Does Immigration Reduce Imbalances Among Labor Markets or Increase Them?

Evidence from Recent Migration Flows

By William R. Keeton and Geoffrey B. Newton

Immigration from abroad has increased dramatically since the 1960s, as workers from less-developed countries have moved to the United States in search of higher wages. The recent influx represents the second great wave of immigration in this country, the first having occurred in the late 1800s and early 1900s when people moved here from Europe. The new wave of immigration has reignited the debate about the impact of immigration on the economy. While the U.S. economy was booming in the second half of the 1990s and workers were in short supply, the debate over the economic impact of immigration attracted little attention. However, the issue moved back into the limelight during the current decade as immigration continued to grow and employment was slow to recover from the 2001 recession.

One way immigration affects the economy is through the labor market. At the national level, immigration is widely believed to harm native workers with similar skills by reducing their wages or their probability of obtaining a job. Since a relatively high proportion of new immigrants are unskilled, these adverse labor market effects should fall most heavily on unskilled native workers. But in addition to changing

William R. Keeton is an assistant vice president and economist at the Federal Reserve Bank of Kansas City. Geoffrey B. Newton is a research associate at the Bank. The article is on the bank's website at ***www.kansascityfed.org.***

aggregate supplies of workers of different skills, immigration can significantly alter the allocation of workers across markets—either for better or for worse. If immigrants gravitate to markets with unusually strong labor demand, they will reduce differences in wages and unemployment between strong and weak markets, making it unnecessary for as many native workers to move. On the other hand, if immigrants move to markets with average or below-average labor demand, they may create an excess supply of workers with similar skills in these markets. Some natives may move out of these markets to avoid a cut in wages, and other natives may avoid these markets even if they would be well suited to living there on other grounds.

This article sheds new light on the impact of immigration on the allocation of workers across markets by examining migration flows in metropolitan areas and towns during the second half of the 1990s. The article finds support for both views of the impact of immigration on the allocation of labor across markets. Immigrants tended to gravitate to markets that could be expected to experience strong growth in labor demand based on their initial industrial mix. At the same time, however, natives tended to stay out of markets that could be expected to experience high immigration based on past settlement patterns. From these findings, the article concludes that the impact of immigration on the geographic allocation of labor is neither as harmful as immigration opponents sometimes suggest, nor as beneficial as immigration supporters sometimes claim.

The first section of the article explains the possible effects of immigration on the allocation of labor across markets. Specifically, the section shows that immigration could either reduce imbalances across labor markets or increase them, depending on why new immigrants choose to locate where they do and how natives and established immigrants respond. The second section describes the migration data used in the article and provides an overview of migration flows during the period 1995-2000. The third section presents the empirical results on the impact of immigration on the allocation of labor across markets.

I. EFFECTS OF IMMIGRATION ON THE GEOGRAPHIC ALLOCATION OF LABOR

Much of the current controversy over immigration relates to its effect on the distribution of income among different groups of people within the United States. Standard economic models suggest that an influx of immigrants should benefit native-born workers with different education and skills by freeing up those workers for more productive tasks. However, standard economic models also suggest that an influx of immigrants should harm native-born workers with similar education and skills by increasing the total supply of such workers and reducing their wages. Given that a high percentage of immigrants are unskilled, such wage cuts would be borne mainly by unskilled native workers, some of whom may already be close to or below the poverty line.

This article focuses on another effect of immigration that has received less attention but is also very important—the impact on the geographical allocation of labor. New immigrants are not evenly distributed across the United States. Instead, they tend to concentrate in particular markets. This uneven distribution raises the question whether immigration reduces imbalances across labor markets or increases such imbalances. As explained below, either effect is possible in theory.

How immigration could reduce imbalances across labor markets

To see how immigration could reduce imbalances across labor markets, it is first necessary to understand how such imbalances can arise in the absence of immigration. The main way is through exogenous differences across areas in the growth of labor demand—differences that are not due to the movement of people between areas.

Some markets may experience stronger growth in labor demand than others due to a more favorable industrial mix. Specifically, some markets may specialize in goods and services for which demand is growing especially fast in the nation as a whole. For example, when demand for telecommunications equipment increased in the second half of the 1990s, markets specializing in the manufacture of such equipment tended to experience above-average job growth.

Other markets may experience above-average growth in labor demand not because of their industrial mix, but because of some production advantage—some characteristic of the market that enables firms to offer lower prices or higher product quality than similar firms in other markets. For example, the clustering of high-tech firms in a market may facilitate the exchange of information, leading to more innovation and product development in that market.

Whether the stronger growth in local labor demand is due to favorable industrial structure or a local production advantage, wages will tend to rise relative to other markets and unemployment rates will tend to fall. Such differences in wages and employment opportunities across markets represent an inefficient allocation of labor in the economy. Specifically, when workers with given skills and experience are paid a higher wage in one market than another or have an easier time finding a job, shifting some workers from the low-wage market to the high-wage market will generally increase total output of goods and services in the economy.[1]

Over time, the gap in wages between markets with strong labor demand and markets with weak labor demand tends to be eliminated through the movement of workers within the United States. However, workers must incur substantial costs in moving, including not only the pecuniary costs of moving belongings and obtaining new housing, but also the psychic costs of leaving familiar surroundings. Thus, even though workers in the United States tend to be more mobile than in many other areas of the world, they respond only slowly to differences in wages across markets. According to some estimates, for example, it would take 30 years for migration to eliminate just half the difference in wages across U.S. states (Blanchard and Katz).

Immigration may speed this adjustment if new immigrants gravitate to markets with strong labor demand. In contrast to native workers who have not yet moved, new immigrants just arriving in the United States have already incurred most of the costs associated with moving. Having incurred these moving costs, immigrants might be expected to locate where labor demand is strongest, since both the level of wages and the probability of finding a job will be highest in such markets. This view of immigration is sometimes referred to as the demand-pull view. To the extent immigrants do decide where to locate on this basis,

the gap in wages between markets with strong labor demand and markets with weak labor demand will be eliminated more quickly. In this case, immigration can be said to "grease the wheels of the labor market" (Borjas 2001).

In one of the few empirical studies to examine this possibility, Borjas found some support for the view that immigrants help reduce imbalances across labor markets by moving to markets with strong labor demand. For each state and for the census years 1960, 1970, and 1980, Borjas estimated the average wage earned by native workers in five categories of educational attainment, ranging from only nine years of schooling to a college degree. He then showed that in states in which native workers in a particular educational group earned relatively high wages, new immigrants in the same educational group tended to be over-represented relative to natives five years later. From this finding, Borjas concluded that new immigrants tend to gravitate to states paying high wages.[2] In an additional test of the "grease the wheels" hypothesis, Borjas examined the relationship between the rate of changes in wages in a state and the inflow of new immigrants to the state. Consistent with the hypothesis, he found that wages for a particular educational group tended to adjust faster toward the national average in those states that received the most new immigrants in the group relative to the supply of native workers in the group.

How immigration could increase imbalances across labor markets

If immigrants do not gravitate to markets with strong labor demand, immigration could increase imbalances across labor markets instead of reducing them. A number of studies have found that immigrants tend to move to markets where established immigrants of the same nationality are already living (Bartel, Card). The most common explanation for this phenomenon is that people of similar ethnic background can provide support to new immigrants in finding a job and adjusting to life in the United States. But the markets with the highest past immigration need not be the markets with the strongest current growth in labor demand. If these high-immigration markets are experiencing only average or below-average growth in labor demand, the influx of new immigrants will cause labor supply to grow faster than

labor demand, putting downward pressure on local wages. This view of immigration, which is sometimes referred to as the supply-push view, suggests that immigration may worsen the allocation of labor across markets by opening up gaps in wages and employment opportunities.

The supply-push view of immigration suggests that wages should be lower in high-immigration markets than low-immigration markets, while unemployment rates should be higher. But most empirical studies by economists have found little relationship across markets between the amount of immigration on the one hand and the level of wages or employment opportunities on the other hand (Borjas 2001, Card). This finding might seem to imply that immigration does not create imbalances across labor markets. However, some economists have pointed out that the imbalances created by immigration may not show up in the form of differences in wages across markets, but instead in the form of offsetting changes in domestic migration (Borjas 1999). As immigration starts to put downward pressure on local wages, both natives and established immigrants living in the area may decide to move to markets with lower immigration to avoid the fall in wages. Moreover, observing the increased competition in the local labor market from new immigrants, natives, and established immigrants in other parts of the United States may decide not to move to the area.

These offsetting changes in domestic migration may prevent wages and employment opportunities from falling in high-immigration markets, but they will still be harmful to the natives and established immigrants whose migration behavior is altered. Individuals who move out of a high-immigration market to avoid a cut in wages will have to incur costs of moving—for example, the costs of moving belongings, finding new lodgings, and leaving family or friends. And individuals who decide not to move to a high-immigration market because of the downward pressure on local wages will be worse off because they will be giving up living in an area to which they would otherwise be well suited.

Empirical studies by economists and demographers have reached widely differing conclusions about the tendency for immigration to produce offsetting changes in domestic migration. Several studies have found that increases in immigration are associated with significant decreases in net native in-migration (Filer; Frey; Borjas, Freeman, and Katz). However, a number of other studies have found that immigra-

tion has little or no impact on domestic migration (Card; Kritz and Gurak; Wright, Ellis, and Reibel). Evaluating and comparing these studies is no easy task, because they use different time periods, different geographical definitions, and different measures of migration flows.

II. AN OVERVIEW OF MIGRATION DURING THE SECOND HALF OF THE 1990's

As shown above, whether immigration improves or worsens the allocation of labor across markets cannot be decided on the basis of theory alone. Under the demand-pull view, immigration could reduce imbalances across labor markets. But under the supply-push view, immigration could increase imbalances. This article tries to shed new light on the issue by looking at the empirical evidence for demand-pull and supply-push immigration during a period that has not yet been extensively studied—the second half of the 1990s.

The source for the migration data used in the article is the 2000 Census. Through the long form, which is distributed to one-sixth of the population during the decennial census, the Census Bureau collects a great deal of information about the social and economic characteristics of U.S. residents. One of the questions on the form asks where the respondent lived five years ago. From the answers to this question, it is possible to calculate both flows of people within the United States and flows of people from abroad during the years 1995-2000. Another question on the long form asks where the respondent was born. From the answers to this question, it is possible to separate migration flows into people born in the United States (natives) and people born in a foreign country (immigrants).

This article differs from some other studies based on the Census migration data in one key respect. Many studies use a micro-level data set from the Census Bureau consisting of complete responses by a relatively small sample of the population—5 percent.[3] This article makes use of another Census data set consisting of aggregated migration flows for each county in the United States. This second data set has the disadvantage of containing less information about the social and economic characteristic of migrants than the first data set. However, the aggregated data have the important advantage of being based on a larger sample of

the population than the micro data—the set of all people answering the long form of the 2000 Census questionnaire (one out of six). This larger sample is particularly important when examining migration flows in smaller areas, which is one of the purposes of this article.[4]

Migration flows are examined for three sizes of communities—large metropolitan areas, small metropolitan areas, and micropolitan areas (Table 1). The Census Bureau defines metro areas as areas with a central city of at least 50,000 people. For purposes of this article, large metro areas are classified as those with a 1995 population of at least 200,000, while small metro areas are defined as those with a 1995 population less than 200,000. Micropolitan areas are those that do not have a large enough city to be classified as metropolitan but do have a town of at least 10,000 people. In 2000, there were 179 large metro areas, 178 small metro areas, and 554 micropolitan areas in the continental United States. As shown in the table, small metro areas and micropolitan areas are fairly uniform in size (the average population is close to the median population). In contrast, large metro areas differ considerably in size (due to the presence of a few very large metro areas, the average population is well above the median population).

Table 2 shows average migration flows during 1995-2000 in the three types of community. In each case, the migration flow for an area is expressed as a percentage of the area's beginning of period population. Inflows of new immigrants to an area consist of people who were born abroad, lived in the area in 2000, and lived abroad in 1995. Net inflows equal gross inflows of natives from the rest of the United States minus gross outflows of natives to the rest of the United States. Gross native inflows include all people who were born in the United States, lived in the area in 2000, and lived somewhere else in the United States in 1995. Similarly, gross native outflows include all people who were born in the United States, lived in the market in 1995, and lived somewhere else in the United States in 2000. Net inflows of established immigrants are defined in the same way, except that they refer to people who were born in a foreign country and already lived in the United States by 1995.

Table 2 highlights three important facts about migration flows during the second half of the 1990s. First, despite a sharp increase in immigration in the second half of the 1990s, it was still a less important source of population change in most areas than domestic migration. For

Table 1

CLASSIFICATION OF AREAS

	Large metro areas	Small metro areas	Micropolitan areas
Number of areas	179	178	554
Median 1995 population (thousands)	443	118	40
Average 1995 population (thousands)	1,042	123	47

Note: For each area, 1995 population is approximated by the number of people who reported living in the area in both 1995 and 2000 plus the number people who reported living in the area in 1995 and living elsewhere in the U.S. in 2000.

Source: Census Bureau

Table 2

AVERAGE SIZE OF MIGRATION FLOWS, 1995-2000 PEOPLE AGED 5 AND OVER IN 2000

	Large metro areas	Small metro areas	Micropolitan areas
Inflow of new immigrants from abroad	1.8	1.2	.8
Net inflow of natives from rest of U.S. (absolute value)	2.8	3.6	3.9
Net inflow of established immigrants from rest of U.S. (absolute value)	.5	.4	.4

Note: All migration flows are measured as a percent of the area's approximate 1995 population (see note to Table 1).

Source: Census Bureau

example, in large metro areas, the inflow of new immigrants changed population by an average of 1.8 percent, while the net inflow or net outflow of natives changed population by an average of 2.8 percent. Second, immigration from abroad contributed substantially more to population growth in large communities than small communities. For example, immigration raised population by an average of 1.8 percent in large metro areas, but by an average of only 0.8 percent in micropolitan areas. Third, migration of established immigrants influenced population growth but was less important than either new immigration or native migration. Specifically, net inflows of established immigrations changed population by an average of approximately half a percentage point in all three types of area.

III. WHERE DID NEW IMMIGRANTS MOVE, AND HOW DID U.S. RESIDENTS RESPOND?

To assess the impact of immigration on the geographic allocation of labor, this section focuses on two key questions about 1995-2000 migration flows. First, where did new immigrants move when they came to the United States? Specifically, were they only interested in moving to markets where other immigrants of similar background were already living (the supply-push view), or did they also seek out markets with unusually strong growth in labor demand (the demand-pull view). Second, when new immigrants moved into a market in order to live with other immigrants of similar background, how were the migration decisions of natives and established immigrants affected? For example, did natives and established immigrants already living in the market decide to leave? And how did natives and established immigrants who were considering moving to the market from elsewhere in the United States react to the influx of new immigrants? Did they decide to move to the market anyway, or did they decide to stay away from the market?

Identifying demand-pull and supply-push immigration

The first step in answering these questions is to construct a measure of the strength in local labor demand and a measure of the concentration of immigrants of similar background. The first measure is needed to assess the importance of demand pull, while the second measure is needed to determine the importance of supply push.

Demand pull. Measuring the strength of local labor demand is not an easy task. At first glance, it would seem natural to use an area's actual employment growth during the second half of the 1990s. However, actual employment growth is a poor measure of labor demand because employment growth is jointly determined with migration flows. Specifically, causation can run in two possible ways—from employment growth to migration flows, or from migration flows to employment growth. Suppose, for example, that markets with high employment growth during the second half of the 1990s were found to have high rates of immigration during the same period. Such a relationship could mean that new immigrants moved to markets with fast employment growth (people followed jobs). However, it could also mean that markets with high immigration generated more jobs (jobs followed people). For example, to take advantage of the more plentiful supply of workers, existing firms may have expanded their operations, and new firms may have entered the market.

The way to avoid such ambiguity is to use a measure of labor demand that is exogenous in the sense of being independent of migration flows. The specific measure used in this study is the employment growth an area could have been expected to experience based on the area's industrial mix at the beginning of the period and on national employment growth in each industry during the period.[5] This measure has the advantage of depending only on conditions at the beginning of the period (the area's initial industrial mix) and on conditions outside the local market (national job growth in each industry). The measure is also strongly correlated with actual employment growth during the second half of the 1990s, suggesting that it is a good proxy for the underlying strength of local labor demand.[6]

Supply push. Measuring the concentration of immigrants who are of similar background to new immigrants is more straightforward. Census data are available on the number of immigrants living in each area in 1990 by region of birth. Data are also available on the total number of immigrants moving to the United States during 1995-2000 by region of birth. From these data, it is possible to calculate a measure of expected immigration for each area based on past settlement patterns. This measure is the number of new immigrants an area could have expected to receive if its share of 1995-2000 immigrants from each region of the world were the same as its share of pre-1990 immigrants from each region of the world. Under this definition, an area's expected immigration would be higher the more immigrants the area had in 1990 and the more similar these immigrants were in national origin to the immigrants currently entering the United States.

Effects of demand pull and supply push: a preliminary look

To see if immigrants gravitate toward areas with strong growth in labor demand, Tables 3a and 3b show the 30 large metro areas and the 30 micropolitan areas with the highest expected employment growth based on their local industrial mix. For each area, the first column shows expected employment growth, while the second column shows actual employment growth. The remaining columns show immigration, net inflows of natives, and net inflows of established immigrants—all expressed as a percent of the area's initial population.

The first two columns of Tables 3a and 3b confirm that expected employment growth was positively related to actual employment growth, making it a good proxy for exogenous shifts in labor demand. In Table 3a, actual employment growth was above the national average in 23 of the 30 large metro areas with the highest expected employment growth. Moreover, actual employment growth averaged 19.1 percent for the top 30 areas, compared to only 12.6 percent for all large metro areas. In Table 3b, actual employment growth exceeded the national average in 20 of the 30 micropolitan areas with the highest expected employment growth. Also, actual employment growth averaged 13.4 percent for the top 30 areas, versus only 9.1 percent for all micropolitan areas.

Table 3a

MIGRATION FLOWS IN LARGE METRO AREAS WITH HIGHEST EXPECTED EMPLOYMENT GROWTH

Metro area	Expected employment growth based on industrial mix	Actual employment growth	Immigration	Net native inflows	Net inflows of established immigrants
Sarasota-Bradenton-Venice, FL	18.9	28.7	2.1	9.3	1.1
Las Vegas-Paradise, NV	18.2	42.0	4.8	14.9	5.2
Omaha-Council Bluffs, NE-IA	16.7	15.5	1.4	-.8	.4
Phoenix-Mesa-Scottsdale, AZ	16.7	33.7	4.3	7.8	1.5
Tampa-St. Petersburg-Clearwater, FL	16.0	17.8	2.2	4.2	.8
Provo-Orem, UT	15.9	28.6	2.7	4.8	.2
Orlando, FL	15.7	24.9	3.3	5.5	1.9
Huntsville, AL	15.7	8.4	1.1	2.8	-.1
Raleigh-Cary, NC	15.6	26.4	4.0	9.9	1.6
Atlantic City, NJ	15.5	6.8	2.6	-1.0	.4
Denver-Aurora, CO	15.4	21.0	3.5	2.9	1.4
Jacksonville, FL	15.4	15.0	1.3	2.5	.6
Boulder, CO	15.0	18.2	3.2	2.2	.5
Atlanta-Sandy Springs-Marietta, GA	15.0	22.8	3.8	5.6	1.4
Colorado Springs, CO	14.9	25.6	1.9	.9	.5
Dallas-Fort Worth-Arlington, TX	14.8	23.4	4.6	2.5	.9
San Francisco-Oakland-Fremont, CA	14.5	15.2	4.9	-2.6	.0
Washington-Arlington-Alexandria, DC-VA-MD-WV	14.5	10.4	4.5	-1.5	.1
Gulfport-Biloxi, MS	14.4	14.2	.6	2.4	.0
Cape Coral-Fort Myers, FL	14.4	15.0	2.7	11.4	1.4
San Jose-Sunnyvale-Santa Clara, CA	14.4	20.1	7.3	-6.3	-.3
Portland-Vancouver-Beaverton, OR-WA	14.3	18.4	3.1	2.2	.8
Austin-Round Rock, TX	14.3	30.2	4.3	9.1	1.3
Columbus, OH	14.2	14.0	1.7	2.5	.3
Salt Lake City, UT	14.2	22.4	3.4	-1.8	.6
Albuquerque, NM	14.1	11.7	1.5	.2	.0
Lansing-East Lansing, MI	14.0	5.4	1.8	-.3	-.4
Seattle-Tacoma-Bellevue, WA	14.0	19.5	3.2	.4	.6
Bridgeport-Stamford-Norwalk, CT	14.0	8.9	4.0	-3.8	.0
Tucson, AZ	13.9	9.1	2.4	3.9	.5
Average for top 30	**15.2**	**19.1**	**3.1**	**3.0**	**.8**
Average for all large metros	**12.2**	**12.6**	**1.8**	**.9**	**.1**

Note: All migration flows are measured as a percent of the area's approximate 1995 population (see note to Table 1). Expected employment growth is calculated from the area's 1994 industrial mix and from U.S. employment growth in each industry during 1994-99.

Table 3b

MIGRATION FLOWS IN MICROPOLITAN AREAS WITH HIGHEST EXPECTED EMPLOYMENT GROWTH

Micropolitan area	Expected employment growth based on industrial mix	Actual employment growth	Immigration	Net native inflows	Net inflows of established immigrants
Stillwater, OK	24.2	17.0	2.9	6.4	-1.2
Los Alamos, NM	19.9	6.8	1.6	-10.7	-.1
Gardnerville Ranchos, NV	19.1	11.5	.8	8.5	.1
Pahrump, NV	17.0	11.5	1.1	23.7	1.5
Hilton Head Island-Beaufort, SC	15.6	32.0	2.7	10.4	1.1
Spearfish, SD	15.3	-11.8	.2	-1.5	.0
Richmond, IN	15.1	4.8	.4	-2.9	.1
Edwards, CO	15.1	36.9	8.4	3.9	1.2
Wilson, NC	14.8	9.6	1.8	.2	.4
Portales, NM	14.7	5.4	.5	-8.5	-1.7
Durango, CO	14.7	18.8	.6	5.8	.2
Kill Devil Hills, NC	14.6	27.8	.9	8.1	-.2
Tullahoma, TN	14.5	3.2	.6	2.5	.3
Homosassa Springs, FL	14.2	12.5	.5	14.7	1.0
Jackson, WY-ID	14.1	20.8	2.9	-1.7	-.4
Lake Havasu City-Kingman, AZ	14.1	20.1	1.1	11.9	.6
Dyersburg, TN	14.1	.6	.6	1.1	.1
Cedar City, UT	14.0	35.1	1.1	10.2	1.1
Red Wing, MN	13.9	7.7	.3	1.2	.0
Silverthorne, CO	13.9	22.8	6.3	1.9	1.9
Vicksburg, MS	13.9	3.0	.1	-4.1	-.1
Las Vegas, NM	13.8	-.3	.8	-.9	.1
Taos, NM	13.8	10.5	.7	.8	.1
Okeechobee, FL	13.8	12.5	2.9	1.9	-1.5
Kalispell, MT	13.7	12.9	.4	1.4	.0
Hammond, LA	13.7	15.1	.2	4.3	.0
Marion-Herrin, IL	13.7	11.3	.1	2.8	-.1
Fallon, NV	13.7	21.3	1.1	4.7	.4
Effingham, IL	13.6	16.7	.2	-6.6	-.3
Ellensburg, WA	13.5	6.8	1.7	8.6	.4
Average for top 30	**15.0**	**13.4**	**1.4**	**3.3**	**.2**
Average for all micropolitan areas	**10.5**	**9.1**	**.8**	**.6**	**.0**

Note: All migration flows are measured as a percent of the area's approximate 1995 population (see note to Table 1). Expected employment growth is calculated from the area's 1994 industrial mix and from U.S. employment growth in each industry during 1994-1999.

Consistent with the demand-pull story, Table 3a shows that large metro areas with high expected employment growth attracted high net inflows of all three types of migrants—new immigrants, natives, and established immigrants. Of the 30 metro areas shown, 23 had above-average immigration, 19 had above-average net native inflows, and 22 had above-average net inflows of established immigrants. Furthermore, as shown in the last two rows, the average inflow of immigrants and the average net inflow of natives and established immigrants was considerably higher in the 30 metro areas than in all large metro areas. For example, as a percent of initial population, immigration averaged 3.1 percent for the 30 metro areas shown in the table, but only 1.8 percent for all large metro areas.

Table 3b provides considerably less support for the demand pull view of immigration in micropolitan areas. Although average expected employment growth is much larger for the areas shown in the table than for all micropolitan areas, average immigration is only modestly higher—1.4 percent versus 0.8 percent. Furthermore, immigration was above the average for all micropolitan areas in only half of the micropolitan areas shown in the table.

Tables 4a and 4b provide similar evidence on supply-push immigration. These two tables show the 30 large metro areas and the 30 micropolitan areas with the highest rates of expected immigration based on past settlement patterns. For each area, the first column shows expected immigration expressed as a percent of initial population. The remaining columns show actual immigration, net inflows of natives, and net inflows of established immigrants—all expressed as a percent of initial population.

Consistent with the supply-push view, large metro areas with high rates of expected immigration based on past settlement patterns also had high rates of actual immigration in the second half of the 1990s. The first two columns of Table 4a show that actual immigration was above the national average in 29 out of the 30 large metro areas in the nation with the highest expected immigration. In addition, actual immigration averaged twice as much in these metro areas as in all large metro areas—3.6 percent of initial population versus 1.8 percent.

Table 4a

MIGRATION FLOWS IN LARGE METRO AREAS WITH HIGHEST EXPECTED IMMIGRATION

Metro area	Expected immigration based on past settlement patterns	Actual immigration	Net native inflows	Net inflows of established immigrants
Los Angeles-Long Beach-Santa Ana, CA	9.7	4.7	-3.5	-2.0
El Paso, TX	8.5	3.5	-5.6	-1.9
McAllen-Edinburg-Pharr, TX	7.4	3.8	-1.4	-1.2
Salinas, CA	7.3	5.1	1.1	-.4
Brownsville-Harlingen, TX	7.3	3.0	-3.6	-1.4
San Jose-Sunnyvale-Santa Clara, CA	6.2	7.3	-6.3	-.3
San Francisco-Oakland-Fremont, CA	6.1	4.9	-2.6	.0
Miami-Fort Lauderdale-Miami Beach, FL	5.9	6.8	-1.0	.3
New York. New Jersey-Long Island, NY-NJ-PA	5.6	4.5	-3.7	-1.1
Oxnard-Thousand Oaks-Ventura, CA	5.5	2.7	.2	-.3
Visalia-Porterville, CA	5.5	2.6	-3.6	-1.3
Santa Barbara-Santa Maria-Goleta, CA	5.4	3.4	-1.4	-2.0
Fresno, CA	5.2	2.6	-2.2	-2.2
San Diego-Carlsbad-San Marcos, CA	5.1	3.3	.0	-.3
Stockton, CA	4.4	2.8	1.5	.3
Riverside-San Bernardino-Ontario, CA	4.1	2.3	1.6	1.1
Santa Cruz-Watsonville, CA	4.1	2.7	-6.5	-2.3
Modesto, CA	4.0	2.3	.2	.2
Houston-Baytown-Sugar Land, TX	3.8	4.4	-.4	.1
Bakersfield, CA	3.8	2.1	-1.9	-1.1
Chicago-Naperville-Joliet, IL-IN-WI	3.6	3.2	-3.5	-.3
Washington-Arlington-Alexandria, DC-VA-MD-WV	3.6	4.5	-1.5	.1
Yakima, WA	3.6	2.2	-4.3	-.9
Vallejo-Fairfield, CA	3.1	2.3	1.8	.9
Bridgeport-Stamford-Norwalk, CT	3.0	4.0	-3.8	.0
Tucson, AZ	2.7	2.4	3.9	.5
Boston-Cambridge-Quincy, MA-NH	2.6	3.2	-1.5	.0
Trenton-Ewing, NJ	2.6	3.5	-2.4	.0
Dallas-Fort Worth-Arlington, TX	2.5	4.6	2.5	.9
San Antonio, TX	2.5	1.7	1.0	.1
Average for top 30	**4.8**	**3.6**	**-1.6**	**-.5**
Average for all large metros	**1.5**	**1.8**	**.9**	**.1**

Note: All migration flows are measured as a percent of the area's approximate 1995 population (see note to Table 1). Expected immigration is calculated from the area's 1990 immigrant mix by region of birth and from 1995-2000 immigration to the U.S. by region of birth (16 regions).

Table 4b

MIGRATION FLOWS IN MICROPOLITAN AREAS WITH HIGHEST EXPECTED IMMIGRATION

Micropolitan area	Expected immigration based on past settlement patterns	Actual immigration	Net native inflows	Net inflows of established immigrants
Eagle Pass, TX	12.0	3.1	-4.2	-2.5
Nogales, AZ	11.8	3.6	-3.3	-2.7
Rio Grande City, TX	10.8	3.2	-6.6	-3.9
Del Rio, TX	7.5	2.9	-3.8	-.9
Pecos, TX	7.0	.7	-8.0	-.4
Raymondville, TX	5.5	1.2	-9.3	-1.8
Andrews, TX	4.7	.5	-11.8	.0
Dumas, TX	4.6	3.5	-6.7	.4
Uvalde, TX	4.4	1.2	-1.0	-.2
Deming, NM	4.3	2.5	-.5	-.5
Liberal, KS	3.8	7.7	-6.4	-1.1
Sierra Vista-Douglas, AZ	3.5	2.0	.5	-1.2
Hood River, OR	3.5	2.9	-3.5	-1.0
Clewiston, FL	3.5	7.3	-4.2	-.9
Hereford, TX	3.3	1.4	-9.2	-.8
Garden City, KS	3.1	5.4	-3.9	.3
Dodge City, KS	2.9	6.4	-8.5	-.9
Roswell, NM	2.8	1.2	-3.5	.1
Hobbs, NM	2.8	.7	-7.8	.1
Plainview, TX	2.5	1.2	-4.6	.0
Moses Lake, WA	2.5	4.6	.7	.8
Mount Pleasant, TX	2.4	2.9	-3.7	-.9
Pullman, WA	2.3	3.9	2.5	-1.2
Ukiah, CA	2.1	1.6	-2.4	-.1
Walla Walla, WA	2.0	1.8	-1.4	-1.0
Carbondale, IL	2.0	2.9	5.2	-1.5
Pendleton-Hermiston, OR	1.9	1.6	3.2	.3
Fort Morgan, CO	1.9	3.0	-2.8	-.7
Portales, NM	1.8	.5	-8.5	-1.7
Wauchula, FL	1.8	4.3	-2.3	-1.3
Average for top 30	**4.2**	**2.9**	**-3.9**	**-.8**
Average for all micropolitan areas	**.6**	**.8**	**.6**	**.0**

Note: All migration flows are measured as a percent of the area's approximate 1995 population (see note to Table 1). Expected immigration is calculated from the area's 1990 immigrant mix by region of birth and from 1995-2000 immigration to the U.S. by region of birth (16 regions).

Table 4a also confirms that large metro areas with high expected immigration had low net inflows of natives and established immigrants in the second half of the 1990s. Among the 30 large metro areas in the table, 23 areas had lower net inflows of natives than the nationwide average, and 20 areas had lower net inflows of established immigrants than the nationwide average. In addition, net native inflows averaged 2.5 percentage points less in the 30 metro areas than in all large metros (-1.6 percent versus 0.9 percent), while net inflows of established immigrants averaged 0.6 percentage points less in the 30 metro areas than in all large metros (-0.5 percent versus 0.1 percent).

Table 4b provides similar support for the supply-push view in communities at the opposite end of the size spectrum. Among the 30 micropolitan areas with the highest expected immigration, 26 areas had lower net inflows of natives than the nationwide average, and 22 areas had lower net inflows of established immigrants than the nationwide average. In addition, net native inflows averaged 4.5 percentage points less for the 30 areas shown in the table than for all micropolitan areas, and net inflows of established immigrants averaged 0.8 percentage points less for the 30 areas in the table than for all micropolitan areas.

Effects of demand pull and supply push: a closer look

Tables 3 and 4 suggest that in the second half of the 1990s, areas with high expected employment growth and areas with high expected immigration experienced different migration flows than other communities of similar size. However, the tables do not reveal whether these differences were too great to be attributed to random variation in the data. Also, the tables do not reveal whether the differences remain after controlling for other factors that influence migration flows. For example, the large metro areas shown in Table 3a may have attracted large inflows of new immigrants and domestic migrants not because they had high expected employment growth, but because they happened to have a favorable climate or other amenities. Such ambiguities in interpreting the data can be avoided through the use of multiple regression analysis.

Table 5 reports the results of regressing immigration, net inflows of natives, and net inflows of established immigrants on a common set of explanatory variables. These regressions were estimated separately for the three different sizes of community—large metro areas, small metro areas, and micropolitan areas. The numbers in the table are the estimated coefficients on the two explanatory variables of primary interest—expected employment growth based on local industrial mix, and expected immigration based on past immigrants settlement patterns. Both of these measures were constructed in the same way as in Tables 3 and 4.

Several other explanatory variables were included in the regressions to control for other factors influencing migration flows. The estimated coefficients on these variables have been omitted from Table 5 but are reported in the Appendix. As in other migration studies, the average January temperature was included in each of the regressions because people generally prefer to live in areas with warm climates. The region in which the area is located was included because some regions may have other amenities besides a warm climate that make them attractive places to live and work. Finally, the 1990 share of college students in the total population was included for three reasons. First, many people prefer living in areas with highly educated populations, and areas with high college enrollment tend to have highly educated populations (Glaesar and Saiz). Second, immigrants who come to the United States to attend college are more likely to locate in areas with high college enrollment. Finally, due to reporting errors, the Census data may understate outflows of people who lived in an area only temporarily while attending college there.[7]

The results in Table 5 generally confirm the findings from Tables 3 and 4. Consistent with the demand-pull view of immigration, large metro areas with higher expected employment growth tended to have higher inflows of immigrants from abroad. After controlling for other factors, each percentage point increase in expected employment growth is associated with a 0.27 percentage point increase in the ratio of immigration to initial population. The estimated effect is not only positive but also statistically significant, in the sense of being too high to be attributed to chance.[8] As before, the data for smaller communities provide much less support for the demand-pull view—the estimated effect of

Table 5

1995-2000 IMMIGRATION AND NET DOMESTIC MIGRATION FLOWS: ESTIMATED EFFECTS OF EXPECTED EMPLOYMENT GROWTH AND EXPECTED IMMIGRATION

Explanatory variable	Large metro areas	Small metro areas	Micropolitan areas
Immigration from abroad			
Expected employment growth based on local industrial mix	.27**	.06	.00
Expected immigration based on past immigrant settlement patterns	.61**	.54**	.40**
Net inflows of natives			
Expected employment growth based on local industrial mix	.31*	.66**	.33**
Expected immigration based on past immigrant settlement patterns	-.80**	-.77**	-.80**
Net inflows of established immigrants			
Expected employment growth based on local industrial mix	.15**	.04	.02
Expected immigration based on past immigrant settlement patterns	-.17**	-.17**	-.23**

*Significant at 5 percent level
**Significant at 1 percent level

Note: All migration flows are measured as a percent of the area's approximate 1995 population (see note to Table 1). Expected employment growth and expected immigration are measured the same way as in Tables 3 and 4. Complete regression results are in the Appendix.

expected employment growth on immigration is close to zero and statistically insignificant in both small metro areas and micropolitan areas. As in Tables 3a and 3b, the data also support the view that natives and established immigrants prefer markets with strong labor demand. The estimated effect of expected employment growth on net native inflows is positive and statistically significant in all three sizes of communities, while the estimated effect on net inflows of established immigrants is positive and statistically significant in the communities of largest size.

Like Tables 4a and 4b, the regression results also provide support for the supply-push view that new immigrants move where similar immigrants are already living and cause offsetting flows of domestic migrants. After controlling for other factors, each percentage-point increase in expected immigration is associated with a 0.61 percentage-point increase in actual immigration in large metro areas, a 0.54 point increase in small metro areas, and a 0.40 point increase in micropolitan areas. Furthermore, in all three sizes of communities, increases in expected immigration are associated with substantial declines in net native inflows and net inflows of established immigrants. Specifically, a one percentage-point increase in expected immigration is associated with about a 0.8 point decrease in net inflows of natives and about a 0.2 point decrease in net inflows of established immigrants.

Further evidence on supply push: gross migration flows

The negative relationship between expected immigration and net inflows of domestic migrants shown in Tables 4 and 5 is consistent with the supply-push view of immigration. According to the supply-push view, however, expected immigration should also be systematically related to *gross* flows of domestic migrants. In particular, areas with high expected immigration should have low gross inflows of domestic migrants and high gross outflows of domestic migrants. To see whether this prediction holds, gross flows of natives and established immigrants were regressed on the same set of explanatory variables as before. Table 6 reports the estimated coefficients on expected immigration in these regressions. For convenience, the table also shows the estimated coefficients for net flows of natives and established immigrants, which were already reported in Table 5.

Table 6

1995-2000 GROSS DOMESTIC MIGRATION FLOWS: ESTIMATED EFFECTS OF EXPECTED IMMIGRATION

	Large metro areas	Small metro areas	Micropolitan areas
Natives			
Gross inflows	-1.66**	-1.23**	-.92**
Gross outflows	-.86**	-.45	-.12
Net inflows	-.80**	-.77**	-.80**
Established immigrants			
Gross inflows	.15**	.32**	.30**
Gross outflows	.32**	.49**	.53**
Net inflows	-.17**	-.17**	-.23**

*Significant at 5 percent level
**Significant at 1 percent level

Note: All migration flows are measured as a percent of approximate 1995 population (see note to Table 1). Expected immigration is measured the same way as in Tables 4 and 5.

The results for gross native flows, shown in the upper half of Table 6, provide only weak support for the supply-push view of immigration. Consistent with the supply-push view, areas with high expected immigration tended to have low gross inflows of natives in 1995-2000. But contrary to the supply-push view, these areas also tended to have low gross outflows of natives. In large metro areas, for example, each percentage-point increase in expected immigration was associated with a 1.66 point decrease in gross inflows of natives, but also a 0.86 point decrease in gross outflows of natives. The only reason expected immigration is negatively related to net inflows of natives is that the negative effect on gross inflows outweighs the negative effect on gross outflows. These results cast doubt on the argument that supply-push immigration harms native workers in high-immigration markets by forcing them to incur moving costs to avoid a reduction in wages or employment opportunities. Instead, the results suggest that the damage from supply-

push immigration falls mainly on those individuals who avoid moving to high-immigration markets solely because of the increased competition for jobs from new immigrants.

The results for gross flows of established immigrants, shown in the bottom half of the table, also provide relatively little support for the supply-push view of immigration. As predicted by this view, areas with high expected immigration tended to have high gross outflows of established immigrants. But contrary to the supply push view, these areas also tended to have high gross inflows of established immigrants. The most likely explanation for the latter result is that established immigrants, like new immigrants, preferred locating in areas with large concentrations of people of similar background. This desire to live among other people of similar background may have outweighed the desire to avoid areas where new immigrants are putting downward pressure on wages, accounting for the positive relationship between expected immigration and gross inflows of established immigrants.[9]

Further evidence on supply push: migration by educational category

According to the supply push view, the main effect of inflows of new immigrants should be on the migration decisions of natives and established immigrants of similar skills, because these will be the individuals who face the greatest increase in competition for jobs. Thus, if the supply push view is correct, the negative relationship between expected immigration and net inflows of domestic migrants should be especially evident within educational categories. Unfortunately, the aggregated Census data used in this article include only partial information on the educational attainment of domestic outmigrants. However, the data do include fairly complete information on the educational status of domestic inmigrants to all areas.[10] These data were used to estimate the effect of expected immigration on gross native inflows within the same educational category. Four educational categories were used—no high school degree, high school degree, some college, and college degree or more.

As shown in Table 7, the results generally support the supply-push view of immigration. The first four rows report the estimated effect of expected immigration when a separate regression is estimated for each

Table 7

1995-2000 GROSS INFLOWS OF NATIVES BY EDUCATIONAL CATEGORY: ESTIMATED EFFECT OF EXPECTED IMMIGRATION

Educational category	Large metro areas	Small metro areas	Micropolitan areas
No high school degree	-1.00**	-.76*	-1.04**
High school degree only	-1.76**	-.28	-1.58**
Some college	-3.61**	.39	-.99
College	-1.47**	-.80	.70
All categories (pooled regression)	-.46**	-.49**	-.67**

*Significant at 5 percent level
**Significant at 1 percent level

Note: Numbers in table are the estimated coefficients on expected immigration. For each category, expected immigration is calculated from the area's 1990 immigrant mix by region of birth and from total 1995-2000 immigration to the U.S. in the category by region of birth. The pooled regression includes dummy variables for each area and educational category. All migration flows are for people aged 25 and over in 2000 and are measured relative to the approximate 1995 population in the category.

educational category. The last row shows the estimated coefficient when the four educational categories are pooled and the effect of expected immigration is constrained to be the same for all categories. In most cases, the estimated coefficients are negative and statistically significant, consistent with the view that inflows of immigrants discourage inflows of natives with similar skills.

Of particular interest are the estimated coefficients on expected immigration in the pooled regressions. These regressions include dummy variables for each area. As a result, they implicitly control for those characteristics of an area that simultaneously attract immigrants and repel natives in all educational categories—characteristics that could account for the negative relationship between expected immigration and gross native inflows in the first four rows of the table. Controlling for these characteristics reduces the estimated effect of expected immigration on gross native inflows: for each type of community, the coefficients in the last row are generally less negative than the coefficients in the first four

rows. More important, however, is that the coefficients in the pooled regressions are still negative and statistically significant, providing additional support for the view that immigration discourages inflows of similarly skilled natives.

Further evidence on demand pull: the unexplained portions of migration flows

Table 5 showed that new immigrants are attracted to large metro areas with high expected employment growth, along with natives and established immigrants. This finding provides some support for the demand-pull view of immigration. However, the measure of expected employment growth used in this article is an imperfect measure of local labor demand because it is based solely on local industrial mix. As noted earlier, some areas could have strong labor demand not only because of a favorable industrial mix, but because of a local production advantage. If the demand pull view of immigration is correct, immigrants from abroad should gravitate along with domestic migrants to these areas, as well as to areas with a favorable industrial mix.

To determine if differences in local production advantages might have caused new immigrants and domestic migrants to move to the same markets, it is useful to look at the relationship between the unexplained portions of 1995-2000 migration flows—the portions that cannot be explained by the regressions in Table 5. These correlations are shown in Table 8.

In almost all cases, the correlations are positive and statistically significant, consistent with the hypothesis that unobserved regional shocks to labor demand cause immigrants and domestic migrants to move to the same markets. However, the positive correlations do not prove the hypothesis because the correlations could result from other shocks, unrelated to labor demand, that make some areas attractive to all migrants. Also, as in Table 5, evidence for the demand-pull view is weakest in micropolitan areas, where the correlation between the unexplained portions of immigration and native inflows is close to zero.

Table 8

CORRELATIONS BETWEEN UNEXPLAINED PORTIONS OF 1995-2000 MIGRATION FLOWS

	Large metro areas	Small metro areas	Micropolitan areas
Immigration from abroad vs. net native inflows	.29**	.24**	-.01
Immigration from abroad vs. net inflows of established immigrants	0.57**	.61**	.28**
Net native inflows vs. net inflows of established immigrants	.64**	.51**	.35**

*Significant at 5 percent level
**Significant at 1 percent level

Note: Correlation coefficients are for the residuals from the regressions in Table 5.

Implications of the empirical results

Overall, the results of this section provide some support for both the demand-pull and supply-push views of immigration. The main evidence for the demand-pull view comes from the relationship between inflows of immigrants from abroad and expected employment growth based on local industrial structure. Among large metro areas, those with the highest expected employment growth were found to have the highest rates of immigration, even after controlling for other factors influencing the migration decision. In addition, in both large and small metro areas, the unexplained portion of immigration from abroad was found to be positively correlated with the unexplained portion of net domestic in-migration. This positive correlation is consistent with the view that unobserved shocks to labor demand attracted both immigrants and domestic migrants to the same markets, though there could be other explanations for the correlation.

The main evidence for the supply-push view comes from the relationship between net inflows of domestic migrants and expected immigration based on past settlement patterns. For all three sizes of communities, expected immigration was found to be negatively related to net domestic inflows. Such a negative relationship could result from domestic migrants avoiding areas facing increased competition for jobs from new immigrants, as suggested by the supply-push view. Alternatively, the negative relationship could result from domestic migrants avoiding areas that have traditionally attracted immigrants because those areas have other undesirable features not captured by the explanatory variables in the regression equations.

Two additional pieces of evidence on the supply-push view were presented, one providing only weak support for the supply-push view and the other providing somewhat stronger support. The first piece of evidence comes from the relationship between expected immigration and gross domestic migration. Areas with high expected immigration were found to experience low gross inflows of natives. But contrary to the supply-push view, these areas were not found to experience high gross outflows of natives. The second piece of evidence comes from the relationship between expected immigration and native inflows by educational category. As predicted by the supply-push view, expected immigration was found to be negatively related to gross native inflows within educational categories. Furthermore, this negative relationship remained even after controlling for those characteristics of an area that might cause it to be unattractive to natives of all educational levels.

IV. CONCLUSIONS

The sharp increase in immigration in recent years has renewed concerns about the impact of immigration on the economy. Much of the debate has been about the impact of increased immigration on native workers in the nation as a whole. But economists have also disagreed about the impact of immigration on the allocation of labor across markets. According to the demand-pull view, immigrants reduce imbalances across labor markets by moving to markets with strong labor demand and narrowing gaps in wages and employment opportunities across markets. But according to the supply-push view, immigrants create new imbalances

by moving to traditional immigration magnets with average or below-average labor demand and causing natives and established immigrants to change their migration decisions.

The data examined in this article provide support for both views of the impact of immigration on the geographic allocation of labor. During the second half of the 1990s, immigrants tended to move to markets that could be expected to experience strong growth in labor demand based on their initial industrial mix. At the same time, however, natives tended to stay away from markets that could have been expected to receive large inflows of immigrants based on past settlement patterns. These findings suggest that the impact of immigration on the geographic allocation of labor is neither as adverse as immigration opponents sometimes suggest, nor as benign as immigration supporters sometimes claim. As is often the case in such controversies, the truth appears to lie somewhere in-between.

APPENDIX

Table A1

REGRESSION RESULTS FOR 1995-2000 IMMIGRATION

Explanatory variable	Large metro areas	Small metro areas	Micropolitan areas
Expected employment growth based on local industrial mix	.27**	.06	.00
Expected immigration based on past immigrant settlement patterns	.61**	.54**	.40**
Average January temperature	-.03**	.01	.01
Percent of population enrolled in college, 1990	.04	.05**	.02**
Dummy variables for Census regions	**		**
Adjusted R-square	.69	.49	.27

*Significant at 5 percent level
**Significant at 1 percent level

Note: The significance level for Census regions is for the joint hypothesis that all coefficients are zero. There are nine Census regions in all.

Table A2

REGRESSION RESULTS FOR 1995-2000 NET NATIVE INFLOWS

Explanatory variable	Large metro areas	Small metro areas	Micropolitan areas
Expected employment growth based on local industrial mix	.31*	.66**	.33**
Expected immigration based on past immigrant settlement patterns	-.80**	-.77**	-.80**
Average January temperature	.13**	.19**	.08*
Percent of population enrolled in college, 1990	.12	.29**	.22**
Dummy variables for Census regions	**	**	**
Adjusted R-square	.42	.32	.16

*Significant at 5 percent level
**Significant at 1 percent level

Note: The significance level for Census regions is for the joint hypothesis that all coefficients are zero. There are nine Census regions in all.

Table A3

REGRESSION RESULTS FOR 1995-2000 NET INFLOWS OF ESTABLISHED IMMIGRANTS

Explanatory variable	Large metro areas	Small metro areas	Micropolitan areas
Expected employment growth based on local industrial mix	.15**	.04	.02
Expected immigration based on past immigrant settlement patterns	-.17**	-.17**	-.23**
Average January temperature	.01	.02**	-.00
Percent of population enrolled in college, 1990	-.04*	-.03**	-.03**
Dummy variables for Census regions	**	*	**
Adjusted R-square	.44	.35	.23

*Significant at 5 percent level
**Significant at 1 percent level

Note: The significance level for Census regions is for the joint hypothesis that all coefficients are zero. There are nine Census regions in all.

ENDNOTES

[1]Not all parties will gain from a shift in labor from low-wage markets to high-wage markets. As labor shifts and wages adjust, workers in the low-wage market and business owners in the high wage market will both benefit, but workers in the high-wage market and business owners in the low-wage market will both suffer. In general, however, the gains to the first two groups will exceed the losses to the second two groups, yielding a net gain to the economy.

[2]To control for the possibility that immigrants happened to be moving to states with high wages for other reasons, Borjas estimated his regressions in first-difference form—i.e., he regressed the change in the relative wage of a particular educational group between two census years on the change in the relative supply of immigrants in that educational group five years later.

[3]This data set is called the Public Use Micro Sample (PUMS).

[4]Because PUMS is based on a smaller sample, the Census Bureau combines the data into artificial geographic units of 100,000 people or more to preserve confidentiality.

[5]In constructing the measure, industries were defined at the narrowest level possible using data from the Bureau of Labor Statistic's Quarterly Census of Employment and Wages (QCEW). This type of measure has been used as a proxy for exogenous growth in labor demand in many studies of regional labor markets (Bartik, Blanchard and Katz; Bound and Holzer). Some studies have used lagged employment growth as a proxy for exogenous growth in labor demand, on the grounds that shocks to local labor demand tend to be persistent (e.g. Card and Lewis). The problem with this measure is that employment growth may have been high in the past not because of exogenous shocks to labor demand but because the area had certain traits, such as a favorable climate, that attracted high inflows of immigrants or natives.

[6]It should be noted, however, that the relationship between expected employment growth and actual employment growth is considerably stronger in large and small metro areas than in micropolitan areas. Expected employment growth explains 26 percent of the variation in actual employment growth among large metros; 19 percent of the variation among small metros; and 5 percent of the variation among micropolitan areas.

[7]In the Census, college students are treated as residents of the area in which the college is located. However, when asked where they lived five years earlier, people who were enrolled in college on that date do not always list their college towns as their previous residences. As a result, in areas with substantial college enrollment, in-migration may be correctly reported but out-migration may be understated.

[8]All signifigance levels for regression coefficients are adjusted for heteroskedasticity using the White-Eicker method.

[9]It should also be noted that the positive relationship between expected immigration and gross outflows of established immigrants could be due to "stage" immigration rather than a tendency for new immigrants to displace established immigrants. Specifically, immigrants may move to the U.S. in two stages. In the first stage, new immigrants may locate in markets with large concentrations of

similar immigrants to ease adjustment to life in the U.S. In the second stage, immigrants who have adjusted to life in the U.S. may move to other markets that have fewer immigrants of similar background but are desirable on other grounds.

[10]If fewer than four individuals of given nativity and educational status migrated between two counties during the period 1995-2000, the Census Bureau identified the county in which they lived in 2000 but only the state in which they lived in 1995. Thus, it is possible to determine how many people of given nativity and educational status moved into each county but not how many moved out. In calculating gross inflows by area, a problem still arises in those cases in which fewer than four individuals of given nativity and educational status migrated between two counties and the second county was part of a multicounty metropolitan or micropolitan area. In such cases, it was assumed that the migrants always came from a county outside the area rather than from another county in the same area. Because there are relatively few such cases and because the number of migrants involved is very small, the assumption that the migrants came from outside the area is unlikely to affect the results.

REFERENCES

Bartel, Anne P. 1989. "Where Do the New U.S. Immigrants Live?" *Journal of Labor Economics*, vol. 7, no. 4, October.

Bartik, Timothy. 1991. *Who Benefits from State and Local Economic Development Policies?* Kalamazoo, Mich.: W.E. Upjohn Institute.

Blanchard, Oliver and Lawrence Katz. 1992. "Regional Evolutions," *Brookings Papers on Economic Activity*, no. 1

Borjas, George J. 1999. *Heaven's Door: Immigration Policy and the American Economy*. Princeton, N.J.: Princeton University Press.

_____. 2001. "Does Immigration Grease the Wheels of the Labor Market?" *Brookings Papers on Economic Activity*, no. 1

Borjas, George J., Richard B. Freeman, and Lawrence F. Katz. 1992. "How Much Do Immigration and Trade Affect Labor Market Outcomes?" *Immigration and the Work Force: Economic Consequences for the United States and Source Areas*. George J. Borjas and Richard B Freeman, eds. Chicago: University of Chicago Press.

Bound, John and Harry J. Holzer. 2000. "Demand Shifts, Population Adjustments, and Labor Market Outcomes during the 1980s," *Journal of Labor Economics*, vol. 18, no. 1, January.

Card, David. 2001. "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration," *Journal of Labor Economics*, vol. 19, no. 1, January.

Card, David, and Ethen G. Lewis. 2005. "The Diffusion of Mexican Immigrants During the 1990s: Explanations and Impacts," National Bureau of Economic Research Working Paper 11552, August.

Glaeser, Edward L. and Albert Saiz. 2003. "The Rise of the Skilled City," Harvard Institute of Economic Research Discussion Paper no. 2025, December.

Filer, Randall K. 1992. "The Impact of Immigrant Arrivals on Migratory Patterns of Native Workers," in *Immigration and the Work Force: Economic Consequences for the United States and Source Areas*. George J. Borjas and Richard B Freeman, eds. Chicago: University of Chicago Press.

Frey, William H. 1995. "Immigration and Internal Migration 'Flight' from US Metropolitan Areas: Toward a New Demographic Balkanization," *Urban Studies*, vol. 32, nos. 4-5, May.

Kritz, Mary M. and Douglas T. Gurak. 2001. "The Impact of Immigration on the Internal Migration of Natives and Immigrants." *Demography*, vol. 38, no. 1, February.

Wright, Richard, Mark Ellis, and Michael Reibel. 1997. "The Linkage between Immigration and Internal Migration in Large Metropolitan Areas in the United States," *Economic Geography*, vol. 73, no. 2, April.