 10 years, and new immigrants who just arrived in the U.S. within last 10 years. In the second approach, members of the comparable groups have the same immigration status or recency of arrival between 1980 and 1990.

<sup>10</sup> It is possible that new immigrants may temporarily stay with their settled relatives upon arrivals. Therefore, measuring the immigration status of the householder might hide the status of a small number of recent arrivals. Since the way the research defines immigration status is consistent between 1980 and 1990 and this research is to measure the dynamic changes in the decade, this does not appear to be a major concern to the robustness of the research.

The time dimension of this analysis is from 1980 to 1990. The 2000 Census microdata is not yet available and no other data is fully comparable with the Census in terms of accuracy and comprehensiveness<sup>11</sup>.

## **Demographic Analysis**

### *Population and Number of Household*

Population growth and housing development, two primary factors driving urban growth, are mutually supported. Myers suggests that, at the national or regional level, population growth precedes housing development. And the population growth is encouraged by regional employment growth (Myers, 1992, p.58). However, it is unclear whether household growth was proportional to population growth between 1980 and 1990.

#### **TABLE I. (ABOUT HERE)**

The population growth rate of U.S. -borns was lower than that of immigrants. Because of their large base number, U.S. -borns generated about three-fifths of the total population growth, (See Table I.) The total population in the U.S. increased from 227 million in 1980 to 248 million in 1990, or by 10 percent.

#### **TABLE II. (ABOUT HERE)**

Household growth outpaced population growth. U.S. -borns contributed about three-fourths of the total household growth, outgrowing immigrants. The total number of households

---

<sup>11</sup> Produced by the Census Bureau, the current population survey (CPS) is another data source for this type of demographic analysis. However, the mechanism of the CPS is not exactly the same as the Census. Therefore, there is some inconsistency between the two data sources, which is not suitable for comparative study.

increased from 80.5 million in 1980 to 91.8million in 1990 by a total of 11.3 million, or by 14 percent. (See Table II.) For the same period, the rate of household growth was 4 percentage-points higher than the rate of population growth. Therefore, household size on average became smaller in the 1980s. With increasing population and decreasing average household size, there has to be more new housing to accommodate the expanding housing demand.

Compared with population growth, household growth has a much stronger relationship with urban sprawl. This is because household growth is directly linked to new housing development. New housing is usually characterized as bigger lot size and lower density than old housing (Clark and Dieleman, 1996), which has a strong implication to urban sprawl.

**TABLE III. (ABOUT HERE)**

**FIGURE 1. (ABOUT HERE)**

Population and household growth indicates distinctive pattern between native-borns and foreign-borns. Compared with foreign-borns, native-borns had a much higher growth rate in the number of households relative to population growth. (See Table III and Figure 1.) Disregarding factors such as income and age profile, had native- borns behaved like foreign-borns in household formation, native-borns would have added only 4.0 million instead of 8.5 million households, or less than half of the actual household growth<sup>12</sup>. Native-borns had a stronger influence on urban

---

<sup>12</sup> Immigrants contributed 8.8 million more people and 2.8 million more households. At the same time, the population and household growth among native-borns are 12.4 million and 8.5million respectively. If the growth rate among the native borns were the same as the foreign-borns, the number of native-born households would have increased by 4.0 million. Therefore, native-borns have added an extra of 4.5 million households or 114% more than if they would behave like foreign-borns.

Dowell Myers suggested that the differences in household formation between native-borns and foreign-borns were primarily due to their different age profiles, income, and many other factors. Therefore, it may not be appropriate to assume that native-borns could behave like foreign-borns. The constructive suggestion is well taken. The main purpose



form than foreign-borns given the fact that, with the same rate of population growth, the household growth rate among U.S. -borns was much higher than that of their immigrant counterparts. Because of the differences between native-borns and foreign-borns in generating household growth, the connection between population and household growth is not consistent.

The analysis in this section demonstrates that population and household growth is very different between native-borns and foreign-borns. With the same population growth, native-borns would create a higher rate of household growth than foreign-borns, therefore, have stronger implication to urban form<sup>13</sup>.

### *Household Formation*

#### **FIGURE 2. (ABOUT HERE)**

There is a distinctive pattern between native-borns and foreign-borns in household formations. Native-borns formed new households at a faster pace than their population growth. Headship rates<sup>14</sup> among immigrants decreased in the 1980s<sup>15</sup>, which clearly indicates that household size among immigrants both new and settled increased during that period of time.

---

of this comparison is to reveal how much difference there is between foreign-borns and native-borns in household formation rather than to establish the causes of such differences.

<sup>13</sup> There are several reasons that could have caused the differences between native-borns and foreign-borns in the household growth. Native-borns tend to have higher income and mobility. Therefore, they have more liberty of residential choice. It is also more affordable for native-born population to move to the suburbs and reside in larger lot sized areas. Next, native-born population is more likely to be older and empty nester than foreign-born population. Native-born population has a lower fertility rate than foreign-born population. Therefore, the family size of native-born population is more likely to be small. Moreover, I speculate that cultural differences between native-born and foreign-born populations could also have an impact on the household growth. Further research is necessary to identify all the possible causes of such differences and see whether such causes are permanent or temporary in order to predicate the future trends of the relationship between population and household growth.

<sup>14</sup> Headship Rate denotes % of total population in a group of people who are householders (owners + renters)

<sup>15</sup> This comparison is somewhat different from the previous one in the sense that it compares settled immigrants in 1980 with that in 1990, so as the new immigrants, instead of comparing settled immigrants in 1990 with settled and new immigrants in 1980. This is to show the changes in household formation between the two decades.

(See Figure 2.) In other words, household growth rate was smaller than population growth rate among foreign-borns. On the other hand, the headship rate among native-borns increased in the 1980s, which shows that the household size among native-borns shrank.

### *Household's Tenure Choice*

#### **FIGURE 3. 4. (ABOUT HERE)**

The changes in homeownership rates were also different among native-born population, settled immigrants, and recent arrivals. Native-born population created a higher proportional demand for owner-occupied housing. Both settled immigrants and recent arrivals had experienced a downturn in homeownership attainment between 1980 and 1990, even as native-borns still enjoyed uprising homeownership rates. (See Figure 3.)

#### **TABLE IV. (ABOUT HERE)**

Household growth among native-borns was primarily among owner households while new immigrant households are mostly renter households. Although the absolute household growth of native-borns was two times faster than that of foreign-borns, the absolute growth of owner household among native-borns was 4 times faster than that of foreign-borns. (See Figure 4 and Table IV.) At the same time, the absolute renter household growth was almost the same between native-borns and foreign-borns. Compared with native-borns, foreign-born households had a weaker impact on urban sprawl with the same growth of number of households, because foreign-born households were more likely to be renters. Rental units are mostly multifamily housing located in higher density regions.

## *Residential Location*

Native-borns and foreign-borns are different in patterns of population and household growth, household formation, and tenure choices. Their choices of residential locations are also distinctive.

### **FIGURE 5. 6. (ABOUT HERE)**

Native-borns were primarily responsible for the substantial growth in the suburbs, because a large number of native-borns moved to the suburbs from the central cities and the rural areas. (See Figure 5 and 6.) Residential locations of native-borns changed significantly between 1980 and 1990.

### **TABLE V (ABOUT HERE)**

The growth patterns between native-borns and foreign-borns were considerably different in the suburbs. The native-born population in the suburbs increased substantially in the 1980s. Although the rate of population growth among native-borns was only 40 percent higher than that of the foreign-born population, native-borns contributed four times more population to the suburbs than that of the immigrants in the 1980s. (See Table V.) In other words, native-borns generated 80 percent of the population growth in the suburbs. Among the three groups of people, only new immigrants added population in the central cities. Almost half of all the absolute population growth among new immigrants took place in the central cities.

### **TABLE VI (ABOUT HERE)**

Native-born household growth significantly outpaced foreign-born household growth in the suburbs. Native-borns generated 5.7 times more households than foreign-borns in the

suburbs. In other words, native-borns contributed to 87 percent of all the absolute growth in the number of households in the suburbs from 1980 to 1990. (See Table VI.)

While native-born population was the main contributor to the suburban residential growth, new immigrants had a disproportionate presence in the central cities. There was a substantial increase in the number of households in the suburbs along with a considerable decrease in the central cities over the 1980-1990 period. At the same time, new immigrants filled up the housing in the central cities left behind by the native-borns. Therefore, foreign-borns were less likely to induce urban sprawl.

There is a debate whether immigrants have “pushed out” native-borns from the cities to the suburbs or immigrants have taken over the dilapidated cities left behind by native-borns (see for example, (Farley, 1996 p.322; Frey, 1995b)). If it were the first case, immigrants could be partially responsible for the suburban expansion triggered by the out migration among native-borns. Accumulating evidence, however, suggests that it is immigrants who have taken over the cities left by native-born population. Since the early days of 1900s, people have contended that immigrants have been the demographic fuel sustaining cities (see for example, (Burgess, 1926; Park, Burgess, McKenzie, and Wirth, 1925))<sup>16</sup>.

Previous research is still inconclusive regarding the claim that recent immigration has caused natives to migrate (Frey, 1995a; Kritz and Gurak, 2001; White and Liang, 1998; Wright, Ellis, and Reibel, 1997). At the same time, research shows that households with higher income levels are more likely to move to the suburbs (Kasarda, et al., 1997; Thurston, et al., 1994). Native-

---

<sup>16</sup> Immigration has pumped new population into the central cities, enabling the cities to maintain their own despite increasing suburbanization. The cities have incubated new comers and helped them achieve their upward social and outward spatial mobility. Without the replenishment of new immigrants, some cities experienced a downturn in population in the early 20th century.

borns in general have higher household income and more accumulated family wealth. Therefore, they have higher residential mobility than their foreign-born counterparts. Concurrently, the foreign-born population is more constrained by their limited access to the capital, transportation, and market at large. They are more likely to be lower bidders in the market and tend to be more demand inelastic in the residential choices. Therefore, it is more likely the case that immigrants take over the neighborhood left behind by native-borns. Previous studies also show that many more cities would have experienced a decline in population, were there no immigrants to refill the cities (Farley, 1996 p.326; Myers, 1999).

**FIGURE 7. (ABOUT HERE)**

New residential development is the main contributor to urban sprawl, since most of the new housing construction takes place on the urban fringe. Native-born population in 1990 occupied over 90 percent of the suburban housing constructed in the last 10 years while immigrants took only 10 percent of the new housing stock. (See Figure 7.) Housing permits data also reveal that new suburban homes made up approximately 82 percent of all homes built in metropolitan areas in 1998 (von Hoffman, 1999). In addition, housing is one of the most durable goods, which limit the availability of land in older neighborhood. New housing development on the urban fringe does not experience much constraint occurred in the older neighborhood. With the steadily rising household income over the past decades, consumers in general have stronger demands for housing with larger space and higher quality. Since more native-borns take over most new residential development on the urban fringe, they are more responsible for urban sprawl.

## *Transportation*

Transportation is also a key issue of the sprawl discussion. The following section concentrates on work-trip transit usages by private automobile. Sprawl opponents have suggested that increasing private automobile usage has encouraged low-density development, more congestion, and degradation of environmental quality (Ciscel, 2001; Downs, 1998). Therefore, it is necessary to examine who is responsible for those concerns.

### **FIGURE 8. 9. (ABOUT HERE)**

The growth pattern of transit usage was very different between native-born and foreign-born populations. Native-born population caused most of the growth in the means to work by private automobile. Settled immigrants accounted for the significant increase in the rate of private automobile usage as the means to work. There was a 10 percentage-point increase in the number of work-trips by private automobile among immigrants arrived before 1980. (See Figure 8.) This was the largest jump among the three groups of people. Next, this research examines how the immigrant cohort arrived before 1980 changed between 1980 and 1990 in terms of their transit usages. The absolute growth of work-trips by private automobile among immigrants arrived before 1980 did not increase much. (See Figure 9.) The total population shrank by 6.5 percent and the total number of work-trips decreased by 6.9 percent among immigrants arrived before 1980. Therefore, despite a large increase in the rate of automobile ownership among settled immigrants, the absolute increase in work-trips by private automobile among immigrants before 1980 did not increase much. At the same time, both native-born and foreign-born populations arrived before 1980 experienced downturns in the number of work-trips by public transit. New immigrants helped public transit from shrinking significantly in terms of total ridership as the means to work. The heterogeneous patterns of transit-usage between native-born and foreign-

born populations suggest that, with the same population growth, native-borns generated more automobile usage for work-trips, therefore, had a stronger relationship with urban sprawl.

## Conclusions

This research addresses two logically connected research questions. First, whether population growth fueled by immigration was responsible for the dispersed land use pattern defined as urban sprawl in the 1980s. Second, whether native-borns and foreign-borns were homogeneous in population and household growth, household formation, housing tenure choice, occupancy of new housing development, preference of residential locations, and transit usage.

To conclude, the preliminary results of the demographic analysis presented here indicate that there could be a relationship between immigration and urban sprawl in the metropolitan areas where long-term immigrants were experiencing upward mobility triggered by increasing household income, enlarged family size, and stronger tendency for homeownership. However, immigrants who experienced upward mobility and who relocated to the suburban areas were more likely to take over trickle-down housing instead of new structures on the urban fringe, as shown in Figure 7. Immigrants in general are more likely constrained by budget, thus more price-elastic. Furthermore, native-borns instead of foreign-borns generated most of the growth in the number of households, owner-occupied housing, suburban residency, new suburban residential development, and private automobile usage for work-trips. Therefore, the accumulating evidence does appear to be weighing in favor of Krugman's notion that immigration is not the main contributing factor to current dispersed land use patterns. This idea is even further strengthened by the fact that most metropolitan areas experiencing a faster expanding pace than their population growth are not the high immigrant recipient regions (Fulton, et al., 2001; Wim, Joseph,

and Mark, 1999). In addition, most of the regions with significant sprawl have experienced low population growth (Fonseca, et al., 2000). In other words, population growth by itself is not likely to a major cause of urban sprawl. No strong evidence supports the perceived causal relationship between immigration and urban sprawl.

The demographic analysis clearly demonstrates that there was a substantial heterogeneity between native-borns and foreign-borns. Almost all the existing evidence suggests that it is not appropriate to assume that native-born and foreign-born populations were similar in their lifestyles. Because of the diverse population growth, the linkage is particularly weakened between population growth and urban sprawl. In addition, it is important to realize that households, not individuals, make residential and locational choices. Therefore, household behavior is a critical factor in causing urban sprawl. Household growth has a much stronger causal relationship with urban sprawl than population growth.

The policy implications of this study are straightforward. Based on this analysis, limiting immigration is not like to curtail current urban sprawl. Rather than targeting immigration in general, public policy should focus on the specific characteristics of development that lead to particular negative consequences and determine who bears the costs.

These findings must of course be considered in light of the limited decennial data set used in the analysis. Current research is based on the census data from 1980 and 1990. Research shows that recent immigrants seem more inclined to settle outside the central cities (Alba, Logan, and Stults, 2000; Marcelli, 2001). New immigrants are more dispersed in terms of their residential locations in the 1990s (Fields, 2001). Since urban sprawl is a fluid and dynamic process, the relationship between immigration and urban sprawl could have shifted somewhat between 1980s



and 1990s. With the incoming 2000 Census data, we can gain more insights by looking at the trend between 1990 and 2000. Clearly an aggregate approach such as a national level demographic analysis could conceal important details on heterogeneity across regions and different immigrant groups. It is necessary to explore factors such as geography, income, age profile, and race-ethnic differences and model specific aspects of the relationship between immigration and urban sprawl by incorporating the microdata and implementing and multivariate statistic method, as so to further disentangle such a complex relationship. Finally, it is important to recognize that urban sprawl is a very complex process and people with different interpretations of the process may have disagreement over the measurement.

Although immigrants may not have a significant impact on current dispersed land use patterns, they could induce sprawl in the future if they followed the lifestyle of their domestic counterparts and kept on moving to low-density residential areas. Rising income tends to provide household with a higher residential mobility. Their children could also present certain concerns if they adapt to a similar lifestyle as the native-born population when they grow up. Previous research also shows that household behavior has a strong linkage with its demographic profile (Clark, et al., 1996, p.178). With the aging process of immigrant households, they might have a stronger implication to the urban form in the future. Although immigrants may not have caused urban sprawl, they could still be of concerns to local governments. Because of the unique demographic characteristics of immigrants, they usually have different needs than their domestic counterparts, such as public services and infrastructure provision. The mismatch between demand and supply among immigrants could put certain pressure to bear on immigrant receiving areas (Ladd, 1992).

Despite these caveats, this analysis has an important implication for current research on immigration, population growth, and urban sprawl. This study demonstrates a feasible framework of implementing dynamic demographic analysis in the study of urban form. It provides empirical evidence which may help revise important economic model of urban sprawl and further explore whether the fundamental forces underlying urban sprawl have shifted over time.

## Reference:

ALBA, R. D., LOGAN, J. R., STULTS, B. J., MARZAN, G. and ZHANG, W. (1999). "Immigrant Groups in the Suburbs: A Reexamination of Suburbanization and Spatial Assimilation." *American Sociological Review* 64(3), pp. 15.

ALBA, R. D., LOGAN, J. R. and STULTS, B. J. (2000). "The Changing Neighborhood Contexts of the Immigrant Metropolis." *Social Forces* 79(2), pp. 587-621.

AUDIRAC, I., SHERMYEN, A. H. and SMITH, M. T. (1990). "Ideal Urban Form and Visions of the Good Life Florida's Growth Mangement Dilemma." *APA Journal*, pp. 470-482.

BANK OF AMERICA (1995). *Beyond Sprawl: New Patterns of Growth to Fit the New California*, San Francisco: Bank of America. *Journal of Planning Education and Research*.

BARNARD, J. R. and KRAUTMANN, A. C. (1988). "Population Growth Among U.S. Regions and Metropolitan Areas: A Test for Causality." *Journal of Regional Science* 28(1), pp. 103-119.

BRUECKNER, J. K. (2000). "Urban Sprawl: Diagnosis and Remedies." *International Regional Science Review* 23(2), pp. 12.

BRUECKNER, J. K. (2001). "Urban Sprawl: Lessons from Urban Economics." *Brookings-Wharton Papers on Urban Affairs* 2001(1), pp. 65-98.

BURCHELL, R. W. (1997). "Economic and Fiscal Costs (and Benefits) of Sprawl." *The Urban Lawyer* 29(2), pp. 159-181.

BURGESS, E. W. (1926). *The Urban Community: Selected Papers from the Proceedings of the American Sociological Society, 1925*. Chicago, University of Chicago Press.

BURTON, E. (2000). "The Compact City: Just or Just Compact? A Preliminary Analysis." *Urban Studies* 37(11), pp. 1969-2006.

CERVERO, R. (2001). "Efficient Urbanisation: Economic Performance and the Shape of the Metropolis." *Urban Studies* 38(10), pp. 1651-1671.

CISCHEL, D. H. (2001). "The Economics of Urban Sprawl: Inefficiency as a Core Feature of Metropolitan Growth." *Journal of Economic Issues* 35(2), pp. 405-415.

CLARK, W. A. V. and DIELEMAN, F. M. (1996). *Households and Housing: Choices and Outcomes in the Housing Market*. New Brunswick, NJ, Center for Urban Policy Research.

DOWNS, A. (1997). "The Challenge of Our Declining Big Cities." *Housing Policy Debate* 8(2), pp. 359-409.

DOWNS, A. (1998). "How America's Cities Are Growing: The Big Picture." *The Brookings Review* 16(4), pp. 8-12.

DOWNS, A. (1999). "Some Realities About Sprawl and Urban Decline." *Housing Policy Debate* 10(4), pp. 955-975.

ELLIS, M., REIBEL, M. and WRIGHT, R. (1997). *A Procedure for Comparative Metropolitan Area Analysis Using the 1980 and 1990 Census Public Use Microdata Samples*, The National Science Foundation (Grant # SBR-9310647) supported this research.

- ELLIS, M., REIBEL, M. and WRIGHT, R. (1999). "RESEARCH NOTE - Comparative Metropolitan Area Analysis: Matching the 1980 and 1990 Census Public Use Microdata Samples for Metropolitan Areas." *Urban Geography* 20(1), pp. 75-93.
- EWING, R. (1997). "Counterpoint: Is Los Angeles-Style Sprawl Desirable?" *Journal of the American Planning Association* 63(1), pp. 107-126.
- F. A. I. R. (2001a). *Immigration and Sprawl. Issue Brief*. Washington, DC, The Federation for American Immigration Reform.
- F. A. I. R. (2001b). *Urban Sprawl is One Consequence of Rapid Population Growth. News Release*. Washington, DC, The Federation for American Immigration Reform.
- FARLEY, R. (1996). *The New American Reality: Who We Are, How We Got Here, Where We Are Going*. New York, Russell Sage Foundation.
- FIELDS, R. (2001). '90s Saw a Tide of New People. *Los Angeles Times*, Latimes.com.
- FONSECA, J. W. and WONG, D. W. (2000). "Changing Patterns of Population Density in the United States." *Professional Geographer* 52(Aug. 2000), pp. 504-517.
- FREEMAN, L. (2001). "The Effects of Sprawl on Neighborhood Social Ties: An Explanatory Analysis." *Journal of the American Planning Association* 67(1), pp. 69-78.
- FREILICH, R. H. and PESHOFF, B. G. (1997). "The Social Costs of Sprawl." *The Urban Lawyer* 29(2), pp. 183-198.
- FREY, W. H. (1995a). "Immigration Impacts on Internal Migration of the Poor: 1990 Census Evidence for US States." *International Journal of Population Geography* 1(1), pp. 51-76.
- FREY, W. H. (1995b). "Immigration and Internal Migration 'Flight' from US Metropolitan Areas: Toward a New Demographic Balkanisation." *Urban Studies* 32(4/5), pp. 733-758.
- FULTON, W., PENDALL, R. J., NGUYEN, M. and HARRISON, A. (2001). *Who Sprawls Most? How Growth Patterns Differ Across the U.S.* Washington D.C., Center on Urban and Metropolitan Policy, Brookings Institution.
- GALSTER, G. C., METZGER, K. and WAITE, R. (1999). "Neighborhood Opportunity Structures of Immigrant Populations, 1980 and 1990." *Housing Policy Debate* 10(1), pp. 395-443.
- GALSTER, G. C., HANSON, R., WOLMAN, H., COLEMAN, S. and FREIHAGE, J. (2000). *Wrestling Sprawl to the Ground: Defining and Measuring an Elusive Concept*. Fannie Mae Foundation Working Paper.
- GLASSER, J. (2001). *Boomtown, U.S.A.* *U.S. News & World Report*. 130, pp. 16.
- GORDON, P. and RICHARDSON, H. W. (1989). "Gasoline Consumption and Cities: A Reply." *Journal of the American Planning Association* 55(3), pp. 342-346.
- GORDON, P. and RICHARDSON, H. W. (1997a). "Are Compact Cities a Desirable Planning Goal?" *Journal of the American Planning Association* 63(1), pp. 95-107.
- GORDON, P. and RICHARDSON, H. W. (1997b). "Letters to the Editors: Where's the Sprawl?" *Journal of the American Planning Association* 63(2), pp. 275-278.
- GORDON, P., RICHARDSON, H. W. and YU, G. (1998). "Metropolitan and Non-metropolitan Employment Trends in the US: Recent Evidence and Implications." *Urban Studies* 35(7), pp. 1037-1057.

- GORDON, P. and RICHARDSON, H. W. (2000). "Defending Suburban Sprawl." *The Public Interest* 139, pp. 65-71.
- HILL, E. W. and WOLMAN, H. L. (1997). "Accounting for the Change in Income Disparities between US Central Cities and their Suburbs from 1980 to 1990." *Urban Studies* 34(1), pp. 43-60.
- HILL, E. W., BRENNAN, J. F. and WOLMAN, H. L. (1998). "What is a Central City in the United States? Applying a Statistical Technique for Developing Taxonomies." *Urban Studies* 35(11), pp. 1935-1969.
- KAHN, M. E. (2001). "Does Sprawl Reduce the Black/White Housing Consumption Gap?" *Housing Policy Debate* 12(Part 1), pp. 77-86.
- KASARDA, J. D., APPOLD, J., SWEENEY, S. H. and SIEFF, E. (1997). "Central-City and Suburban Migration Patterns: Is a Turnaround on the Horizon?" *Housing Policy Debate* 8(2), pp. 307-359.
- KNAAP, G. J. (2000). "Sprawl, Sprawl, and More Sprawl - Once There Were Greenfields: How Urban Sprawl is Undermining America's Environment, Economy and Social Fabric." *Journal of the American Planning Association* 66(3), pp. 332-333.
- KNAAP, G. J. and HOPKINS, L. D. (2001). "The Inventory Approach to Urban Growth Boundaries." *Journal of the American Planning Association* 67(3), pp. 314-327.
- KRITZ, M. M. and GURAK, D. T. (2001). "The Impact of Immigration on The Internal Migration of Natives and Immigrants." *Demography* 38(1), pp. 133-145.
- KRUGMAN, P. (2001). *My Beautiful Mansionette*. *New York Times*. New York, N.Y., pp. A.27.
- LADD, H. F. (1992). "Population growth, density and the costs of providing public services." *Urban Studies* 29(2), pp. 273-296.
- LEVINE, N. (1997). "Credit Distributed, New Points Raised- Letter to the editors." 63, pp. 275.
- LONG, L. and NUCCI, A. (1997a). "The Hoover Index of Population Concentration: A Correction and Update." *Professional Geographer* 49(4), pp. 431-441.
- LONG, L. and NUCCI, A. (1997b). "The 'Clean Break' Revisited: Is US Population Again Deconcentrating?" *Environment and Planning A* 29, pp. 1355 - 1366.
- MAHER, T. M. (1997). "How and Why Journalists Avoid the Population-Environment Connection." *Population and Environment* 18(4), pp. 339-373.
- MARCELLI, E. A. (2001). *From the Barrio to the 'Burbs: Immigration and Urban Sprawl in Southern California*. San Diego, The Center for Comparative Immigration Studies, UC San Diego. Working Paper.
- MIESZKOWSKI, P. and MILLS, E. S. (1993). "The Causes of Metropolitan Suburbanization." *The Journal of Economic Perspectives* 7(3), pp. 135.
- MILLS, E. S. and LUBUELE, L. S. (1995). "Projecting Growth of Metropolitan Areas." *Journal of Urban Economics* 37(3), pp. 344-360.
- MILLS, E. S. (1999). *Should Governments Try to Control Suburban Growth?* *Chicago Fed Letter*. 139, pp. 1-4.
- MYERS, D. (1992). *Analysis with Local Census Data: Portraits of Change*. Boston, Academic Press.

- MYERS, D. (1999). "Demographic Dynamism and Metropolitan Change: Comparison of Los Angeles, New York, Chicago, and Washington, D.C." *Housing Policy Debate* 10(4), pp. 919-955.
- MYERS, D. and KITSUSE, A. (1999). *The Debate Over Future Density of Development: An Interpretive Review*, Lincoln Institute of Land Policy. Working Paper.
- MYERS, D. and PARK, J. (1999). "The Role of Occupational Achievement in Homeownership Attainment by Immigrants and Native Borns in Five Metropolitan Areas." *Journal of Housing Research* 10(1), pp. 61-93.
- NELSON, A. C. and DUEKER, K. J. (1993). "The Exurbanization of America and Its Planning Policy Implications." *Planning Education and Research* 9(2), pp. 91-100.
- NELSON, A. C. and DAVID, R. P. (2000). "Does growth management matter? The effect of growth management on economic performance." *Journal of Planning Education and Research* 19(3), pp. 277-285.
- OTTENSMANN, J. R. (1996). "The New Central Cities: Implications of The New Definition of The Metropolitan Area." *Urban Affairs Review* 31(5), pp. 681-687.
- PARK, R. E., BURGESS, E. W., MCKENZIE, R. D. and WIRTH, L. (1925). *The City*. Chicago, Ill., Univ. of Chicago Press. University of Chicago studies in urban sociology.
- SIERRA CLUB (2001). *Sprawl Costs Us All: How Your Taxes Fuel Suburban Sprawl*, Sierra Club. 2000.<http://www.sierraclub.org/sprawl>
- STEINE, D. (2001). *Immigration vs. Sprawl*. *New York Times*. New York, N.Y., pp. 22.
- STOEL, T. B., JR. (1999). "Reining in Urban Sprawl - Can US Cities Diverge from the Path of Sprawl and Escape its Damaging Environmental Consequences?" *Environment* 41(4), pp. 6-11.
- THE BUREAU OF CENSUS (2001). *Census 2000 Supplementary Survey*, U.S. Census Bureau, Demographic Surveys Division. 2001.<http://www.census.gov/c2ss/www/>
- THURSTON, L. and YEZER, A. M. J. (1994). "Causality in the Suburbanization of Population and Employment." *Journal of Urban Economics* 35(no. 1), pp. 28-45.
- USA TODAY (2000a). *Ads Linking 'Urban Sprawl' with Immigration Stir Controversy in Virginia*.
- USA TODAY (2000b). *Time to Control, Limit Immigration*. *USA Today*, pp. 12A.
- VON HOFFMAN, A. (1999). *Housing Heats Up: Home Building Patterns in Metropolitan Areas*. Washington D.C., Center on Urban and Metropolitan Policy, Brookings Institution.
- WASSERMAN, M. (2000). *Urban sprawl*. *Regional Review - Federal Reserve Bank of Boston*. 10, pp. 9-17.
- WHITE, M. J. and LIANG, Z. (1998). "The Effect of Immigration on the Internal Migration of the Native-born Population, 1981-1990." *Population Research and Policy Review* 17(2), pp. 141-166.
- WIM, W., JOSEPH, P. and MARK, S. (1999). *Private Benefits and Public Costs: Policies to Address Suburban Sprawl*. *Policy Studies Journal*. 27, pp. 96-114.
- WRIGHT, R. A., ELLIS, M. and REIBEL, M. (1997). "The Linkage between Immigration and Internal Migration in Large Metropolitan Areas in the United States." *Economic Geography* 73(2), pp. 234-255.

---

**Table I. Population by Immigration Status in 1980 and 1990**

---

Group	Population		Change	% Distribution of the Change
	1980	1990	1980-90	1980-90
Total	226,862,400	248,107,628	21,245,228	100
Born in the U.S.	212,782,940	225,200,798	12,417,858	58.5
Settled Immigrants	8,499,580	13,168,217	4,668,637	22.0
Immigrants Arrived Last 10 Years	5,579,880	9,738,613	4,158,733	19.6

Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

---

**Table II. Number of Households by Immigration Status in 1980 and 1990**

Group	Number of Households		Change	% Distribution of the Change
	1980	1990	1980-90	1980-90
Total	80,467,000	91,770,958	11,303,958	100
Born in the U.S.	74,529,140	83,014,908	8,485,768	75.1
Settled Immigrants	4,347,120	6,296,296	1,949,176	17.2
Immigrants Arrived Last 10 Years	1,590,740	2,459,754	869,014	7.7

Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)



---

**Table III. Population and Household Growth by Immigration Status from 1980 to 1990**

---

Group	Population Growth		Household Growth	
	Number	% of Total	Number	% of Total
Total	21,245,228	100	11,303,958	100
Born in the U.S.	12,417,858	58.5	8,485,768	75.1
Immigrants Arrived before 1980	-911,243	-4.3	358,436	3.2
Immigrants Arrived after 1980	9,738,613	45.8	2,459,754	21.8

Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

---

---

**Table IV. Growth in Owner and Renter Households from 1980 to 1990**

---

Group	Increase in Owner Households		Increase in Renter Households	
	Number	% of Total	Number	% of Total
Total	7,578,033	100	3,725,925	100
Born in the U.S.	6,372,685	84.1	2,113,083	56.7
Settled Immigrants	1,062,908	14.0	886,268	23.8
Immigrants Arrived Last 10 Years	142,440	1.9	726,574	19.5

---

Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

---

**Table V. Geographic Distribution of Population by Immigration Status in 1980 and 1990**

Group	Locations	Population		Change	% Distribution of the Change
		1980	1990	1980-90	1980-90
Total		226,732,000	248,124,018	21,392,018	100.0
Born in the U.S.	Inside Central City	49,076,400	38,031,449	-11,044,951	-51.6
	Inside Metropolitan \ Outside Central City	107,391,300	135,254,454	27,863,154	130.3
	Outside Metropolitan	56,053,400	51,882,904	-4,170,496	-19.5
Settled Immigrants	Inside Central City	3,318,000	4,709,501	1,391,501	6.5
	Inside Metropolitan \ Outside Central City	4,422,600	7,579,825	3,157,225	14.8
	Outside Metropolitan	790,600	885,650	95,050	0.4
Immigrants Arrived Last 10 Years	Inside Central City	2,772,500	4,322,671	1,550,171	7.2
	Inside Metropolitan \ Outside Central City	2,520,000	4,962,859	2,442,859	11.4
	Outside Metropolitan	387,200	494,705	107,505	0.5

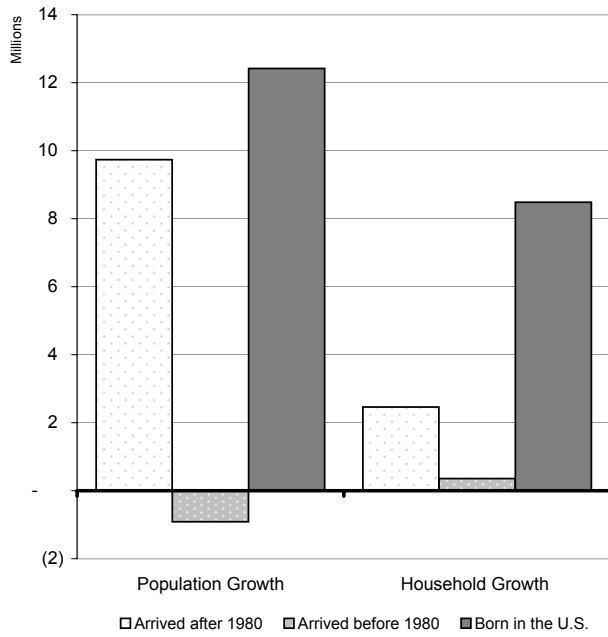
Source: U.S. Bureau of the Census (1980 and 1990 PUMS 1% Metro Data)

**Table VI. Geographic Distribution of Household by Immigration Status in 1980 and 1990**

Group	Locations	Population		Change	% Distribution of the Change
		1980	1990	1980-90	1980-90
Total		80,461,500	91,822,548	11,361,048	100.0
Born in the U.S.	Inside Central City	18,250,600	14,398,659	-3,851,941	-33.9
	Inside Metropolitan \ Outside Central City	36,788,100	49,452,967	12,664,867	111.5
	Outside Metropolitan	19,436,000	19,193,780	-242,220	-2.1
Settled Immigrants	Inside Central City	1,781,800	2,352,638	570,838	5.0
	Inside Metropolitan \ Outside Central City	2,190,700	3,554,544	1,363,844	12.0
	Outside Metropolitan	383,000	396,559	13,559	0.1
Immigrants Arrived Last 10 Years	Inside Central City	847,600	1,148,991	301,391	2.7
	Inside Metropolitan \ Outside Central City	693,600	1,214,786	521,186	4.6
	Outside Metropolitan	90,100	109,624	19,524	0.2

Source: U.S. Bureau of the Census (1980 and 1990 PUMS 1% Metro Data)

**Figure 1. Absolute Growth in Population and Households among the Three Groups from 1980 to 1990\***

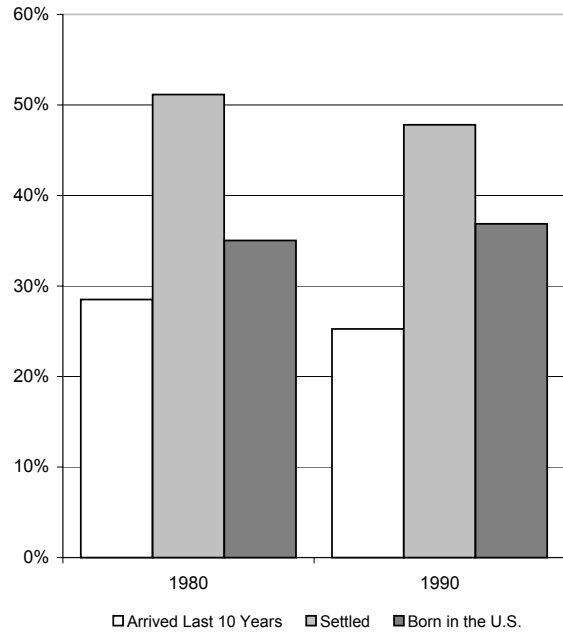


Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

\* Cohort Approach - fixed in membership

Growth in population and households contributed by immigrants arrived in last 10 years are counted directly as growth.

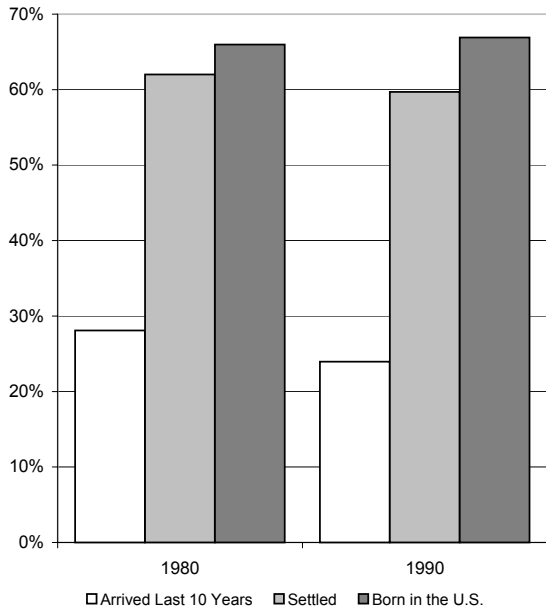
**Figure 2. Headship Rates\*\* among the Three Groups in 1980 and 1990**



Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

\*\* Headship Rate denotes % of total population in a group of people who are householders (owners + renters)

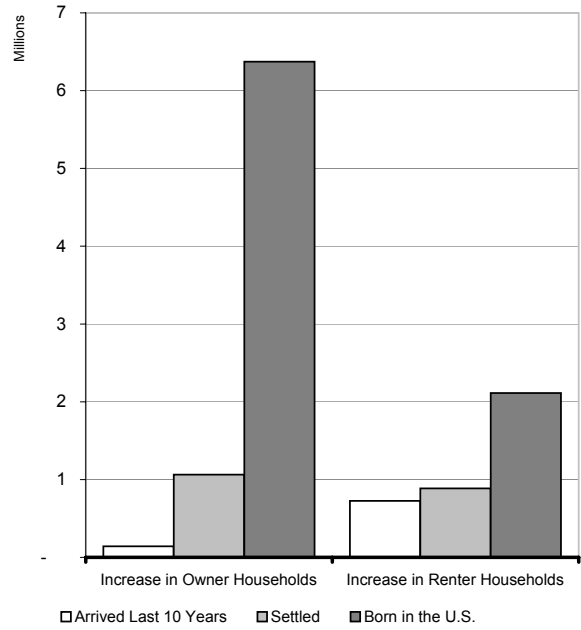
**Figure 3. Homeownership Rates\* among the Three Groups in 1980 and 1990\*\***



Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

\* Homeownership Rate denotes % of total households in a group who are owner householders 2000

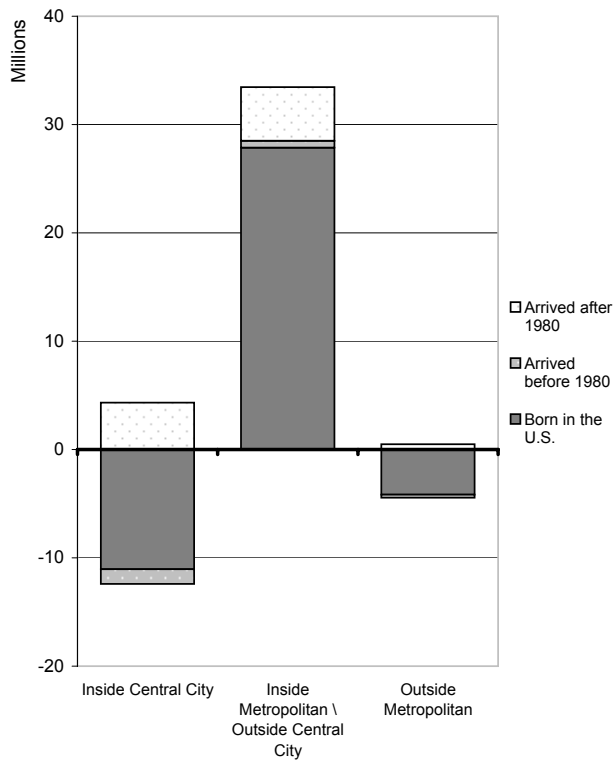
**Figure 4. Absolute Owner and Renter Household Growth among the Three Groups from 1980 to 1990\*\***



Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

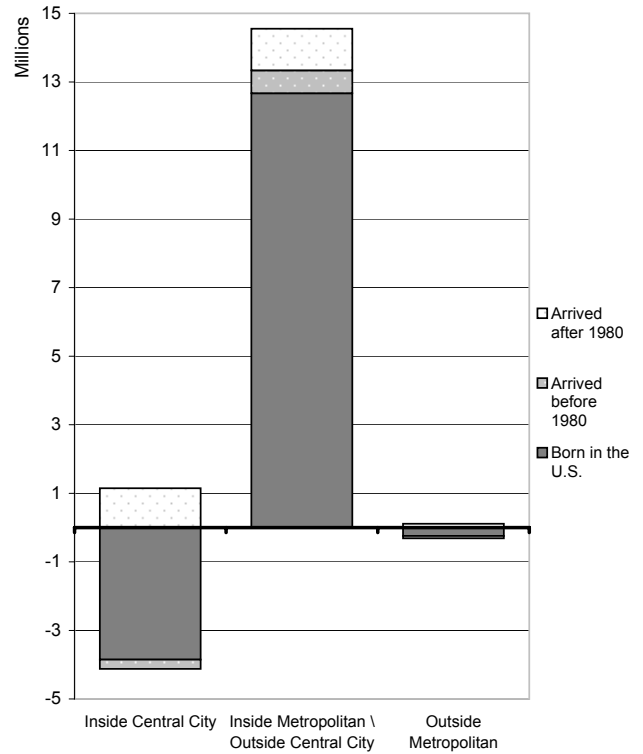
\*\* Immigrant group approach - fixed in immigration status Settled immigrants in 1980 is compared with settled immigrants in 1990, so as the new immigrants in 1980 and 1990.

**Figure 5. Aggregate Population Growth by Locations from 1980 to 1990\***



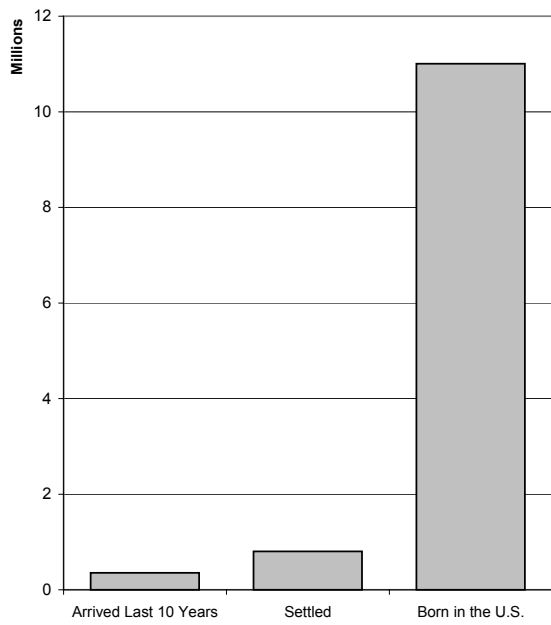
Source: U.S. Bureau of the Census (1980 and 1990 PUMS 1% Metro Data)  
 \* Cohort Approach - fixed in membership

**Figure 6. Aggregate Growth in Number of Households by Locations from 1980 to 1990\***



Source: U.S. Bureau of the Census (1980 and 1990 PUMS 1% Metro Data)

**Figure 7. Absolute Growth in Number of Households who Live in Newly Built Suburban Housing (between 1980 and 1990)\***

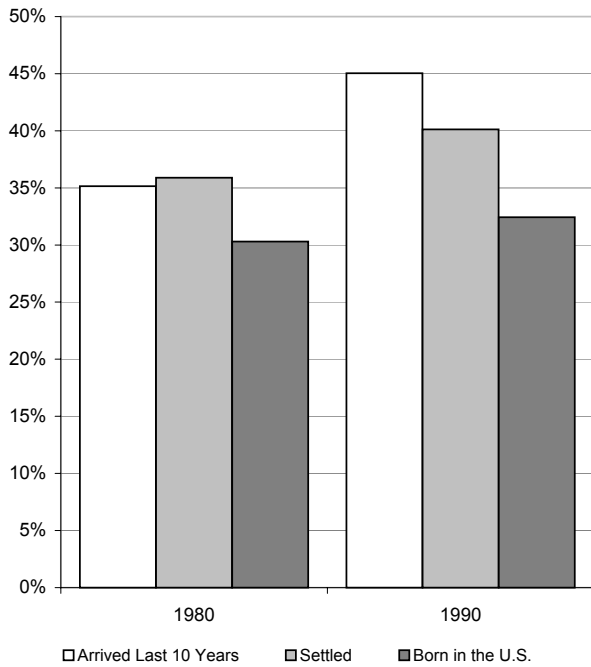


Source: U.S. Bureau of the Census (1990 PUMS 1% Data)

\* Immigrant group approach - fixed in immigration status

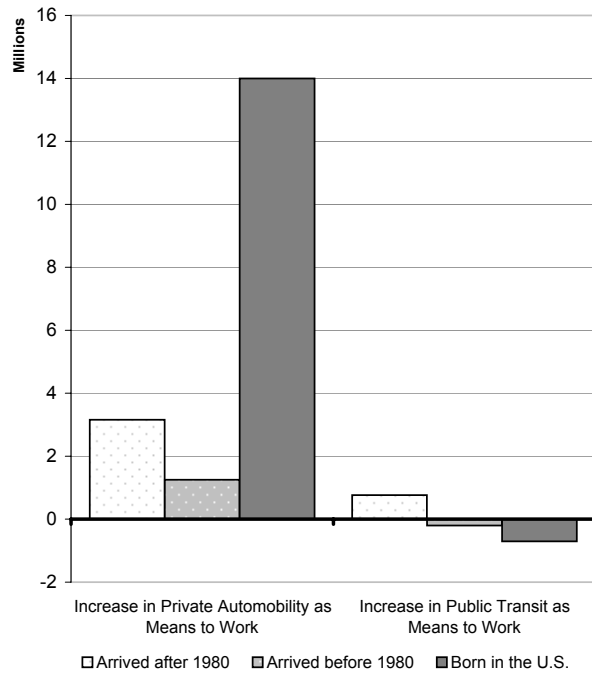


**Figure 8. Percentage of Work Trip by Private Automobile among the Three Groups in 1980 and 1990**



Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

**Figure 9. Absolute Changes\* in the Means to Work by Private Automobile\*\* and by Public Transit\*\*\* from 1980 to 1990**



Source: U.S. Bureau of the Census (1980 and 1990 PUMS 5% Data)

\*\* Cohort Approach - fixed in membership

\*\*\* Including Private car, Truck and Van

\*\*\*\* Including Bus or trolley bus, Streetcar or trolley car, Subway or elevated, Railroad, and Ferryboat