# Local Labor Markets, Admission Categories, and Immigrant Location Choice

by

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**Abstract.** Using micro-level admissions data from the Immigration and Naturalization Service, combined with detailed information on metropolitan areas drawn from the 1980 and 1990 U.S. Censuses, I examine the locational propensities of legal immigrants to the U.S. Using a conditional logit framework, I find that there is variation across admission categories in immigrants' responsiveness to labor market and demographic conditions. Wage levels appear to matter to immigrants in all admission categories, while employment category immigrants are much more likely to locate in areas with low unemployment rates than other immigrants. Like previous research, I find that concentrations of individuals from an immigrant's country of birth are an important determinant of location choice, although the strength of this effect varies across admission categories and is strongest for employment category immigrants. When examining immigrants' response to changes in labor market and demographic characteristics between 1980 and 1990, I find that immigrants in all categories are more likely to locate in areas with declining native populations, increasing foreign-born populations, declining unemployment rates, and increasing real wages.

**Keywords.** Immigration, Green Cards, INS

It is well known that there has been a substantial influx of immigrants to the U.S. during the last 15 years, with legal immigrants accounting for the vast majority of the flow. These immigrants have tended to locate on either coast and in the Southwest, with the potential labor market and fiscal impacts of immigration are concentrated in those areas. Legislation restricting the use of services by illegal aliens, such as the Proposition 187 in California, is also likely a result of the large inflow of immigrants (both legal and illegal) to that state.

Given the continuing steady and large inflows of immigrants during the 1990s, **where** immigrants choose to live will increasingly be an issue of policy significance. Understanding the nature and determinants of immigrant location choice within different admission categories is important as the U.S. moves towards a somewhat more skills-based admission policy. This gradual shift may have unintended consequences for the geographic concentration of immigrants. This paper aims to fill an important gap in our knowledge by examining how immigrant location choice in the U.S. varies with admission category.

The prevailing view of immigrant location choice is that it is relatively invariant to regional differences in economic conditions, and that immigrants tend to locate where similar immigrants have located in the past. Bartel (1989) finds that the foreign-born tend to locate in metropolitan areas with large ethnic populations and that more highly educated immigrants tend to be less geographically concentrated than less-educated immigrants. Dunlevy (1991), focusing solely on the location patterns of Caribbean- and Latin-born resident aliens, also finds that new immigrants are attracted to locations with relatively large concentrations of similar immigrants. Borjas (1998) has recently challenged the conventional view, finding that immigrants are more likely to be clustered in high-wage states. His findings from the Census suffer from simultaneities between observed wage rates and immigrant locations, however. His additional results from the Current Population Survey that address this issue are inconclusive.

None of these studies address the major policy tool used to alter the composition of the immigrant population: admission criteria (i.e. types of "green cards.") Since 1965, the main admission criterion has been the reunification of immigrants with family members who are U.S. citizens or permanent resident aliens. The high correlation between

immigrant location choice and large concentrations of similar immigrants may simply be due to the prevalence of family-reunification admissions. Altering the mix of immigrants by increasing the available number of employment-based visas may change the observed degree of sensitivity of immigrants to economic conditions when choosing their location in the U.S.

A deeper understanding of immigrant location choice is important for other reasons as well. Based on Bartel's (1989) work, many studies of the impact of immigration on the labor market outcomes of natives take as a starting point the assumption that immigrant location choice is approximately exogenous to relative economic conditions (e.g. Altonji and Card 1991, Lalonde and Topel 1991, Jaeger 1996a, Schoeni 1996). If immigrants are, in fact, responsive to differences in labor demand across geographic areas when deciding where to locate, the estimates from this literature may be biased towards finding smaller impacts of immigration on natives' wages.

The concentration of immigrants in a relatively few areas of the U.S. suggests that the economic and fiscal impact of immigration is likely to be concentrated in those areas (Topel 1994, Jaeger 1996b). If immigrants admitted under family reunification criteria are more likely to be clustered traditionally high immigration areas, then increasing the share of immigrants admitted for employment reasons may provide a policy tool for promoting greater geographic dispersion among new immigrants.

The relationship between economic conditions and immigration location choice is also important to the debate on the degree of correlation between immigrant inflows and native migration (Filer 1992, Frey 1995, Card 1997). If immigrants are more likely than natives to live in areas of declining economic opportunity (because the main determinant in their location choice is the presence of family members), this could induce a spurious positive correlation between immigrant inflows and native outflows.

In this paper I use micro-level admissions data from the Immigration and Naturalization Service combined with detailed information on geographic areas from the 1990 Public Use Microdata Sample (PUMS) of the U.S. Census to examine the locational propensities of legal immigrants to the U.S. Using a conditional logit framework, I find that there is variation across admission categories in immigrants' responsiveness to labor market

and demographic conditions. In particular, I find that employment category immigrants are much more likely to locate in areas with low unemployment and higher wages than other immigrants. Moreover, distance from country of birth is much less of a factor for employment immigrants. Confirming previous research, all immigrants are more likely to locate in areas with high concentrations of immigrants from their country of birth. When examining immigrants' responsiveness to *changes* rather than levels in labor market and demographic characteristics, I find that immigrants are more likely to locate in areas with growing demand for their skills (as proxied by imputed educational attainment) and areas with increasing real wages. I also find that immigrants are more likely to locate in areas with declining native populations. This result casts doubt that the direction of causality in the observed relationship between native "flight" and immigrant inflows (Filer 1992, Frey 1995) runs from immigrants to natives.

Section 1 of the paper gives a brief synopsis of different admission criteria for legal immigrants to the U.S. and Section 2 discusses the data used. In Section 3, I examine the geographic distribution of immigrants and in Section 4 a variety of descriptive statistics regarding immigrants in different admission categories. Multivariate results from conditional logit estimation using both levels and changes are presented in Section 5 and Section 6 draws some conclusions.

## 1. Admission Criteria

Since 1965, U.S. immigration law has had relatively simple objectives: reunite families, fill jobs with skilled or needed workers, and provide safe haven for refugees. More recently, increasing the "diversity" of the population through admitting immigrants from underrepresented countries has also played a role.[1] Of these reasons, family reunification stands out as the predominant motivation for allowing immigrants to the U.S. In concert with these main objectives, U.S. immigration law distinguishes between visa categories that are not numerically limited (i.e. all immigrants meeting the criteria are admitted within a given year) and numerically limited (i.e. only a certain number of visas within a category are

[1] A variety of other smaller categories comprise the remaining reasons immigrants are admitted to the U.S.

available per year). Immediate family of U.S. citizens (spouses, parents, and unmarried children under 21) do not face numerical limitations and can come to the U.S. immediately after their visas are approved. Almost all other types of visas are limited by law and immigrants entering in these categories may have to queue for some period of time before entering the U.S.[2]

Figure 1 shows the number of permanent resident aliens admitted in each year from 1977 to 1998 in the non-refugee admission categories examined in this paper: employment, family reunification visas (both those that are not are not limited by law, i.e. "immediate family" and those that are limited by law, i.e. "limited family"), and diversity admissions. From Figure 1 it is clear that the number of immigrants admitted to the U.S. has increased substantially since the late 1970s. Moroever, the share of visas going to employment and immediate family immigrants has increased, while that of limited family visas has remained roughly constant. Diversity immigrants, first admitted in 1990, have contributed to the share of non-family-related admissions.

The Immigration Act of 1990 introduced changes in U.S. immigration law that both increased the number of visas available and made the numerical cap on that number more flexible. Table 1 shows the broad categories of numerically limited visas and the statutory number of visas available in each category, in two representative fiscal years before and after the changes took place.[3] The number of visas actually issued in some categories may exceed these limits in some years, for a variety of reasons. For example, unused visas in one year may carry over to the next, or unused visas in some categories may be used in other similar categories. In addition, limits are placed on the number of immigrants admitted from each country.[4] The 1990 Act signalled a shift towards a somewhat more employment-based immigration policy, increasing the share of employment based visas to one-third from less than one-fifth, and nearly tripling the number of employment visas

[2] Refugee and several other small categories are not generally limited.

[3] The U.S. fiscal year runs from October to September.

[4] In 1991 the limit was 20,000 per country; in 1996 the limit was 7 percent of the total number of visas available.

available.[5] In addition, it created a new employment-creation visa category for individuals who invest a minimum of $1 million to establish a new commerical enterprise.[6] The 1990 Act continued to allow unlimited entry of immediate family members of U.S. citizens.

The process by which an individual becomes a permanent resident alien depends on the type of visa for which they qualify, and whether they are already in the U.S. at time of application.[7] Aliens applying to enter the U.S. on a family-based visa must have a sponsoring relative, who files a petition with the Immigration and Naturalization Service. This petition asks about the citizenship/permanent residence status of the sponsoring relative as well their relationshiop to the sponsoree. On this basis, the INS determines the family-based admission category the under which alien can enter the U.S. Immediate family of U.S. citizens are issued visas once the petition is approved. For quota-based family visas, the applicant must (possibly) wait after the petition is approved until an appropriate visa becomes available. The length of wait can vary substantially by visa category and the alien's country of citizenship. The "priority date" (i.e. the date on which the INS approved the U.S.-resident family member's petition) for which visas are available, by country and type, is published monthly by the INS. For example, in December 1999 the priority date for aliens from the Philipines in preference category four (siblings of U.S. citizens) was 15 July 1979, i.e. the wait for a Philippino whose U.S. citizen sibling petititioned to bring them to the U.S. was more than 20 years. Unmarried children of U.S. citizens who are not from India, Mexico, or the Philippines had to wait just over one year, however, and there was no wait at all for most employment-based visas.

Aliens entering for employment reasons must file a petition or have a petition filed by their employer. Typically, only immigrants of "extraordinary ability" can file on their own behalf. In addition, for most employment visas, it is necessary that the Department of Labor certify that no qualified U.S. worker is available for the job.

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[5] The "special" category is comprised mainly of religious workers.

[6] The minimum is $500,000 if the investment is in an area that has an unemployment rate of 1.5 times the national average or in a rural area with a population of less than 20,000. The commercial enterprise must create at least 10 full-time jobs.

[7] The following five paragraphs are based largely on Wernick (1999), chapters 1–4 and 6.

Diversity immigrants apply in an annual visa lottery. In this "green card lottery," visas are given to natives of countries from which less than 50,000 have immigrated during the previous five years. Lottery visas are available to anyone in the underrepresented country who has at least a high school degree or its foreign equivalent, or to individuals who have worked for at least two of the previous five years at a job requiring at least two years of training or experience.

For all categories, the process differs if the alien living outside the U.S. or is already in the U.S. on a temporary visa. Aliens already in the U.S. must apply to "adjust" their status from temporary (e.g. student or tourist visas) to permanent. These "adjustees" may have entered the U.S. at any time prior to having their permanent resident alien status approved, although typically most adjustees who change their visa status from temporary to permanent do so within five years of having first entered the U.S. "New" immigrants file their paperwork with consular offices outside the U.S. and can enter the country once their visa is available. Visa quotas apply uniformly to both new immigrants and adjustees.

Aliens may also qualify for permanent residence status as a "derivative beneficiary," i.e. as a spouse or unmarried child (under the age of 21) of an individual receiving an employment-based or numerically limited family-based visa. Beneficiaries need not emigrate at the same time as the "primary" immigrant. With the exception of employment-based visas, I will not distinguish between primary and derivate beneficiary immigrants in the paper. Visas issued to derivative beneficiaries count towards the statutory quotas.

## 2. Description of the Data

Data on individual immigrants comes from the fiscal year 1991 file of Immigrants Admitted to the United States (henceforth INS data). These data have been remarkably underutilized in the immigration literature, perhaps because the amount of information on demographic characteristics is limited. One advantage of the INS data (which are available for the years 1974 to the present) is that they contain the **population** of all legal immigrants to the U.S. during this period who were given status as permanent resident aliens.

The key variable available in INS data that is not available in any other data source is the type of visa under which the immigrant was admitted. There is a substantial amount of detail available about visa type, but to simplify the analysis I group into 9 admission categories: spouses, married children, and unmarried children of U.S. citizens, spouses and unmarried children of resident aliens, "primary" and "beneficiary" employment, and diversity. "Primary" employment immigrants are aliens admitted because they are an exceptional or needed workers. "Beneficiary" employment immigrants are aliens admitted because their spouses have an employment visa.

Also crucial to the analysis is the zipcode of intended residence of the alien.[8] This variable is used to identify the metropolitan area in which the immigrant intends to live. The INS data also report age, country of birth, and occupation.[9] For immigrants entering the U.S. in employment categories, the reported occupation unambiguously refers to the job they will be performing in the U.S. For other immigrants, occupation can refer either employment in their last country of residence or in the U.S.

Information on the characteristics of local labor markets is taken from the 1980 and 1990 U.S. Census Public Use Microdata Samples (PUMS). Note that the Census does not distinguish between legal permanent resident aliens, aliens legally in the U.S. on a temporary visa, and illegal aliens, but merely identifies the country of birth of individuals in the sample. Thus, I will make the distinction between the foreign-born, in Census data, and immigrants (i.e. legal permanent resident aliens), in the INS data. Further information on variable creation can be found in the Data Appendix.

My analysis is conducted with male working-age (21-54 years old) legal aliens who arrived in the U.S. in fiscal year 1991.[10] I restrict my sample to men under 54 to abstract from retirement issues, and to focus on those most likely to be in the labor force and

[8] Specifically, it is the zipcode of the address to which the immigrant's legalization papers ("green card") are mailed.

[9] Occupation plays a crucial role in the analysis because it is used to impute educational attainment. For this reason I drop individuals who didn't report their occupation. This was a very small share of the observations in the data.

[10] In other work (joint with Marianne E. Page), I address the location decisions of women immigrants, focusing on the role of welfare in those decisions.

have an impact on local labor markets. For this reason, I also drop immigrants who were admitted as parents of U.S. citizens as well as those who report their occupation as student. I focus on 1991 because these data measure immigrant location choices just after the 1990 decennial Census, which provides detailed information on the characteristics of local labor markets.[11] This timing issue is important if we want to accurately estimate the responsiveness of immigrants to variation in labor demand.

One concern with using the INS data is that immigrants may not stay in their "intended" locations for very long. If they subsequently move, their potential impact in a given metropolitan area will be diminished. Table 2 shows the geographic distribution of the foreign-born, legal immigrants, and natives, across the 6 states that receive the most immigrants plus the aggregate of all other states. The top panel shows the distribution of immigrants who entered the U.S. in 1990-91, taken from cumulative INS data from 1990-95.[12] The bottom panel shows the distribution of foreign-born and natives in 1996, taken from the outgoing rotations of the Current Population Survey in 1996.

The comparison of the distribution of the flow of all immigrants entering in 1990-91 to their location 5 years later gives some sense of the whether immigrants stay in their initial location. The last line of the top panel and the first line of the bottom panel shows a distribution that is remarkably similar, with the possible exception of a higher share of the cohort living in Texas in 1996. This difference can be partially explained by illegal aliens, who are included in the CPS, are almost exlusively Mexican, and are therefore more likely to locate in California and Texas (Warren 1995). To be sure, these summary statistics do not capture individual behavior but only net migration between states. They are at least suggestive, however, that immigrants are likely to stay in their intended locations.

[11] The fiscal year covers the period from October 1990 to September 1991. The Census date was 1 April 1990 and should closely measure local characteristics just prior to the time when the immigrants in the INS data were making their location decisions.

[12] Because many immigrants adjust their status from temporary to permanent, it is necessary to cumulate the flows from 1990-95 to compare to the stock measured in the CPS in 1996. The intended location of adjustees is taken from the date of their adjustment. The majority of adjustees changed their status from temporary to permanent in 1990 and 1991, however.

## 3. The Geographic Distribution of Immigrants

Following my previous work on the impact of immigration on natives' wages, as well as that of Bartel (1989), I use metropolitan areas as a proxy for labor markets. I use a broader definition of metropolitan area than Bartel, however. For example, rather than treating Newark, NJ and New York City as separate areas, I consider them to be one labor market.[13] The geographical definitions of metropolitan areas are defined in Jaeger, *et al.* (1998), and are as consistent as possible across the INS and Census data.

The first four columns of Table 3 show the geographic distribution of natives and foreign-born (from the 1990 Census) and the fiscal year 1991 flow of new immigrants (from INS data) across the 35 largest metropolitan areas (by male age 21-54 population).) These data evince the well-known fact that the foreign-born are much more highly geographically concentrated than natives. Moreover, the intended locations of new arrivals are even more concentrated than the existing stock of the foreign-born: more than 45 percent of new arrivals intend to live in New York of Los Angeles! Adjustees are somewhat less likely (32 percent) to live in New York or Los Angeles, but are still much more concentrated than the stock of natives.

The remaining columns of Table 3 give the geographic distribution of immigrants in different admission categories, distinguishing between new immigrants and adjustees.[14] It is clear from these distributions that immigrants in all visa categories have a stronger preference for large cities (particularly New York and Los Angeles) than natives, but there is a substantial amount of variation across groups in their preferences.

For each group I calculated a Herfindahl index of concentration, shown in Table 4. The Herfindahl index is given by

$$H_i = \sum_{j=1}^{131} \theta_{ij}^2 \tag{1}$$

[13] In terms of definitions used in the 1990 Census, I use Consolidate Metropolitan Statistical Areas where they are defined.

[14] There are some adjustees who entered the U.S. in categories other than spouse of U.S. citizen and employment, but they are very small in number.

where $\theta_{ij}$ is the share of group $i$ that lives in metropolitan area $j$, with $0 \leq H_i \leq 1$. Smaller values of $H_i$ indicate lower degrees of geographic concentration. This index is based on the shares in the 131 largest mainland metropolitan areas defined by Jaeger *et al.* (1998) and confirms the higher degree concentration among immigrants and the foreign-born. New immigrants are substantially more concentrated than the stock of natives, the stock of the foreign-born, or adjustees. Relatives of resident aliens are more geographically concentrated than relatives of U.S. citizens, but somewhat surprisingly employment and diversity admissions are also highly concentrated.

## 4. Descriptive Statistics

Bartel (1989) has noted that more the highly-educated foreign-born tend to be more geographically disperse than the foreign-born with lower levels of education. The INS data unfortunately do not contain information on educational attainment. They do, however contain information on the occupation of entering immigrants. I use this information to impute the probability that immigrants are in one of three broad educational attainment categories: less than 12 years, 12-15 years, and 16 years or more. To estimated the relationship between occupation and educational attainment I use an ordered logit model with data from the 1990 Census on the foreign-born who entered the U.S. between 1987 and 1990. Occupational dummy variables, region of birth, a quadratic in age, and marital status dummy variables were used as predictors. Within the estimation sample, the model correctly predicted the level of educational attainment in approximately 65 percent of cases. Details of this estimation can be found in the Data Appendix.

Table 5 shows the distribution of actual educational attainment for the native and foreign-born stocks in the U.S. in 1990 and the imputed educational attainment of the flows of immigrants in 1990-91. Imputed probabilities, $\hat{P}(S = k)_i$, are used to calculate the distribution for the immigrant groups. Shares in each admission category $\times$ education group, $\theta_{jk}$, are calculated as

$$\theta_{jk} = (1/N_j) \sum_{i=1}^{N_j} \hat{P}(S = k)_i, \tag{2}$$

where $N_j$ is the number of immigrants in admission category $j$. The distribution for all new immigrant groups is generally flatter than that for either natives or the foreign-born. Within immigrant groups, however, it is clear that primary employment and diversity immigrants have substantially higher imputed educational attainment. This is expected, since most employment immigrants are in high-skill occupations, and diversity immigrants must have at least a high school diploma or have worked in a relatively high-skill occupation to be admitted to the U.S. Primary adjustee employment immigrants have the highest imputed educational attainment of all immigrant groups. This is not particularly surprising since nearly 75 percent of primary employment adjustees were temporarily admitted to the U.S. as either temporary professional workers or nurses ("H-1A" and "H-1B" non-immigrant visas, respectively) or students ("F-1" or "J-1" visas). Temporary professional workers are hired into jobs for which an employer requires at least a four-year college degree. Table 6 shows the distribution of non-immigrant visas held by individuals adjusting to permanent status in 1990-91.

To the extent that past immigrants from different countries live in different cities in the U.S., country of origin is likely to be an important determinant of the location choice of new immigrants (Bartel 1986). Table 7 shows the distribution of the stock of the foreign-born and immigrants across different regions of birth. Compared to the foreign-born stock in 1990, immigrants were much more likely to have been from Asia and less likely to have been from Europe. This is consistent with the trend noted by other authors. A higher portion of the foreign-born stock was born in Central America/Mexico (in particular, Mexico) than the immigrant flows. Spouses of both U.S. citizens and resident aliens are substantially more likely than immigrants in other admission categories to be from regions that are geographically proximate to the U.S. Diversity immigrants in 1990-91 were highly likely to be from Southwest Asia, but in other years different regions could be selected for the lottery. Differences between new immigrant and adjustees suggest that immigrants from different parts of the world use different strategies to enter the U.S. For example, a substantially larger fraction of adjustees than new immigrants are from Africa. Spouses entering as adjustees are more likely to be from Europe and the Middle East than are new immigrants.

The INS data also provide information on age. Among new immigrants 21-54 years old, spouses, unmarried children of U.S. citizens, and spouses and children of resident aliens were the youngest with a median age of 28 to 29 years, while employment admissions (both primary and beneficiary), married children of U.S. citizens, and siblings of U.S. citizens were somewhat older with median ages of 35, 39, and 42 years, respectively. The median ages among adjustee groups were virtually identical to those for new immigrants, although beneficiary employment admissions were somewhat younger (median ages of 34 and 38 years, respectively).

Taken as a whole, these descriptive statistics indicate that immigrants in different admission categories have different skill levels and demographic characteristics. To the extent that labor market conditions or geographic concentrations of individuals from an immigrant's region of birth, for example, determine where immigrants choose to live, altering the mix of available visas may be a tool for altering the distribution of new immigrants.

## 5. Multivariate Analysis

I should note at the outset that immigrants may have a choice of several admission categories under which they can enter the U.S. This is likely to be particularly true of the family-based admission categories – it is quite conceivable that a potential immigrant may have multiple family members through which they could gain admission. Because numerically-limited visas often have have queues of substantially different lengths, potential immigrants may strategically choose their admission category. I will not model this choice explicitly, but merely note that strategic behavior by immigrants may dampen the potential of policy changes for altering the geographic distribution of immigrants.

The econometric specification of my model is similar to Bartel's (1989) and is somewhat standard for estimating this type of choice model. I assume that new immigrants to the U.S. choose among a set of $J$ possible metropolitan areas and that each metropolitan area $j$ gives a utility level $U_{ij}$ for individual $i$. Individuals choose the location with the greatest utility. Like other models of this type, I assume that individual $i$'s utility at a particular location is a linear function of the level or change in a location's characteristics, $L_j$ (e.g. the local unemployment rate), the interaction between local and individual characteristics,

$X_{ij}$ (e.g. the share of the local population that was born in the immigrant's region of birth), and an error term, $\epsilon_{ij}$, i.e.

$$U_{ij} = L_j\Theta + X_{ij}\Pi + \epsilon_{ij} \tag{3}$$

If $\epsilon_{ij} \sim$ i.i.d. Weibull, the parameters of the model can be estimated using a conditional logit framework (McFadden 1984). The probability of individual $i$ choosing location $l$ is

$$P(y_i = l) = \frac{\exp(Z_{il}\beta)}{\sum_{j=1}^{J}\exp(Z_{ij}\beta)} \tag{4}$$

where $y_i$ is the individual $i$'s location choice, $Z_{ij} = [L_i \quad X_{ij}]$, and $\beta = [\Theta \quad \Pi]'$ is the parameter vector. The parameters can then be estimated by maximum likelihood. Note that this analysis requires estimation using $N \times J$ observations (where $N$ is the number of individuals). The marginal effect of a change in a location's characteristics on the probability that immigrants will choose that location are just the derivative of (4) with respect to those characteristics, i.e.

$$\frac{\partial P(y_i = l)}{\partial Z_l} = [P(y_i = l)(1 - P(y_i = l))]\beta, \tag{5}$$

so that marginal effects of own-area characteristics are proportional to the coefficient vector. While the effect of any covariate will vary with $l$, I present "average" effects of $Z$ on $P(y_i = l)$, i.e

$$\frac{\partial \widehat{P(y_i = l)}}{\partial Z_l} = [(1/35)(1 - (1/35))]\hat{\beta}, \tag{6}$$

.

I include in $X$ and $L$ a variety of characteristics that may affect both pecuniary and non-pecuniary aspects of immigrants' utility. To measure the effect of local labor markets, I include the the local unemployment rate for all men aged 21-54 in metropolitan area $j$, and the "expected" log immigrant wage. The expected wage is calculated by taking the weighted average of median wages for immigrants in metropolitan area $j$ in the three education categories discussed earlier, with the weights being $\hat{P}(S = k)_i$.[15] Thus, the "expected" wage varies by both metropolitan area and by the characteristics of the immigrant.

[15] I use median wages rather than mean wages to avoid issues of different nominal topcode values between the 1980 and 1990 Censuses. I will examine how changes in economic and social characteristics affect immigrant location choice later in the paper, and want to treat wages the same in the levels and changes analysis.

Population size of a metropolitan area may also effect the availability of jobs, particularly in high-skill occupations with relatively thin markets.

For a variety of cultural and economic reasons, immigrants may prefer to live in areas with other similar individuals, particularly those born outside the U.S. It may be, for instance, the immigrants prefer "international" neighbors, without regard to their country of origin. On the other hand, there may be network efficiencies that are related to living in an area with large concentrations of individuals from an immigrant's country of birth. Immigrants may also be attracted to areas with higher concentrations of individuals who speak their language, regardless of the national origin of those individuals. To capture these effects, the analysis includes the foreign-born share, the share of individuals from the immigrant's region of birth (using the 14 regions from Table 7), and the share of individuals in the metropolitan area who speak any language (other than English) spoken in the immigrant's country of birth.[16] Many immigrants may maintain ties with their "home" country. To proxy costs of visiting kin (or perhaps returning home), I include a quadratic in distance from the immigrant's country of birth to the metropolitan area.

Cragg and Kahn (1997) show that amenities like climate are important determinants of migration propensities. $L$ therefore includes average monthly rainfall and temperature for each metropolitan area $j$.

I restrict my attention to the 35 most populous metropolitan areas, as shown in Table 3. At least 75 percent of immigrants in each admission category intended to live in these areas, and approximately 80 percent of the foreign-born stock lived in these areas in 1990. Moreover, these 35 areas include substantial variation in the concentration of individuals born outside of the U.S., which Bartel (1989) found was a major determinant of immigrant location choice, ranging 34 percent in Miami to 2 percent in Indianapolis. This choice set is substantially more diverse than the 25 SMSAs that Bartel used, not only because I have 10 more choices, but also because I use consolidated metropolitan areas (where they exist).

[16] I assume that English speakers will find all areas equally appealling in the language dimension. While it would be possible to include the share of individuals in a metropolitan area from the immigrant's country of birth, I use region of birth because of concerns with measurement errors. In areas with few immigrants, the share of individuals born in most specific countries is likely to be very imprecisely measured. To reduce this problem, I use the share of individuals born in regions rather than specific countries.

So, for example, Bartel's treats New York City, Nassau/Suffolk County, and Newark as separate areas, while all three areas are treated as part of the New York CMSA in my analysis.

Table 8 shows shows the results of estimating (4) on the population of new immigrants. Entries in the table are marginal effects of a change in the characteristic of metropolitan area $j$ on the probability that an immigrant will locate in area $j$, evaluated at the "average" probability of location (i.e. 1/35=.028). In the first column, the coefficients are constrained to be the same for all admission category groups. All variables in the analysis are highly statistically significant and all have have the expected signs. Unlike Bartel (1989), I find that labor market conditions matter. Immigrants are attracted to areas with higher expected (nominal) wages and lower unemployment rates. Region-of-birth concentrations are about 3 times as important in determining location as language and foreign-born shares. It is also not surprising, given the propensity for immigrants to locate in New York and Los Angeles, that population size is highly significant. Immigrants also appear to prefer drier and warmer areas. Proximity to country of birth plays a large role in determining locations.

Differences emerge when the coefficients are allowed to vary by visa type. In particular, there is a great contrast between employment-based admissions and other admission categories with respect to labor market conditions. The locations of employment-based immigrants are more highly correlated with local-area unemployment rates and somewhat more correlated with expected nominal wages than other groups. Employment-based immigrants, in general, must have a job to be admitted in that category, and their admission is contingent upon sponsorship by their prospective employer. Thus, while employment-category immigrants may consider many metropolitan areas when looking for an employer, they are likely to be sponsored by only one employer. The strong association between unemployment rates and the locations of employment-category immigrants likely reflects firms' behavior – when local labor markets are tight they search for workers outside of the U.S.

Labor market conditions matter least for spouses of U.S. citizens. This is expected; because spouses are "tied-movers," local labor market conditions shold have little or no

effect on their location choice which is, presumably, where their spouse lives. Employment beneficiaries are also "tied movers", and the relatively large "effects" of the unemployment rate on the location propensities of employment beneficiaries are likely due to correlations between the local labor market conditions for women and those for men; it is difficult to interpret these results causally. The effect of unemployment rates and wages on the location choice spouses of resident aliens may reflect joint location decision making if the wives of this group recently migrated.[17]

"Diversity" or lottery immigrants provide probably the best natural experiment for examining location choice, since they do not have the obvious family ties of immigrants entering under family-reunification visas, nor the obvious limitations on the choice of locations of the employment-related immigrants. Their response to variation in unemployment rates is about half the magnitude of employment-related immigrants, is roughly comparable to that of resident alien relatives, and is substantially larger than that of relatives of U.S. citizens.

The relative importance of the share of the foreign-born and the share from the immigrant's region of birth vary across admission categories, although both factors are important for all groups. Somewhat surprisingly, region of birth share matters most for employment immigrants. Language shares are substantially less important for all groups, except diversity immigrants, than region of birth and foreign born shares (and are even negative for employment-based immigrants).

Recall that adjustees are already in the U.S. at the time that their permanent resident alien status is approved. Unlike new immigrants, the timing of the location decision is less clear with adjustees. Table 9 shows the date of first arrival (on a non-immigrant visa) in the U.S. for adjustees. While at least 30 percent entered the U.S. in 1990 or 1991, a substantial fraction entered in 1987 or before. When the decision was made to live in the location indicated on the immigrant's permanent residency application is available in the INS data, but most adjustees in these data are likely to have made a location decision prior to April 1990, the observation date of the 1990 Census.

[17] Unfortunately, no information is available in the INS data on the individual who petitioned to bring the immigrant to the U.S.

Table 10 repeats the exercise of Table 8 for adjustees. The results are generally similar, with a few exceptions. The unemployment rate has a smaller "effect" in the constrained regression and for employment admissions. And population size has a smaller effect, reflecting that adjustees are somewhat more likely to be located outside of large metropolitan areas, as seen in Table 3. Since most adjustees may have located prior to the Census date, these results cannot be interpreted causally – the smaller relationship between the unemployment rate and immigrant location probabilities may reflect the effect of immigrants on local labor market conditions rather than vice versa.

While these results establish that labor market conditions matter at the point in time when new immigrants are deciding where to live, they do not address whether immigrants are forward-looking when making their decisions. In particular, the results presented thus far do not address whether immigrants are attracted to economically growing (or shrinking) areas in the U.S. I use the 1980 Census PUMS to measure characteristics in metropolitan areas in 1980.[18] Observed changes are therefore over a 10 year period and represent relatively long-run trends. Population characteristics in the model include changes in log native population, log foreign-born popuation, and log population from an immigrant's region of birth.

I measure changes in local labor markets with the change in log unemployment rate, change in log real expected wage, and a weighted measure of labor demand for education category.[19] For each metropolitan area $j$ $\times$ education category $k$ cell, the demand index $\gamma_{jk}$ (Freeman 1975, Katz and Murphy 1992) is defined as

$$\gamma_{jk} = \sum_{i=1}^{16} d\log(\theta_i)\theta_{ijk} \tag{7}$$

where $d\log(\theta_i)$ is the change between 1980 and 1990 in log share of industry $i$'s employment (measured in hours) in the U.S. economy as a whole, and $\theta_{ijk}$ is the share in 1980 of

[18] Metropolitan areas are defined to be geographically consistent across the two Censuses using the geocodings in Jaeger, *et al.* (1998).

[19] Changes in nominal wages are deflated by subtracting the change in log local-area CPI between 1979 and 1989 from change in log nominal expected wages, as defined above. In metropolitan areas for which the Bureau of Labor Statistics did not publish a local area measure, I used the appropriate regional and size class index.

education group $k$ employed in industry $i$ in metropolitan area $j$. That is, $\gamma_{jk}$ is the weighted average of the percentage changes in sectoral employment (measured as shares of total employment), in which the weights are group-specific employment distributions in 1980, the base year. For each individual $\times$ metropolitan area observation, I then take the weighted average of $\gamma_{jk}$, where the weights are the probability that immigrant $i$ is in education category $k$, $\hat{P}(S = k)_i$.

Table 11 presents results on the locational response of new immigrants to changes in population characteristics and labor market conditions for new immigrants. Most striking among these results is the consistently negative and large relationship between growth rates in native populations and immigrant location probabilities, controlling for changes in the foreign-born population. These results suggest that immigrants may move to areas with declining (or slow-growing) native populations and offset population shifts that may otherwise have occurred. They also suggest that the direction of causation runs from native outflows to immigrant inflows rather than the other way around in the observed relationship between native "flight" and immigration (Filer 1992, Frey 1995, Card 1997). Across all groups, immigrants tend to locate in areas with growing real wages and increasing demand for their skills (as proxied by $\gamma_{jk}$).

Table 12 repeats the analysis for adjustees. The magnitude of the negative correlation between immigrant locations and native population growth is somewhat diminished for all groups. The relationship between wage growth and location choice is substantially lower for adjustees relative to new immigrants, suggesting (at least tentatively) that immigrants (particuarly those admitted for employment reason) may have a moderating effect on wage growth for other immigrants.

## 6. Conclusions and Avenues for Further Research

These results are highly suggestive that there are differences across admission categories in the locational propensitives of new immigrants to the U.S. In particular, one useful distinction would appear to be between employment-based visas and family-based visas. Immigrants admitted for employment reasons are more responsive to differences in labor market conditions than other immigrants, although all admission categories except spouses

of U.S. citizens evince some degree of responsiveness to labor market conditions. It is perhaps not surprising that the location decisions of employment admissions are most influenced by geographic differences in labor market conditions, but these results cast doubt on studies that take immigrant location choice to be approximately exogenous to labor demand. That the labor market seems to matter in determiningg the location choice for almost all admission groups also stands in contrast to most previous research. Like Borjas (1998), I find that immmigrants "grease the wheels" of the labor market. This is likely in part due to immigrants choosing high-wage, low-unemployment metropolitan areas in which to live, and in part due to firms in high-wage, low-unemployment metropolitan areas looking outside the borders of the U.S. for workers.

In concert with previous research, I find that concentrations of individuals born in simlar areas of the world immigrants are an important determinant of immigrant location choice, although the response of immigrants to changes in the level of individuals from their country of birth is very small. Immigrants are drawn to areas with a larger popuation, *ceteris paribus*. But, in a very striking result, I found that all admission category groups tend to locate in areas with declining native populations.

Future research will address the general issue of whether immigrants (particularly women) are drawn to states with higher levels of social assistance. Recent attention has been paid to the "magnetic" effects of welfare levels on immigrant location cohices. Borjas (1998) finds welfare-receiving immigrants tend to be clustered in states with relatively high benefits, particularly California. On the other hand, Zavodny (1997) finds very little evidence that welfare benefits play a role in determining immigrant location choice. The INS data provide an ideal setting in which to test this hypothesis, because we know for certain that the immigrant is moving. Moreover, they allow us to examine whether the magnetic effects of welfare (if they exist) differ across immigrants in different admission categories.

## DATA APPENDIX

This appendix briefly describes the procedures analysis variables.

*Metropolitan Area.* Metropolitan area definitions match, to the greatest extend possible, those created by Jaeger, *et al.* (1997). The MABLE/Geocorr geographic engine (Blodgett and Census Bureau, 1999) was used to map 1991 zipcode definitions to PUMAs. These PUMAs were then matched to Jaeger, *et al.*'s definitions, which are those used with the 1980 and 1990 Census PUMS data. When a zipcode spanned more than one PUMA, it was allocated to the PUMA in which the most population resided, based on the 1990 Census.

*Distance.* Distance from country of birth to metropolitan area of intended residence was calculated as a straight line from the most populous city in 1991 of the country of residence to the population-weighted center of the metropolitan area in the U.S., as defined by the Census Bureau in 1990. Distance in 1000s of miles is calculated as (Sinnot 1984):

$$\text{Distance} = \frac{2 \cdot 3956}{1000} \arcsin\left(\min\left(1, \sqrt{a}\right)\right)$$

where

$$a = \sin\left(\frac{\text{lat}_2 - \text{lat}_1}{2}\right)^2 + \cos(\text{lat}_1) \cdot \cos(\text{lat}_2) \cdot \sin\left(\frac{\text{lon}_2 - \text{lon}_1}{2}\right)^2,$$

$\text{lat}_2$ and $\text{lon}_2$ are the coordinates of the destination (in radians), $\text{lat}_1$ and $\text{lon}_1$ are the coordinates of the origin (in radians), and 3956 is the diameter of the Earth in miles. This method treats the Earth as a perfect sphere, resulting in less measurement error than if the earth were treated as a flat plane.

*Language.* Information on languages spoken in different countries was obtained from the *CIA World Fact Book* (1998) and from the *World Almanac* (1991). I recorded up to 15 languages per country. Language information in metropolitan areas is based on "language spoken at home," and as such does not measure the all of the languages spoken by multilingual individuals. Language shares are measured by the share of a the population in a metropolitan area that speaks *any* of the languages spoken in an immigrant's country of birth.

*Occupations.* The concordance between 3-digit Census occupational codes and those used in the INS data are those used by Jasso, Rosenzweig, and Smith (1998). I thank Guillermina Jasso for supplying Stata code for this concordance.

*Education Categories.* Education categories for immigrants in the INS data were predicted on the basis of reported occupation, age, and martial status. To predict these categories, I used the sample of 28,938 foreign-born males aged 25 to 54 who entered the U.S. between 1987 and 1990 from the 1990 Census to estimate an ordered logit. In this regression, the dependent variable had 3 categories: less than 12 years of school, 12 through 15 years of school, and 16 or more years of school. Coding the Census education question into

these categories was done according to the method suggested by Jaeger (1997). Within the Census sample used to estimate the model, the model correctly predits educational category for approximately 65% of the cases. Predicted probabilities of being in each educational category for individul $i$ are then

$$\begin{aligned}
\hat{P}(S < 12)_i &= (1 + \exp(X_i\hat{\beta} - \mu_1))^{-1} \\
\hat{P}(S \geq 16)_i &= (1 + \exp(X_i\hat{\beta} - \mu_2)^{-1} - (1 + \exp(X_i\hat{\beta} - \mu_1))^{-1}, \\
\hat{P}(12 \leq S < 16)_i &= 1 - \hat{P}(S < 12)_i - \hat{P}(S \geq 16)_i
\end{aligned}$$

where $\mu_1$ and $\mu_2$ are the estimated cut points, $X_i$ is the vector of characteristics (age, age squared, occupational dummy variables, and martial status dummy variables), and $\hat{\beta}$ is the vector of the estimated coefficients.

*Expected Log Wages.* I calculated the median log wage level for all (employed) immigrants in each education category in each metropolitan area using the 1980 and 1990 Censuses. I use medians to abstract from differences in nominal topcode levels between the Censuses. Expected log wages for individual $i$ in metropolitan area $c$ (surpressing year subscripts) are then given by

$$Ew_{ic} = \hat{P}(S < 12)_i\hat{w}_{S<12,c} + \hat{P}(12 \leq S < 16)_i\hat{w}_{12\leq S<16,c} + \hat{P}(S \geq 16)_i\hat{w}_{S\geq 16,c},$$

where the $w_{j,c}$ are median log wages of all foreign-born in education category $j$ in metropolitan area $c$.

*Unemployment Rate.* The local unemployment rate is the unemployment rate calculated using the (weighted) Census PUMS for all men aged 21-54 in a given metropolitan area.

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**Table 1**
**Summary of Available Numerically-Limited Immigrant Visas**

| Category | FY 1991 Number | FY 1991 Share of Total | FY 1996 Number | FY 1996 Share of Total |
|---|---|---|---|---|
| *Family-Sponsored* | *216,000* | *.732* | *226,000* | *.537* |
| Unmarried children of U.S. citizens | 54,000 | .183 | 23,400 | .056 |
| Spouses and unmarried children of permanent resident aliens | 70,200 | .238 | 114,200 | .271 |
| Married adult children of U.S. citizens | 27,000 | .092 | 23,400 | .056 |
| Brothers and sisters of U.S. citizens | 64,800 | .220 | 65,000 | .154 |
| *Employment-Related* | *54,000* | *.183* | *140,000* | *.333* |
| Professionals and immigrants of exceptional ability | 27,000 | .092 | 80,080 | .190 |
| "Needed" skilled or unskilled workers | 27,000 | .092 | 40,040 | .095 |
| Special immigrants | | | 9,940 | .024 |
| Employment-creation ("investors") | | | 9,940 | .024 |
| Diversity | 25,000 | .085 | 55,000 | .131 |
| Total | 295,000 | | 421,000 | |

SOURCE: 1991 and 1996 Statistical Yearbooks of the Immigration and Naturalization Service.

## Table 2
## Geographic Distribution of Non-Natives and Natives
## Cohort of Men Aged 21-64 in 1990-91

| Year/Source | Share of Total | State | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CA | NY | FL | TX | NJ | IL | Other |
| ***Intended Location of 1990-91 Immigrants (INS)*** | | | | | | | | |
| New Immigrants | .559 | .259 | .255 | .065 | .037 | .079 | .050 | .255 |
| Adjustmees and Refugees | .441 | .273 | .170 | .096 | .052 | .051 | .040 | .317 |
| Total Entering 1990-91 | 1.000 | .266 | .218 | .079 | .044 | .066 | .045 | .282 |
| ***1996 Location of Foreign-Born and Natives (CPS Outgoing Rotation)*** | | | | | | | | |
| 1990-91 Foreign-Born Entry Cohort | .008 | .268 | .184 | .079 | .105 | .058 | .044 | .262 |
| All Other Foreign-Born Entry Cohorts | .129 | .311 | .137 | .092 | .093 | .055 | .046 | .267 |
| Natives | .863 | .102 | .061 | .054 | .073 | .030 | .048 | .633 |

NOTE: All samples are for individuals aged 21-64 in 1990(-91). Underlying sample size in CPS is 93,542.

**Table 3**
**Geographic Distributions**
**35 Metropolitan Areas with Largest 1990 Population of Men Aged 21-54**

| Actual/Intended Metropolitan Area | *1990 Stock* Rank in Pop. | Share of Natives | Share of Foreign Born | *1990-91 Flow of New Immigrants* Rank | Share | *1990-91 "Flow" of Adjustee Imm.* Rank | Share | *1990-91 Flow: New Immigrants* *Relatives of U.S. Citizens* Spouse | Unmarried Child | Married Child | Sibling | *Rel. of Res. Aliens* Spouse | Unmarried Child | Employ-ment | Diversity | *1990-91 "Flow": Adjustees* Spouse of U.S. Cit. | Employ-ment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New York | 1 | .066 | .187 | 1 | .303 | 1 | .222 | .199 | .208 | .286 | .282 | .431 | .359 | .272 | .599 | .221 | .224 |
| Los Angeles | 2 | .043 | .206 | 2 | .150 | 2 | .104 | .143 | .189 | .112 | .117 | .122 | .144 | .257 | .084 | .107 | .078 |
| Chicago | 3 | .032 | .046 | 4 | .049 | 4 | .043 | .053 | .060 | .093 | .061 | .041 | .045 | .019 | .031 | .041 | .045 |
| San Francisco | 4 | .022 | .063 | 3 | .075 | 3 | .062 | .062 | .105 | .096 | .105 | .068 | .085 | .042 | .027 | .053 | .091 |
| Philadelphia | 5 | .025 | .014 | 9 | .017 | 8 | .029 | .016 | .015 | .016 | .019 | .017 | .020 | .018 | .016 | .026 | .035 |
| Detroit | 6 | .020 | .011 | 12 | .012 | 9 | .021 | .014 | .014 | .016 | .013 | .008 | .011 | .013 | .010 | .016 | .035 |
| Washington, DC | 7 | .018 | .028 | 5 | .044 | 5 | .040 | .021 | .023 | .020 | .027 | .039 | .037 | .137 | .047 | .039 | .044 |
| Dallas | 8 | .018 | .017 | 11 | .014 | 10 | .020 | .025 | .008 | .007 | .013 | .015 | .010 | .012 | .011 | .021 | .020 |
| Houston | 9 | .016 | .025 | 8 | .019 | 12 | .018 | .024 | .021 | .018 | .024 | .016 | .014 | .016 | .011 | .020 | .009 |
| Boston | 10 | .017 | .020 | 7 | .022 | 7 | .031 | .020 | .012 | .014 | .026 | .033 | .026 | .017 | .012 | .031 | .033 |
| Atlanta | 11 | .015 | .007 | 16 | .006 | 13 | .015 | .007 | .004 | .005 | .006 | .005 | .007 | .006 | .010 | .013 | .024 |
| Miami | 12 | .008 | .053 | 6 | .037 | 6 | .040 | .033 | .037 | .073 | .024 | .045 | .048 | .021 | .025 | .049 | .012 |
| Cleveland | 13 | .012 | .005 | 27 | .004 | 17 | .009 | .004 | .003 | .005 | .007 | .002 | .003 | .002 | .003 | .009 | .009 |
| Minneapolis | 14 | .012 | .004 | 29 | .004 | 15 | .010 | .005 | .005 | .003 | .005 | .002 | .004 | .001 | .003 | .010 | .012 |
| Seattle | 15 | .011 | .011 | 14 | .009 | 14 | .013 | .010 | .015 | .009 | .015 | .006 | .010 | .003 | .005 | .013 | .012 |
| Baltimore | 16 | .011 | .005 | 17 | .006 | 25 | .006 | .005 | .002 | .003 | .007 | .004 | .008 | .009 | .003 | .006 | .005 |
| St. Louis | 17 | .011 | .002 | 38 | .002 | 29 | .005 | .003 | .001 | .001 | .004 | .001 | .003 | .001 | .001 | .004 | .008 |
| San Diego | 18 | .008 | .024 | 10 | .016 | 11 | .019 | .021 | .038 | .014 | .015 | .006 | .019 | .009 | .001 | .020 | .017 |
| Pittsburgh | 19 | .010 | .002 | 52 | .002 | 30 | .005 | .002 | .002 | .002 | .002 | .000 | .001 | .002 | .002 | .004 | .006 |
| Phoenix | 20 | .009 | .007 | 19 | .005 | 23 | .006 | .010 | .007 | .005 | .005 | .001 | .003 | .004 | .002 | .005 | .008 |
| Tampa | 21 | .009 | .006 | 24 | .004 | 16 | .009 | .007 | .005 | .005 | .005 | .003 | .003 | .003 | .002 | .012 | .003 |
| Denver | 22 | .008 | .005 | 26 | .004 | 25 | .006 | .009 | .004 | .002 | .006 | .001 | .002 | .001 | .002 | .005 | .008 |
| Cincinnatti | 23 | .008 | .002 | 48 | .002 | 32 | .004 | .002 | .000 | .002 | .002 | .001 | .002 | .002 | .002 | .004 | .005 |
| Portland | 24 | .008 | .005 | 25 | .004 | 20 | .007 | .006 | .004 | .003 | .005 | .002 | .005 | .001 | .001 | .008 | .007 |
| Kansas City | 25 | .008 | .002 | 46 | .002 | 45 | .003 | .003 | .002 | .001 | .002 | .001 | .002 | .002 | .001 | .003 | .002 |
| Milwaukee | 26 | .007 | .002 | 39 | .002 | 27 | .005 | .004 | .001 | .002 | .002 | .001 | .002 | .001 | .001 | .005 | .006 |
| Norfolk | 27 | .007 | .003 | 36 | .003 | 37 | .003 | .002 | .009 | .002 | .003 | .000 | .003 | .002 | .001 | .003 | .006 |
| Sacramento | 28 | .006 | .007 | 15 | .007 | 21 | .007 | .006 | .006 | .007 | .011 | .007 | .007 | .002 | .004 | .007 | .006 |
| Columbus | 29 | .007 | .002 | 51 | .002 | 28 | .005 | .002 | .000 | .001 | .002 | .001 | .002 | .001 | .002 | .005 | .006 |
| Charlotte | 30 | .006 | .002 | 49 | .002 | 43 | .003 | .002 | .001 | .002 | .002 | .002 | .001 | .002 | .001 | .004 | .001 |
| Indianapolis | 31 | .006 | .001 | 66 | .001 | 51 | .002 | .001 | .000 | .000 | .002 | .001 | .001 | .001 | .001 | .003 | .003 |
| New Orleans | 32 | .006 | .003 | 34 | .003 | 41 | .003 | .003 | .003 | .002 | .003 | .003 | .003 | .001 | .001 | .003 | .004 |
| San Antonio | 33 | .005 | .006 | 23 | .005 | 34 | .004 | .010 | .006 | .007 | .005 | .002 | .002 | .001 | .001 | .005 | .001 |
| Memphis | 34 | .006 | .001 | 71 | .001 | 70 | .001 | .001 | .000 | .001 | .001 | .000 | .001 | .001 | .000 | .001 | .001 |
| Hartford | 35 | .005 | .005 | 18 | .005 | 19 | .008 | .005 | .005 | .010 | .006 | .006 | .006 | .003 | .005 | .009 | .005 |
| Balance of Country | | .513 | .210 | | .158 | | .210 | .262 | .184 | .156 | .116 | .107 | .103 | .115 | .073 | .215 | .207 |
| Total | | 48.3mil | 5.1mil | | 82,558 | | 31,191 | 18,923 | 4,515 | 5,964 | 12,738 | 7,799 | 17,876 | 10,982 | 3,761 | 23,653 | 7,538 |

NOTE: Excludes students, parents of U.S. citizens, and "other" admission categories.
SOURCE: Native and foreign-born: 1990 Census 5 percent PUMS; Immigrants: FY 91 INS Immigrants Admitted to the U.S.

## Table 4
## Herfindahl Indices for Geographic Concentration
## 131 Largest Metropolitan Areas
## Men Aged 21-54

| Group | Herfindahl Index |
|---|---|
| *1990 Stock* | |
| Natives | .013 |
| Foreign-Born | .090 |
| *1990-91 Flow of New Immigrants* | |
| Spouse of U.S. Citizen | .072 |
| Unmarried Child of U.S. Citizen | .099 |
| Married Child of U.S. Citizen | .120 |
| Sibling of U.S. Citizen | .113 |
| Spouse of Resident Alien | .213 |
| Unmarried Child of U.S. Citizen | .165 |
| Employment | .163 |
| Diversity | .371 |
| All New Immigrants | .128 |
| *1990-91 "Flow" of Adjustees* | |
| Spouse of U.S. Citizen | .074 |
| Employment | .075 |
| All Adjustees | .074 |

SOURCE: Calculations from 1990 Census, 1990-91 INS Admissions Data
NOTE: Excludes students, parents of U.S. citizens, and "other" admissions

## Table 5
## Educational Attainment of Men Aged 21-54

| Group | *Share with* < 12 years | 12-15 years | 16 or more years |
|---|---|---|---|
| *1990 Stock (actual)* | | | |
| Natives | .118 | .677 | .206 |
| Foreign-Born | .323 | .486 | .191 |
| *1990-91 Flow of New Immigrants (imputed)* | | | |
| Spouse of U.S. Citizen | .374 | .377 | .249 |
| Unmarried Child of U.S. Citizen | .353 | .423 | .224 |
| Married Child of U.S. Citizen | .256 | .420 | .325 |
| Sibling of U.S. Citizen | .236 | .397 | .367 |
| Spouse of Resident Alien | .296 | .422 | .282 |
| Unmarried Child of U.S. Citizen | .267 | .443 | .290 |
| Employment -- Primary | .197 | .345 | .458 |
| Employment -- Beneficiary | .259 | .426 | .315 |
| Diversity | .135 | .437 | .429 |
| All New Immigrants | .284 | .403 | .313 |
| *1990-91 "Flow" of Adjustees (imputed)* | | | |
| Spouse of U.S. Citizen | .239 | .468 | .293 |
| Employment -- Primary | .027 | .184 | .790 |
| Employment -- Secondary | .103 | .315 | .582 |
| All Adjustees | .188 | .399 | .413 |

SOURCE: Native and foreign-born: 1990 Census 5 percent PUMS;
Immigrants: FY 91 INS Immigrants Admitted to the U.S.
NOTES: 1) Excludes students, parents of U.S. citizens, and "other" admissions
2) Educational attainment is imputed using results of ordered logit shown in Appendix Table A1. Imputed distribution is calculated by summing imputed probabilities in admission category A15x education cell and dividing by number of observations in admission category.

## Table 6
## Previous Non-Immigrant Visa of Adjustee Immigrants
## Men Aged 21-54

| Non-Immigrant Visa | Type | Permanent Visa Type: All Adjustees | Spouse | Employment: Primary | Employment: Beneficiary |
|---|---|---|---|---|---|
| Temporary Visitor for Business | B-1 | .046 | .052 | .031 | .022 |
| Temporary Visitor for Pleasure | B-2 | .448 | .574 | .079 | .105 |
| Student | F-1 | .205 | .174 | .258 | .324 |
| Nurses, Professional Workers | H-1 | .136 | .038 | .458 | .205 |
| Temporary Workers | H-2 | .011 | .014 | .001 | .005 |
| Spouse of H1-H3 | H-4 | .003 | .000 | .002 | .126 |
| Exchange Visitor (typically students) | J-1 | .027 | .022 | .043 | .065 |
| Fiance' | K-1 | .044 | .062 | .000 | .000 |
| Intercompany Transferee | L-1 | .027 | .020 | .084 | .020 |
| All Other Non-Immigrant Visas | | .054 | .045 | .045 | .128 |

SOURCE: FY 91 INS Immigrants Admitted to the United States

**Table 7**
**Region of Birth for Foreign Born Stock and Immigrant Flows**
**Men Aged 21-54**

| Region of Birth | 1990 Foreign-Born Stock | 1990-91 Flow: New Immigrants: All New Immigrants | Relative of U.S. Citizen: Spouse | Relative of U.S. Citizen: Unmarried Child | Relative of U.S. Citizen: Married Child | Relative of U.S. Citizen: Sibling | Relative of Resident Alien: Spouse | Relative of Resident Alien: Unmarried Child | Emloyment: Primary | Emloyment: Bene-ficiary | Diversity | 1990-91 "Flow": Adjustees: All Adjustees | Spouse | Emloyment: Primary | Emloyment: Bene-ficiary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Asia* | | | | | | | | | | | | | | | |
| Southeast Asia | .120 | .105 | .074 | .320 | .093 | .115 | .030 | .130 | .058 | .227 | .039 | .061 | .067 | .045 | .049 |
| Southwest Asia | .044 | .132 | .047 | .010 | .057 | .200 | .140 | .119 | .136 | .064 | .671 | .121 | .058 | .309 | .204 |
| East Asia | .112 | .161 | .038 | .031 | .183 | .311 | .194 | .242 | .150 | .114 | .006 | .124 | .053 | .293 | .431 |
| **Total Asia** | **.276** | **.397** | **.159** | **.361** | **.334** | **.625** | **.364** | **.491** | **.344** | **.405** | **.716** | **.306** | **.178** | **.647** | **.683** |
| *Americas* | | | | | | | | | | | | | | | |
| Central America/Mexico | .285 | .204 | .394 | .273 | .157 | .114 | .174 | .107 | .210 | .232 | .016 | .059 | .073 | .013 | .014 |
| Caribbean | .110 | .120 | .106 | .140 | .161 | .108 | .205 | .163 | .019 | .092 | .018 | .090 | .117 | .016 | .029 |
| North America | .064 | .096 | .079 | .050 | .090 | .065 | .150 | .124 | .122 | .122 | .028 | .063 | .073 | .036 | .038 |
| South America | .034 | .018 | .047 | .017 | .016 | .001 | .004 | .002 | .035 | .013 | .002 | .041 | .047 | .028 | .032 |
| **Total Americas** | **.493** | **.438** | **.626** | **.479** | **.424** | **.289** | **.533** | **.397** | **.386** | **.458** | **.064** | **.254** | **.310** | **.094** | **.113** |
| *Europe/Middle East* | | | | | | | | | | | | | | | |
| Eastern Europe | .042 | .032 | .025 | .057 | .144 | .013 | .020 | .016 | .027 | .014 | .057 | .034 | .035 | .025 | .032 |
| Western Europe | .102 | .038 | .083 | .026 | .025 | .007 | .014 | .011 | .096 | .030 | .011 | .149 | .169 | .111 | .063 |
| Southern Europe | .043 | .020 | .023 | .005 | .010 | .016 | .020 | .016 | .053 | .043 | .004 | .032 | .039 | .014 | .002 |
| Middle East | .019 | .036 | .036 | .058 | .047 | .019 | .022 | .044 | .051 | .017 | .031 | .098 | .113 | .049 | .041 |
| **Total Europe/Middle East** | **.206** | **.127** | **.167** | **.146** | **.225** | **.054** | **.076** | **.088** | **.226** | **.105** | **.103** | **.312** | **.356** | **.198** | **.139** |
| **Africa** | **.018** | **.013** | **.029** | **.013** | **.013** | **.026** | **.022** | **.028** | **.039** | **.031** | **.106** | **.112** | **.136** | **.050** | **.056** |
| **Oceania** | **.006** | **.004** | **.017** | **.002** | **.004** | **.007** | **.005** | **.004** | **.006** | **.002** | **.012** | **.017** | **.020** | **.011** | **.009** |

SOURCE: Native and foreign-born: 1990 Census 5 percent PUMS; Immigrants: FY 91 INS Immigrants Admitted to the U.S.

**Table 8**
**Conditional Logit Analysis of New Immigrants' Intended Residence, Levels**
**Men Aged 21-54**
(Entries in table are marginal own-area effects, absolute values of z-ratios in parentheses)

| Variable | Con-strained Model | Unconstrained Models | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *Relatives of U.S. Citizens* | | | | *Rel. of Res. Aliens* | | *Employment* | | |
| | | Spouse | Unmarried Child | Married Child | Sibling | Spouse | Unmarried Child | Primary | Bene-ficiary | Diversity |
| *Distance from Country of Birth (1,000 mi.)* | | | | | | | | | | |
| Linear | -.0298 | -.0364 | -.0399 | -.0449 | -.0532 | -.0601 | -.0412 | -.0260 | -.0294 | -.0182 |
| | ( 22.5) | ( 21.0) | ( 8.4) | ( 11.3) | ( 17.3) | ( 16.8) | ( 18.1) | ( 10.6) | ( 5.3) | ( 2.5) |
| Squared | .0011 | .0017 | .0012 | .0022 | .0025 | .0036 | .0019 | .0015 | .0021 | .0009 |
| | ( 10.6) | ( 11.3) | ( 3.2) | ( 6.8) | ( 11.0) | ( 12.3) | ( 10.7) | ( 7.6) | ( 4.8) | ( .0) |
| *Weather* | | | | | | | | | | |
| Average Monthly Rainfall (inches) | -.0039 | -.0044 | -.0063 | -.0022 | -.0026 | -.0022 | -.0020 | -.0037 | -.0042 | .0086 |
| | ( 13.1) | ( 10.6) | ( 6.7) | ( 3.0) | ( 5.4) | ( 3.4) | ( 4.7) | ( 6.8) | ( 3.5) | ( 9.2) |
| Average Temperature (degrees F) | .0003 | -.0008 | -.0015 | -.0021 | -.0011 | -.0019 | -.0008 | .0012 | .0009 | .0002 |
| | ( 4.7) | ( 7.5) | ( 5.6) | ( 9.6) | ( 7.9) | ( 8.9) | ( .0) | ( 6.6) | ( 2.5) | ( .6) |
| *Population Characterisitcs in 1990* | | | | | | | | | | |
| Population (100,000s) | .0012 | .0004 | .0004 | .0004 | .0005 | .0006 | .0006 | .0006 | .0009 | .0007 |
| | ( 76.5) | ( 45.8) | ( 20.7) | ( 23.4) | ( 39.2) | ( 37.2) | ( 55.2) | ( 40.5) | ( 27.4) | ( 28.4) |
| Foreign-Born Share (0-100) | .0010 | .0015 | .0017 | .0023 | .0016 | .0022 | .0017 | .0019 | .0012 | .0013 |
| | ( 20.0) | ( 16.3) | ( 7.9) | ( 12.5) | ( 13.3) | ( 13.3) | ( 16.8) | ( 14.9) | ( 4.7) | ( 5.5) |
| Region-of-Birth Share (0-100) | .0029 | .0017 | .0027 | .0022 | .0013 | .0017 | .0024 | .0033 | .0046 | .0031 |
| | ( 27.0) | ( 13.4) | ( 9.1) | ( 9.2) | ( 6.6) | ( 9.2) | ( 18.7) | ( 15.0) | ( 12.5) | ( 4.8) |
| Language Share (0-100) | .0007 | .0001 | .0005 | .0013 | .0007 | .0009 | .0007 | -.0008 | -.0008 | .0014 |
| | ( 11.7) | ( 1.1) | ( 2.4) | ( 7.6) | ( 5.5) | ( 6.5) | ( 7.5) | ( 5.3) | ( 3.0) | ( 3.3) |
| *Labor Market Conditions in 1990* | | | | | | | | | | |
| Male 21-54 Unemp. Rate (0-100) | -.0077 | -.0023 | -.0025 | -.0024 | -.0048 | -.0106 | -.0093 | -.0213 | -.0336 | -.0112 |
| | ( 29.6) | ( 4.7) | ( 2.3) | ( 2.8) | ( 8.5) | ( 12.6) | ( 18.0) | ( 27.5) | ( 21.7) | ( 8.3) |
| Expected Log Immigrant Wage | .0285 | .0105 | .0440 | .0461 | .0603 | .0625 | .0727 | .1003 | .0647 | .0648 |
| | ( 10.2) | ( 2.0) | ( 4.1) | ( 5.0) | ( 10.1) | ( 7.0) | ( 13.1) | ( 11.5) | ( 3.6) | ( 3.9) |
| Share of individuals with correct predictions | .278 | .376 | .432 | .365 | .368 | .501 | .427 | .378 | .477 | .650 |
| Individuals | 15,170 | 6,677 | 1,666 | 2,377 | 4,995 | 3,283 | 7,595 | 3,534 | 1,262 | 1,686 |

SOURCE: Calculations using 1990-91 INS Admissions data.
NOTES:
1) Entries in table are p(1-p)*b, where b is estimated coefficient and p=1/35.
2) Geographic coverage is 35 largest metropolitan areas.
3) Population is sampled with .5 probability.
4) See text and data appendix for further description of variables.

**Table 9**
**Distribution of Year of Arrival in U.S. of Adjustee Immigrants**
**Men Aged 21-54**

| | *Permanent Visa Type* | | | |
|---|---|---|---|---|
| | All | | *Employment* | |
| Non-Immigrant Visa | Adjustees | Spouse | Primary | Beneficiary |
| Pre-1980 | .016 | .019 | .011 | .009 |
| 1981 | .009 | .008 | .011 | .005 |
| 1982 | .019 | .019 | .016 | .015 |
| 1983 | .026 | .025 | .026 | .036 |
| 1984 | .039 | .037 | .042 | .031 |
| 1985 | .054 | .047 | .071 | .087 |
| 1986 | .076 | .070 | .095 | .102 |
| 1987 | .092 | .080 | .130 | .131 |
| 1988 | .138 | .127 | .169 | .169 |
| 1989 | .172 | .182 | .140 | .153 |
| 1990 | .291 | .316 | .220 | .218 |
| 1991 (Jan. - Sept.) | .069 | .068 | .069 | .044 |

SOURCE: FY 91 INS Immigrants Admitted to the United States

## Table 10
## Conditional Logit Analysis of Adjustees' Intended Residence, Levels
## Men Aged 21-54

(Entries in table are marginal own-area effects, absolute values of z-ratios in parentheses)

| | | Unconstrained Models | | |
|---|---|---|---|---|
| | **Con-strained** | Spouse of U.S. | *Employment* | |
| Variable | **Model** | Citizen | Primary | Beneficiary |
| *Distance from Country of Birth (1k mi.)* | | | | |
| Linear | -.0123 | -.0163 | .0002 | -.0300 |
| | ( 9.5) | ( 11.0) | ( 0.1) | ( 2.2) |
| Squared | .0003 | .0005 | -.0004 | .0022 |
| | ( 3.0) | ( 4.1) | ( 1.5) | ( 7.3) |
| *Weather* | | | | |
| Average Monthly Rainfall (inches) | -.0016 | -.0026 | .0004 | -.0004 |
| | ( 5.5) | ( 7.1) | ( 0.7) | ( 0.2) |
| Average Temperature (degrees F) | -.0003 | -.0002 | -.0006 | -.0008 |
| | ( 3.9) | ( 1.6) | ( 4.2) | ( 1.5) |
| *Population Characterisitcs in 1990* | | | | |
| Population (100,000s) | .0004 | .0004 | .0003 | .0005 |
| | ( 58.9) | ( 52.0) | ( 21.3) | ( 8.6) |
| Foreign-Born Share (0-100) | .0014 | .0013 | .0016 | .0015 |
| | ( 21.3) | ( 17.7) | ( 11.7) | ( 2.9) |
| Region-of-Birth Share (0-100) | .0022 | .0019 | .0037 | .0030 |
| | ( 16.4) | ( 12.9) | ( 7.1) | ( 1.7) |
| Language Share (0-100) | .0003 | .0001 | .0007 | -.0002 |
| | ( 3.8) | ( 1.7) | ( 2.4) | ( 0.2) |
| *Labor Market Conditions in 1990* | | | | |
| Male 21-54 Unemp. Rate (0-100) | -.0029 | -.0024 | -.0042 | -.0107 |
| | ( 8.6) | ( 5.8) | ( 6.4) | ( 4.3) |
| Expected Log Immigrant Wage | .0362 | .0220 | .1077 | .0847 |
| | ( 9.4) | ( 4.7) | ( 13.0) | ( 3.0) |
| Share of individuals with correct predictions | .309 | .338 | .263 | .350 |
| Individuals | 11,517 | 8,235 | 2,572 | 234 |

SOURCE: Calculations using 1990-91 INS Admissions data.

NOTES:

1) Entries in table are p(1-p)*b, where b is estimated coefficient and p=1/35.
2) Geographic coverage is 35 largest metropolitan areas.
3) Population is sampled with .5 probability.
4) See text and data appendix for further description of variables.

**Table 11**
**Conditional Logit Analysis of New Immigrants' Intended Residence, Changes**
**Men Age 21-54**

(Entries in table are marginal own-area effects, absolute values of z-ratios in parentheses)

| | | Unconstrained Models | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *Relatives of U.S. Citizens* | | | | *Rel. of Res. Aliens* | | *Employment* | | |
| Variable | **Con-strained Model** | Spouse | Unmarried Child | Married Child | Sibling | Spouse | Unmarried Child | Primary | Bene-ficiary | Diversity |
| *Change in Population Characteristics* | | | | | | | | | | |
| Δ log(native population) | -.7657 | -.5947 | -.6453 | -.8749 | -.6907 | -1.0550 | -.8175 | -.7545 | -.9712 | -1.1790 |
| | ( 160.5) | ( 67.5) | ( 33.8) | ( 45.1) | ( 59.9) | ( 55.9) | ( 77.2) | ( 49.2) | ( 29.2) | ( 39.5) |
| Δ log(foreign-born population) | .1880 | .1484 | .1567 | .1912 | .1744 | .2526 | .1936 | .2129 | .2956 | .2889 |
| | ( 124.0) | ( 52.8) | ( 26.0) | ( 34.0) | ( 46.6) | ( 41.8) | ( 57.2) | ( 40.0) | ( 25.1) | ( 27.7) |
| Δ log(pop. from region of birth) | .0018 | -.0060 | -.0129 | .0151 | -.0005 | .0105 | .0060 | .0090 | -.0197 | .0634 |
| | ( 2.5) | ( 3.9) | ( 3.8) | ( 5.3) | ( 0.2) | ( 3.9) | ( 3.6) | ( 4.0) | ( 4.9) | ( 15.8) |
| *Change in Labor Market Conditions* | | | | | | | | | | |
| Δ log(25-54 male unemp. rate) | .0059 | .0067 | -.0082 | -.0083 | .0090 | .0155 | .0060 | -.0018 | -.0162 | -.0209 |
| | ( 6.4) | ( 3.8) | ( 2.1) | ( 2.3) | ( 4.0) | ( 4.3) | ( 2.9) | ( 0.1) | ( 2.4) | ( 3.6) |
| Δ log(real wage) | .1669 | .1281 | .1537 | .0562 | .1231 | .2207 | .1803 | .2538 | .3561 | .1393 |
| | ( 54.0) | ( 20.7) | ( 11.6) | ( 4.9) | ( 15.4) | ( 19.3) | ( 26.0) | ( 25.2) | ( 18.9) | ( 7.8) |
| Demand Index | .5116 | .4361 | .4107 | .4636 | .4658 | .4949 | .5799 | .5439 | .4897 | .2385 |
| | ( 50.3) | ( 23.2) | ( 10.4) | ( 11.9) | ( 18.0) | ( 12.6) | ( 25.2) | ( 15.5) | ( 7.3) | ( 3.5) |
| Individuals | 33,075 | 6,677 | 1,666 | 2,377 | 4,995 | 3,283 | 7,595 | 3,534 | 1,262 | 1,686 |

SOURCE: Calculations using 1990-91 INS Admissions data.

NOTES:

1) All models also include a quadratic in distance from country of birth, average rainfall, and average monthly temperature as regressors.
2) Entries in table are p(1-p)*b, where b is estimated coefficient and p=1/35.
3) Geographic coverage is 35 largest metropolitan areas.
4) Population is sampled with .5 probability.
5) See text and data appendix for further description of variables.

## Table 12
## Conditional Logit Analysis of Adjustees' Intended Residence, Changes
## Men Age 21-54

(Entries in table are marginal own-area effects, absolute values of z-ratios in parentheses)

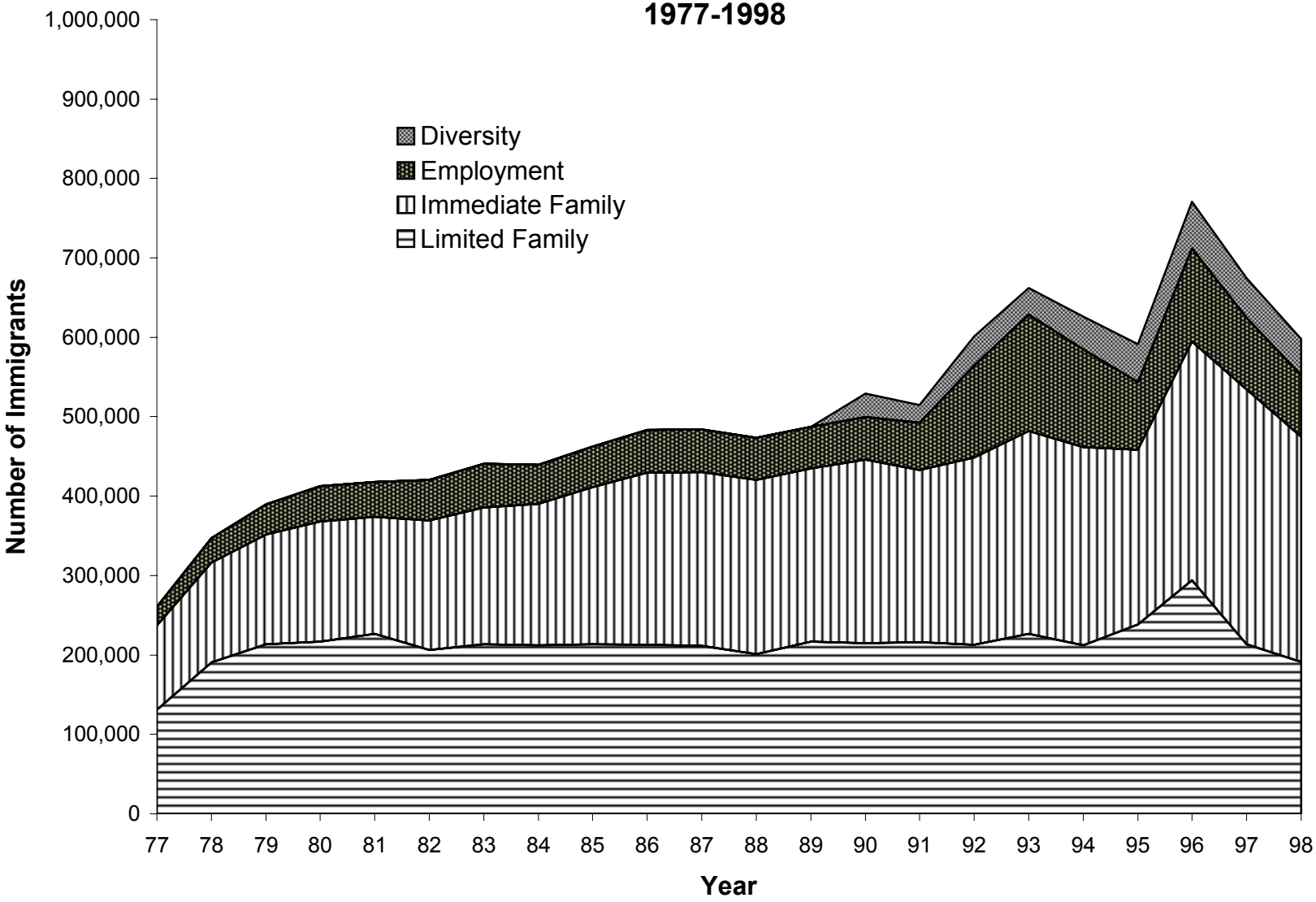
| Variable | **Con-strained Model** | Spouse of U.S. Citizen | *Employment* Primary | *Employment* Beneficiary |
|---|---|---|---|---|
| *Change in Population Characteristics* | | | | |
| Δ log(native population) | -.5853 | -.5807 | -.5955 | -.7049 |
| | ( 85.3) | ( 71.8) | ( 41.3) | ( 13.4) |
| Δ log(foreign-born population) | .1447 | .1388 | .1539 | .2049 |
| | ( 66.1) | ( 54.2) | ( 32.0) | ( 11.3) |
| Δ log(pop. from region of birth) | .0121 | .0094 | .0264 | .0064 |
| | ( 9.6) | ( 6.4) | ( 8.8) | ( 0.6) |
| *Change in Labor Market Conditions* | | | | |
| Δ log(25-64 male unemp. rate) | .0086 | .0127 | -.0055 | -.0019 |
| | ( 6.4) | ( 8.1) | ( 1.9) | ( 0.2) |
| Δ log(real wage) | .0487 | .0787 | -.0147 | .0574 |
| | ( 10.2) | ( 13.5) | ( 1.5) | ( 1.8) |
| Demand Index | .4664 | .4594 | .5272 | .4787 |
| | ( 29.5) | ( 25.9) | ( 11.9) | ( 3.6) |
| Individuals | 11,517 | 8,235 | 2,572 | 234 |

SOURCE: Calculations using 1990-91 INS Admissions data.

NOTES:

1) All models also include a quadratic in distance from country of birth, average rainfall, and average monthly temperature as regressors.
2) Entries in table are p(1-p)*b, where b is estimated coefficient and p=1/35.
3) Geographic coverage is 35 largest metropolitan areas.
4) Population is sampled with .5 probability.

**Figure 1**
**Number of Permanent Resident Aliens Admitted in Different Categories**
**1977-1998**




SOURCE: *Statistical Abstract of the United States*, various years; *Annual Report on Legal Immigration Fiscal Year 1998*, Immigration and Naturalization Service.