THE IMPACT OF IMMIGRATION ON THE LABOR MARKET

George J. Borjas
Harvard University

January 2006

The Impact of Immigration and the Labor Market

George J. Borjas[*]

I. Introduction

There has been a resurgence of immigration in the United States and in many other countries. The United Nations estimates that over 175 million people, or roughly 3 percent of the world's population, now reside in a country where they were not born (United Nations, 2002). Although most immigrants choose a "traditional" destination (such as the United States, Canada, or Australia), many other countries are also receiving relatively large immigrant flows. Nearly 11 percent of the population in France, 9 percent in Germany, 11 percent in Sweden, and 7 percent in the United Kingdom is foreign-born.

Not surprisingly, the impact of immigration on the host country's labor market is now being heatedly debated in many countries. In the U.S. context, this concern has motivated a great deal of research that attempts to document how the U.S. labor market has adjusted to the large-scale immigration of the past few decades. Three central questions have dominated much of the research: What is the contribution of immigration to the skill endowment of the workforce? How do the employment opportunities of native workers respond to immigration? And, who benefits and who loses?

The policy significance of these questions is evident. For example, immigrants who have high levels of productivity and who adapt rapidly to conditions in the host country's labor market can make a significant contribution to economic growth. Conversely, if immigrants lack the skills that employers demand and find it difficult to adapt, immigration may increase the size of the population that requires public assistance and exacerbate ethnic and racial inequality.

Similarly, the debate over immigration policy has long been fueled by the widespread perception that immigration has an adverse effect on the employment opportunities of natives. Which native workers are most adversely affected by immigration and how large is the decline in the native wage?

---

[*] Mr. Borjas is the Robert W. Scrivner Professor of Economics and Social Policy at the John F. Kennedy School of Government, Harvard University; and a Research Associate at the National Bureau of Economic Research.

Finally, a key insight of economic theory is that immigration has distributional impacts, reducing the income of workers who compete with immigrants and raising the income of those who employ immigrants or purchase immigrant-provided services. Any assessment of the costs and benefits of alternative immigration policy proposals will depend directly on the magnitude of this redistribution.

This paper summarizes what we know about the impact of immigration on the U.S. labor market. The major impetus for the resurgence of large-scale immigration to the United States, particularly immigration from less developed countries, came from the 1965 Amendments to the Immigration and Nationality Act. Before 1965, immigration to the United States was guided by the *national-origins quota system*. This scheme greatly restricted the annual number of immigrants, and used quotas to allocate visas across countries. The number of visas given to each country was based on the ethnic composition of the U.S. population in 1920. As a result, 60 percent of all available visas were awarded to applicants from only two countries, Germany and the United Kingdom.

The 1965 Amendments repealed the national-origins quota system. Along with subsequent minor legislation, the Amendments set a higher worldwide numerical limit for immigration and enshrined a new objective for allocating entry visas among the many applicants: the reunification of families. The United States now grants the bulk of the visas to persons who have relatives already residing in the country. In 2002, for example, 63.3 percent of all legal immigrants used family connections to enter the country.

There has also been a substantial increase in illegal immigration. The latest wave of illegal immigration began in the late 1960s after the end of the *bracero* program, an agricultural guest worker program for Mexicans that was discontinued because of its perceived harm on the economic opportunities of competing native workers. To address the problems created by illegal immigration, Congress enacted the 1986 Immigration Reform and Control Act (IRCA). This legislation gave amnesty to 3 million illegal aliens and introduced a system of employer sanctions designed to stem the flow of additional illegal workers. This legislation obviously did not solve the illegal immigration problem. The most recent estimates suggest that over 10 million illegal immigrants resided in the United States in 2004, with around 60 percent originating in Mexico—and that the number of illegal immigrants settling in the country is increasing by over 500,000 persons per year (Passel, 2005).

The 1965 policy shift had a historic impact on the number of immigrants admitted. Even though only 250 thousand legal immigrants entered the country annually during the 1950s, almost one million were entering by the 1990s. Figure 1 illustrates the impact of this resurgence of immigration on the immigrant presence in the labor market. In 1970, there were 3.2 million foreign-born workers in the labor market, accounting for 4.9 percent of the workforce. By 2000, there were 15.4 million foreign-born workers, accounting for 13.4 percent of the workforce.

The 1965 Amendments also changed the national origin mix of the immigrant population. Over two-thirds of the legal immigrants admitted during the 1950s originated in Europe or Canada, 25 percent in Latin America, and 6 percent in Asia. By the 1990s, only 16 percent originated in Europe or Canada, 49 percent in Latin America, and 32 percent in Asia.

Historically, immigrants have clustered in a small number of geographic areas. The top panel of Figure 2 summarizes the clustering that occurs at the state level. In 2000, for example, 68 percent of immigrants lived in the six main immigrant-receiving states—California, New York, Texas, Florida, Illinois, and New Jersey—and almost 30 percent lived in California alone. As a result of this geographic clustering, the bottom panel of the figure shows that the foreign-born share of the population increased very rapidly in California, from 10 percent in 1970 to 33 percent in 2000, and increased from 9 to 20 percent in the five other major immigrant-receiving states. In contrast, the foreign-born share in the rest of the country rose only slightly, from 3 to 7 percent. The two panels of Figure 2 also reveal a trend that will be discussed in greater detail below: the 1990s witnessed a "spreading out" of immigration from the traditional immigrant-receiving states to other parts of the country. Between 1990 and 2000, for example, the share of the foreign-born workers that lived in California declined from 33 percent to 29 percent, while the share of the foreign-born workers that lived outside the six main immigrant-receiving states rose correspondingly from 27 to 32 percent.

The labor market impact of immigration depends not only on the size and geographic location of the immigrant population, but also on the skills that immigrant bring to the labor market—and, particularly, on how the skills of immigrants compare with those of natives. The point that it is the *relative* skills of immigrants that matter can be easily grasped through an example. Suppose that all of the immigrants who entered the United States between 1940 and 2000 had twelve years of schooling. The labor market impact of immigration, however, would differ greatly over time because most natives in 1940 were high school dropouts while most

natives in 2000 had some college education. In 1940, the impact of immigration would be generated by an increase in the supply of high-skill workers; in 2000, the impact of immigration would be generated by an increase in the supply of low-skill workers.

Table 1 documents the trend in the distributions of educational attainment for native and immigrant workers. The table shows a significant decline in the relative education of the foreign-born workforce between 1960 and 2000. In 1960, for instance, 59.4 percent of immigrant workers were high school dropouts and 9.7 percent were college graduates. This educational mix was only slightly worse than that of native men, where 49.3 percent were high school dropouts and 9.7 percent were also college graduates. By 2000, however, natives were more likely to have a college degree (28.2 percent versus 25.9 percent), and were far less likely to be high school dropouts (29.4 percent of immigrants lacked a high school diploma, as compared to only 7.2 percent of natives). As a result of the relative increase in the number of immigrants who lack a high school diploma, Figure 3 shows that the immigrant share in the population of workers who are high school dropouts rose from 6.1 percent in 1970 to 38.7 percent in 2000. Among college graduates, the increase was much more modest, from 5.7 percent to 12.4 percent.

II. The Labor Market Impact of Immigration

What happens when immigration increases the supply of workers in a particular labor market? In his influential introductory textbook, Paul Samuelson (1964, p. 552) gives the common-sense answer implied by the standard model of the labor market:

> "After World War I, laws were passed severely limiting immigration. Only a trickle of immigrants has been admitted since then. . .By keeping labor supply down, immigration policy tends to keep wages high. Let us underline this basic principle: Limitation of the supply of any grade of labor relative to all other productive factors can be expected to raise its wage rate; an increase in supply will, other things being equal, tend to depress wage rates"

Samuelson was writing just before the enactment of the 1965 Amendments to the Immigration and Nationality Act, the major policy shift that initiated the resurgence of large-scale immigration, leading him to make the point that immigration restrictions tended "to keep

wages high." He also stressed the mirror-image implication: as immigrants increase the supply of a particular type of labor (such as low-educated workers), the wage paid to that group falls.

More generally, economic theory implies that immigration should lower the wage of competing workers and increase the wage of complementary workers, of workers whose skills become more valuable because of immigration. For example, an influx of foreign-born laborers reduces the economic opportunities for laborers—all laborers now face stiffer competition in the labor market. At the same time, high-skill natives may gain substantially. They pay less for the services that laborers provide, such as painting the house and mowing the lawn, and natives who hire these laborers can now specialize in producing the goods and services that better suit their skills.

Similarly, an immigrant influx of high-skill workers, such as the high-tech workers who entered the United States through the H-1B visa program, would be expected to lower the wage of competing high-skill workers already employed in the United States. This influx could benefit low-skill workers, as the pace of scientific discovery allows quicker (and cheaper) dissemination of technology products, and may increase the productivity of low-skill workers through the introduction of technology products that are more complementary with the types of skills and services that low-skill workers offer to employers.

Because of the policy significance associated with determining the impact of immigration on the employment opportunities of native workers, a large literature developed in the past two decades attempting to measure this impact. The starting point for much of this literature is the fact that immigrants in the United States cluster in a small number of geographic areas. In 2000, for example, 38.4 percent of immigrants lived in four metropolitan areas (New York, Los Angeles, Chicago, and San Francisco), but only 12.2 percent of natives lived in the four metropolitan areas with the largest native-born populations (New York, Chicago, Los Angeles, and Philadelphia).

Practically all empirical studies in the academic literature exploit this geographic clustering to define the empirical exercise that purports to measure the labor market impact of immigration.[1] The typical study defines a metropolitan area (or state) as the labor market that is penetrated by immigrants. The study then goes on to calculate a cross-city correlation measuring

---

[1] Representative studies include Altonji and Card (1991), Borjas (1987), Card (1990), Grossman (1982), and LaLonde and Topel (1991). Friedberg and Hunt (1995) survey the literature.

the relation between the native wage in a locality and the relative number of immigrants in that locality. A negative correlation, indicating that native wages are lower in markets with many immigrants, would suggest that immigrants worsen the employment opportunities of competing native workers.

There is a great deal of dispersion in the findings reported by the various studies in this empirical literature. Nevertheless, there is a tendency for the estimated cross-city correlations to cluster around zero, helping to create the conventional wisdom that immigrants have little impact on the labor market opportunities of native workers, perhaps because "immigrants do jobs that natives do not want to do." It would seem, therefore, that a fundamental implication of the standard textbook model of the labor market—that an increase in supply lowers wages—is soundly rejected by the data.

Recent research, however, raises two questions about the validity of interpreting near-zero cross-city correlations as evidence that immigration has no labor market impact. First, immigrants may not be randomly distributed across labor markets. If immigrants tend to cluster in cities with thriving economies (and high wages), there would be a built-in positive correlation between immigration and wages.[2] This positive correlation would certainly attenuate, and perhaps even reverse, whatever negative impact immigration might have had on wages in local labor markets.

Second, natives may respond to the wage impact of immigration by moving their labor or capital to other cities. For example, native-owned firms see that cities in Southern California flooded by low-skill immigrants pay lower wages to laborers. Employers who hire laborers will want to relocate to those cities. The flow of jobs to the immigrant-hit areas cushions the adverse effect of immigration on the wage of competing workers in those localities. Similarly, laborers living in Michigan were perhaps thinking about moving to California before the immigrants entered that state. These laborers learn that immigration reduced their potential wages in California and may instead decide to remain where they are or move elsewhere. Moreover, some Californians might leave the state to search for better opportunities.

The flows of capital and labor tend to equalize economic conditions across cities. As a result, inter-city comparisons of native wage rates will not be very revealing: capital flows and

---

[2] Borjas (2001) finds that new immigrants belonging to a particular schooling group tend to settle in those regions that offer the highest return for their skills.

native migration diffuse the impact of immigration across the national economy. In the end, all laborers, regardless of where they live, are worse off because there are now many more of them.

Because local labor markets adjust to immigration, a number of recent studies have emphasized that the labor market impact of immigration may be measurable only at the national level.[3] Borjas (2003) used this insight to examine the link between immigration and the evolution of wages for specific skill groups in the past few decades. His study indicates that by analyzing national trends in the labor market and by defining skill groups in terms of both educational attainment and work experience, one can make substantial progress in determining how immigration alters the employment and earnings opportunities of native workers.

To see the usefulness of the empirical tactic of using both educational attainment and work experience to define skill groups, consider the following example. As we have seen, recent immigration increased the relative supply of high school dropouts substantially. The labor market implications of this increase clearly depend on how the distribution of work experience in the immigrant population contrasts with that of natives. After all, one particular set of native high school dropouts would likely be affected if all the new low-skill immigrants were very young, and a very different set would be affected if all the immigrants were near retirement age. In essence, the methodological approach introduced by Borjas (2003) exploits the fact that similarly educated workers with very different levels of work experience are unlikely to be perfect substitutes (Welch 1979; Card and Lemieux 2001).

It is well known that immigration greatly increased the supply of high school dropouts in recent decades. What is less well known, however, is that this supply shift did not affect equally all experience groups within the population of high school dropouts. As Panel A of Figure 4 shows, immigrants made up about half of all high school dropouts with 10 to 20 years of experience in 2000, but only 30 percent of those with less than 5 years. In 1960, however, the immigration of high school dropouts increased the supply of the most experienced workers the most. Similarly, Panel D shows that the immigrant supply shock for college graduates in 1990 was reasonably balanced across all experience groups, generally increasing supply by around 10 percent. But the supply shock for college graduates in 1960 was larger for the most experienced groups, while in 2000 it was largest for workers with 5 to 20 years of experience.

---

[3] Borjas, Freeman, and Katz (1997) proposed the hypothesis that the labor market impact of immigration may only be measurable at the national level.

It is instructive to illustrate the link that exists between the mean weekly earnings of workers in a particular skill group and the respective immigrant. In particular, the data allow the calculation of the wage growth experienced by each skill group in each decade and the corresponding change in the immigrant share. Figure 5 presents the scatter diagram relating these changes.[4] The plot clearly suggests a negative relation between wage growth and immigration: weekly wages grew fastest for workers in those skill groups that were least affected by immigration. In fact, the negative correlation implicit in the graph implies that a 10 percent increase in the size of the skill group reduces weekly earnings by about 4 percent.

It is worth stressing that the strong negative effects of immigration on the employment opportunities of native workers found at the national level differ substantially from the near-zero correlations that are typically found when comparing wages across local labor markets differentially penetrated by immigrants. As we will see in the next section, the difference in the results between the two approaches may be partly attributed to the fact that immigration alters native migration decisions. In particular, native net migration rates fall in those areas most penetrated by immigrants, effectively spreading the impact of immigration on local labor markets to other areas.

The approach of examining how immigration affects labor markets opportunities for specific schooling-experience groups can be expanded in one important way. The statistical evidence summarized in the scatter diagram in Figure 4 focuses on estimating the "own-effect" of immigration—the impact of immigration on the wages of comparable native workers. The influx of immigrants into a particular skill group, however, will likely affect the earnings of workers in other skill groups. For example, the large immigrant influx of high school dropouts may well have a beneficial effect on earnings of native college graduates.

The typical approach used in the labor demand literature (Hamermesh, 1993) to estimate the entire structure of labor demand elasticities specifies a production function that delineates how various types of labor and capital interact in the production process, and estimates the implied parameters by assuming that workers are paid the value of their contribution to the firm's revenue (a standard result in labor markets that are competitive).

---

[4] The data summarized in the plot adjusts for decade effects as well as for interactions between the decade effects and education or experience.

Borjas (2003) assumes that the economy-wide production function can be represented in terms of a three-level CES technology, a specification that aggregates across different levels of work experience and education groups in order to form the national workforce, In this framework, similarly educated workers with different levels of work experience are aggregated to form the effective supply of an education group; and workers across education groups are then aggregated to form the national workforce.

The assumption that the aggregate economy can be represented in terms of a three-level CES production function greatly reduces the number of parameters that need to be estimated. In particular, there are now three different responses of interest: how immigration in a particular skill group (say high school graduates with 20 years of experience) affects the earnings of native high school graduates with 20 years of experience; how these immigrants affect the wage of younger and older high school graduates; and how these immigrants affect the wage of workers in different education groups.

The evidence suggests an immigration-induced 10 percent increase in the number of workers in each skill group has the following effects: it reduces the wage of native workers in that same skill group by 3.5 percent; it reduces the wage of native workers who have the same education but who differ in their experience by 0.7 percent; and it increases the wage of native workers with different educational attainment by 0.5 percent. The implications of these estimated own- and cross-wage effects for the wage structure are best illustrated by using a particular example. In particular, consider what happened to the earnings opportunities of native workers as a result of the immigrant influx that entered the United States between 1980 and 2000.

The top panel of Table 2 summarizes the results of this simulation in the short run, where the capital stock is held constant. As indicated by the last row of the table, the immigrant influx of the 1980s and 1990s lowered the wage of native workers, particularly of those workers at the bottom and top of the education distribution. The wage fell by 7.4 percent for high school dropouts and by 3.6 percent for college graduates. In contrast, the wage of high school graduates and workers with some college fell by around 2 percent. Overall, the immigrant influx reduced the wage of the typical native worker by 3.7 percent.

The bottom panel of the table summarizes the results of the simulation in the long run, when the capital stock is allowed to adjust to the immigrant influx and this adjustment returns the rate of return to capital to its equilibrium level. The capital stock adjustments, of course, mute

the short-run wage effects on the typical worker, but leave the relative wage effects unchanged. Immigration to the United States, in other words, had a substantial adverse impact on the relative wage of low-skill workers even in the long run.

III. The Economic Benefits from Immigration

The influx of immigrants in the labor market changes the "terms of trade" between workers and firms, and affects the incomes accruing to workers, to firms, and to the native population in total. Does the net impact of all of these changes benefit the native population of the United States?[5]

To measure accurately these economic gains, one needs to list all the possible channels through which immigration transforms the economy: immigration changes the prices of goods and services, the employment opportunities of workers, the number of jobs in native-owned firms, and the number of jobs in immigrant-owned firms. This exhaustive list can then be used to estimate what GDP would have been if the country had not admitted any immigrants. The comparison of this counterfactual GDP with the actual GDP yields the increase in national income directly attributable to immigration. This calculation can also determine how much of the increase in national income accrues to natives as opposed to being paid directly to immigrants in return for their services.

Given the complexity of conducting such calculations, it should not be surprising that any estimate of the economic benefits from immigration requires a detailed model of the U.S. economy describing how the various sectors of the economy operate and are linked together. In this section, the simplest "textbook model" of the labor market is used to calculate the economic benefits that accrue from the employment of immigrants, and to illustrate how these benefits have changed over the past few decades. In this particular model of the U.S. labor market, the immigrant influx increases the number of workers available. In the short run, the rest of the economy is unaffected by immigration. In particular, the capital stock of the United States—in terms of its land, machines, and other physical productive resources—remains as it was before the immigrants arrived.

---

[5] Borjas (1995b, 2001) and Johnson (1997) present a variety of models that can be used to calculate the economic benefits from immigration. Regardless of the model's complexity, these studies typically find that the net gains from immigration to the native population are relatively small.

The typical calculation of the benefits from immigration begins by specifying a model of the U.S. labor market. In the textbook model of a competitive labor market, wage and employment levels are set by the interplay between the supply of workers and the demand for workers.[6] When wages are high, many persons want to work, but few firms are looking for workers. When wages are low, few persons want to work, but many firms are competing for their services. The labor market balances out the conflicting interests of workers and firms, and sets employment and wage levels so that persons who want to work at the going wage can find jobs.

Immigrants enter this economy and suddenly increase the number of workers available. In the short run, the rest of the economy is unaffected by immigration. In particular, the capital stock of the United States—in terms of its land, machines, and other physical productive resources—remains as it was before the immigrants arrived.

So what happens in this highly stylized model when immigrants enter the labor market? And, more important, what happens to the income that accrues to the *native* population as a result of immigration?

To see how natives gain from immigration, first consider how the country gains from foreign trade. When the United States imports toys made by low-wage Chinese labor, workers employed in the domestic toy industry undoubtedly suffer wage cuts and perhaps even lose their jobs. These losses, however, are more than offset by the benefits accruing to consumers, who can now benefit from the lower prices induced by the additional competition. An important lesson, worth remembering when thinking about the gains from immigration, is that if international trade is to benefit the economy as a whole, some sectors of the economy typically lose. In short: No pain, no gain.

Consider now the analogous argument for immigration. Suppose initially that all workers, whether immigrants or natives, are equally skilled. Because immigrants increase the number of workers, there is additional competition in the labor market and the wage of native workers falls. At the same time, however, native-owned firms gain because they can now hire workers at lower wages, and many native consumers gain because the lower labor costs eventually lead to cheaper goods and services. As with foreign trade, the gains accruing to the persons who use or consume

---

[6] The simulations presented below calculate the economic benefits of immigration within a competitive, market-clearing framework. By focusing on a competitive economy with market-clearing and full employment, the analysis ignores the potentially harmful effects of immigration when there is structural unemployment in the economy, and jobs might be a "prize" that are captured partly by immigrants.

immigrant services exceed the losses suffered by native workers, and hence society as a whole is better off. This does *not* mean that every native-born person in the United States is better off. It simply means that the dollar value of the gains accruing to users of immigrant services exceeds the dollar value of the losses suffered by native workers. The difference between what the winners win and what the losers lose is called the *immigration surplus*, and it gives the gain in national income accruing to natives as a result of immigration.[7]

Immigration, therefore, has two distinct consequences and these are precisely the consequences that drive the immigration debate. The nation, as a whole, gains from immigration. In other words, immigration increases the size of the economic pie available to natives. Immigration also redistributes income—from native workers who compete with immigrants to those who hire and use immigrant services. Immigration changes how the economic pie is split between workers and firms.

This perspective also shows that the benefits from immigration arise *because* immigrants reduce the wage that native workers get paid. Without the pain suffered by the workers who compete with immigrants, no gains would accrue to the employers who do the hiring or to the consumers who do the buying. Ironically, even though the immigration debate views the possibility that immigrants lower the wage of native workers as a very harmful consequence, the economic benefits from immigration might not exist otherwise.

So what does this highly stylized model of the labor market actually imply about the size of the immigration surplus? The model, in fact, generates a specific formula that can be used to estimate the immigration surplus in *any* free-market economy.[8] This formula is:

---

[7] The immigration surplus isolates the economic gains accruing to natives in the United States. The calculation, therefore, ignores the impact of immigration both on the immigrants themselves and on the persons who remain in the source countries.

[8] George J. Borjas, "The Economic Benefits from Immigration," *Journal of Economic Perspectives* 9 (Spring 1995): 3-22, presents a technical discussion of how the immigration surplus arises in a market economy. A number of technical assumptions are required to derive the formula: (1) The production process uses two inputs, capital and labor; (2) the capital stock is fixed and natives own all of the capital; (3) the production technology has constant returns to scale, so that if the capital stock and the number of workers were to double, the quantity of output produced would also double; (4) all workers, whether immigrants or natives, have the same skill level; and (5) all workers are willing to work at the going wage. Because of the assumption that the capital stock is fixed, this formula provides an estimate of the immigration surplus in the short-run, before the rest of the economy can adjust to the immigrant influx.

$$\text{Immigration surplus as a fraction of GDP} = -\frac{1}{2} \times \text{labor's share of national income}$$

$$\times \text{ percent drop in native wage due to immigration}$$

$$\times \text{ fraction of labor force that is foreign-born.}$$

Table 3 uses the data available from 1960 through 2000 to calculate the immigration surplus, and the redistribution of wealth in each of those years. The simulation assumes that labor's share of national income is 0.7 and that a 10 percent increase in the supply of workers in a skill group reduces the wage of that group by 3.5 percent (as suggested by the evidence presented earlier). The table clearly shows that the resurgence of large-scale immigration has increased the size of the immigration surplus in recent decades, from about $1 billion annually in 1960 to around $21.5 billion annually in 2000.

Although the immigration surplus is small, immigration causes substantial wealth redistribution. By 2000, the model predicts that immigration reduced the total earnings accruing to native workers by about 2.8 percent of GDP and increased the income accruing to native employers by 3.1 percent of GDP. In 2002 dollars, workers lose around $278 billion while employers gain $300 billion.

IV. Implications for the European Union

The freedom of movement of persons—together with the freedom of movement of capital, goods, and services—is a general right within the European Union. In theory, the creation of a single market should create many additional employment and earnings opportunities for the workers in the member states of the EU. In addition, the unimpeded flows of labor, capital, goods, and service should greatly reduce inter-country differences in economic opportunities within the community.

The empirical evidence from the migration literature, for instance, suggests that differences in per-capita income are a key determinant of the size and direction of migration flows. Migration flows into the United States originate mainly in countries where per-capita GDP is substantially below that of the United States. The (purchasing-power-parity adjusted) per-capita GDP of the United States, for example, is about 3.5 times that of Mexico, 8 times that of the Philippines, and 25 times that of Haiti.

It is instructive to contrast these huge differences in economic opportunities with those that exist between France or Germany, on the one hand, and some of the newly admitted countries to the EU. In 2004, (purchasing-power-parity adjusted) per-capita GDP in France or Germany was around $29,000. In contrast, per-capita GDP was around $17,000 in the Czech Republic, $15,000 in Hungary, and $12,000 in Poland. The important point is that the income differences among these countries tend to be much smaller than those that generate sizable migration flows to the United States. The negative link between per-capita GDP and emigration rates, therefore, suggests that there is little reason to expect a large bulk of the population in the newly admitted countries to take advantage of the opportunity to migrate to the current member states of the EU.

An additional factor that might deter migration into the wealthier current member states of the Union is the severe unemployment problem that already exists in many of the countries that might be potential countries of destination. In 2004, for example, the unemployment rate was 9.5 percent in the European Union, 10.1 percent in France, and 10.6 percent in Germany. The differences in per-capita income, therefore, do not accurately reflect the differences in "expected" economic opportunities because the chances of landing a job within a reasonable time period after migration are relatively small. Because migration flows respond to differences in economic opportunities, the unemployment problem faced by many EU problems will further discourage migration from the acceding countries.

Consider, for example, what happened to migration to Germany—one of the EU countries with the largest per-capita GDP—after the initial expansion of the EU. The number of Greek nationals living in Germany grew from 356,000 to 363,000 between 1994 and 1996; the number of Spanish nationals remained at about 132,000; and the number of Portuguese nationals grew from 117.5 thousand to 130.8 thousand. Moreover, the number of foreign-born nationals from the acceding countries was roughly stable in the other EU countries. It seems, therefore, that the income differences between the EU and the initial wave of acceding countries, large as they were, were not sufficiently large to generate substantial migration flows.

The immigration problem faced by EU countries, therefore, is probably not one of internal migration within the EU, but one of migration from poorer countries, mainly in North Africa, into some of the EU countries. These migration flows, which are likely to consist mainly of low-skill workers, will exacerbate the economic problems faced by low-skill workers already

residing in the EU, and will likely create severe cultural and social dislocations that have not yet received careful study.

It has also been argued—particularly in the European context—that immigration may provide an important mechanism to alleviate the fiscal crisis that most industrialized countries will likely face as their population ages and the dependency ratio rises, putting much greater pressures on social insurance and the fiscal solvency of the welfare state. However, careful studies of the fiscal consequences of the demographic transition—and of the costs and benefits from immigration in industrialized economies—suggest that immigration can only play a very limited role in alleviating the fiscal stress.[9]

Using an intergenerational framework, these studies examine how the payroll tax rate must adjust to cover the expenses that will be inevitably incurred over the next century to provide social benefits to a relatively larger aging population. Using this framework, one can then simulate the impact of different immigration scenarios on the required payroll tax rate. Table 4 summarizes some of these results. The evidence clearly indicates that the social insurance tax rate in the United States will not fall dramatically from the "base case" if immigration is greatly expanded over the next century. In fact, the tax rate could conceivably increase slightly if the policy shift doubled low-skill immigration to the country.

The reason for the relative unimportance of immigration in this fiscal exercise is that immigrants themselves will generate an increase in social expenditures, and this increase may reduce much of the perceived benefit from simply having a larger population over which to amortize the required expenses. In addition, social insurance programs in the United States tend to be progressive, so that the immigrant population, which is relatively low-skill, will generally contribute less to their funding and receive higher benefits. It should be noted that these simulations have also been conducted for the European Union and Japan, areas that are projected to have a faster rising dependency ratio in the next few decades. Interestingly, these additional simulations yield similar results: immigration is not the panacea that can resolve the fiscal problems associated with an aging population in these societies.

---

[9] The evidence summarized below is based on the simulations conducted by Fehr, Jokish, and Kotlikoff (2003, 2004); see also Storelestten (2000).

References

Altonji, Joseph G. and Card, David. "The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives," in John M. Abowd and Richard B. Freeman, eds., *Immigration, Trade, and the Labor Market*. Chicago: University of Chicago Press, 1991, pp. 201-234.

Borjas, George J. "Immigrants, Minorities, and Labor Market Competition," *Industrial and Labor Relations Review* 40 (April 1987): 382-392.

Borjas, George J. "The Economic Benefits from Immigration", *Journal of Economic Perspectives* 9 (Spring 1995): 3-22 (*b*).

Borjas, George J., "Does Immigration Grease the Wheels of the Labor Market?" *Brookings Papers on Economic Activity* (2001), 69-119.

Borjas, George J. "The Labor Demand Curve Is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market," *Quarterly Journal of Economics* (November 2003): 1335-1374.

Borjas, George J., Richard B. Freeman, and Lawrence F. Katz. "How Much Do Immigration and Trade Affect Labor Market Outcomes?" *Brookings Papers on Economic Activity* (1997): 1-67.

Card, David. "The Impact of the Mariel Boatlift on the Miami Labor Market," *Industrial and Labor Relations Review* 43 (January 1990): 245-257.

Card, David, "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration," *Journal of Labor Economics* 19 (January 2001), 22-64.

Card, David, and Thomas Lemieux, "Can Falling Supply Explain the Rising Return to College for Younger Men? A Cohort-Based Analysis," *Quarterly Journal of Economics* 116 (May 2001): 705-746.

Fehr, Hans, Sabine Jokisch, and Laurence Kotlikoff. "The Developed World's Demographic Transition—The Roles of Capital Flows, Immigration, and Policy," in R. Brooks and A. Razin, editors, *The Politics and Finance of Social Security Reform*, Cambridge University Press, 2004 (*a*).

Fehr, Hans, Sabine Jokisch, and Laurence Kotlikoff. "The Role of Immigration in Dealing with the Developed World's Demographic Transition," National Bureau of Economic Research Working Paper, No. 10512, May 2004 (*b*).

Friedberg, Rachel M. and Jennifer Hunt. "The Impact of Immigration on Host Country Wages, Employment and Growth," *Journal of Economic Perspectives* 9 (Spring 1995): 23-44.

Grossman, Jean Baldwin. "The Substitutability of Natives and Immigrants in Production," *Review of Economics and Statistics* 54 (November 1982): 596-603.

Hamermesh, Daniel. *Labor Demand*. Princeton: Princeton University Press, 1993.

Johnson, George E. (1997) "Estimation of the impact of immigration on the distribution of income among minorities and others", in *Help or Hindrance? The Economic Implications of Immigration for African-Americans*, edited by Daniel S. Hamermesh and Frank D. Bean, Russell Sage Press, 1998, pp. 17-50.

Katz, Lawrence F., and Kevin M. Murphy. "Changes in the Wage Structure, 1963-87: Supply and Demand Factors," *Quarterly Journal of Economics* 107 (February 1992): 35-78.

LaLonde, Robert J. and Robert H. Topel. "Labor Market Adjustments to Increased Immigration," in John M. Abowd and Richard B. Freeman, eds., *Immigration, Trade, and the Labor Market*. Chicago: University of Chicago Press, 1991, pp. 167-199.

Passel, Jeffrey S. "Estimates of the Size and Characteristics of the Undocumented Population," PEW Hispanic Center, March 21, 2005.

Samuelson, Paul A., *Economics,* 6th Edition (New York: McGraw-Hill, 1964).

Storesletten, K. "Sustaining Fiscal Policy through Immigration," *Journal of Political Economy* 108 (April 2000): 300-323.

United Nations, Population Division, Department of Economic and Social Affairs. *International Migration, 2002*. New York, 2002.

U.S. Immigration and Naturalization Service, *Statistical Yearbook of the Immigration and Naturalization Service*. Washington, DC: various issues.

Welch, Finis. "Effects of Cohort Size on Earnings: The Baby Boom Babies' Financial Bust," *Journal of Political Economy* 87 (October 1979, Part 2): S65-S97.
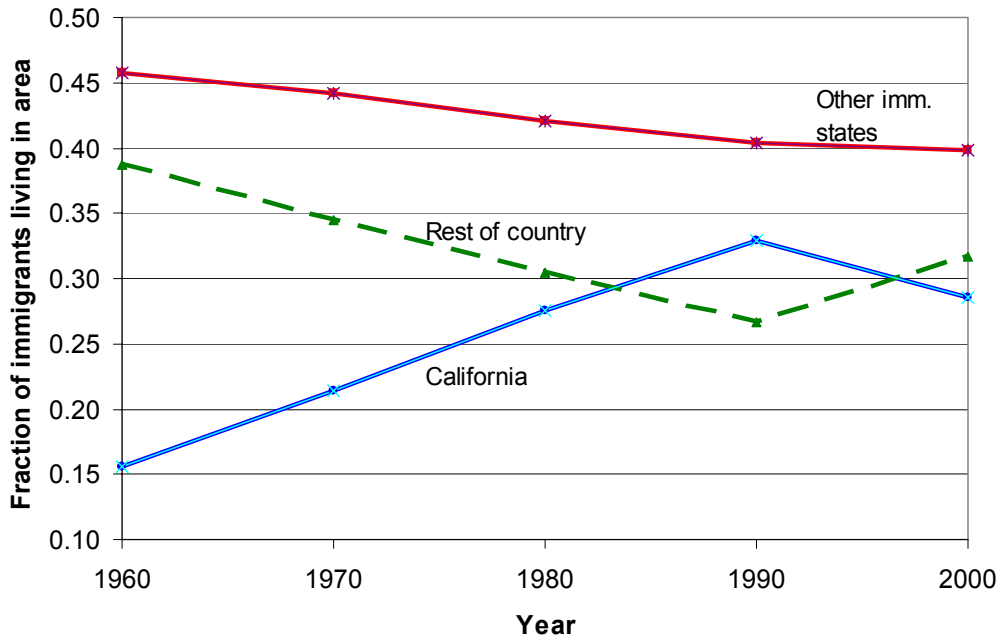
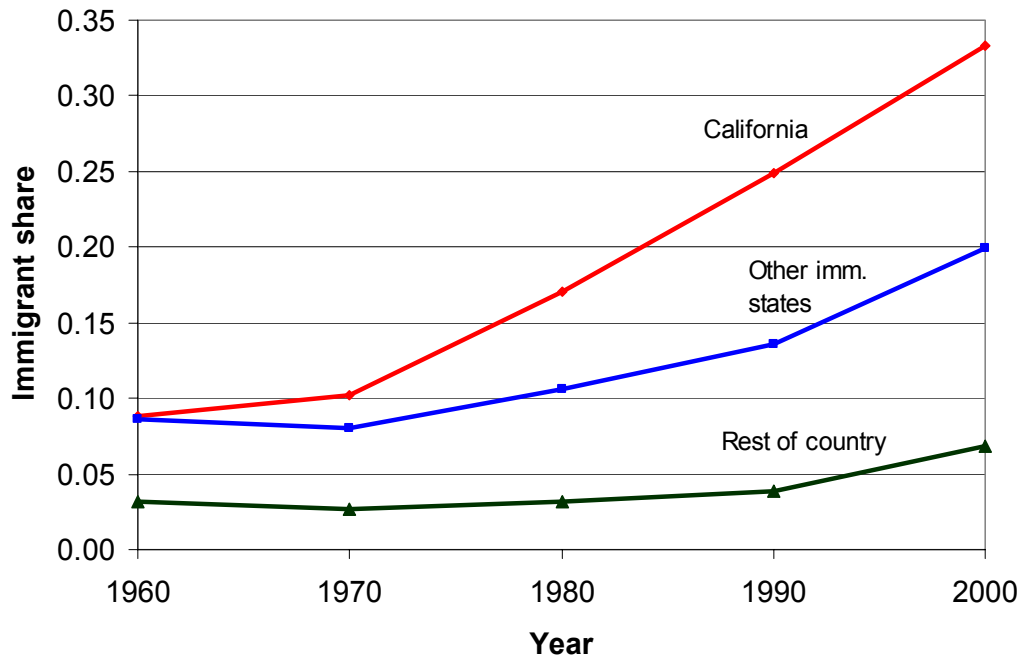**Figure 1. Immigration and the U.S. workforce, 1960-2000**
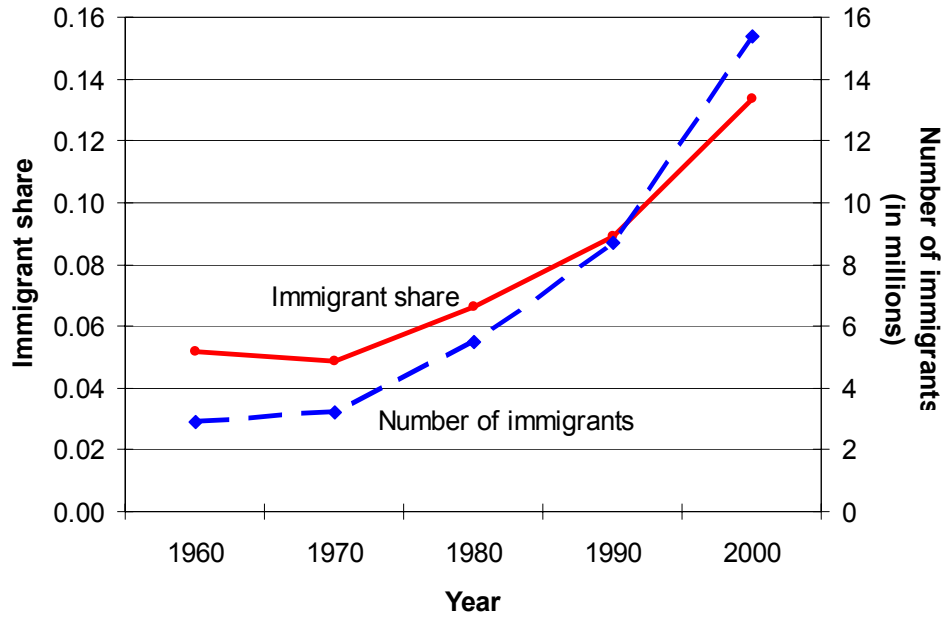
Notes: The workforce is defined as the group of persons aged 18 to 64 who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial Census.

Figure 2. The geographic settlement of immigrants in the United States
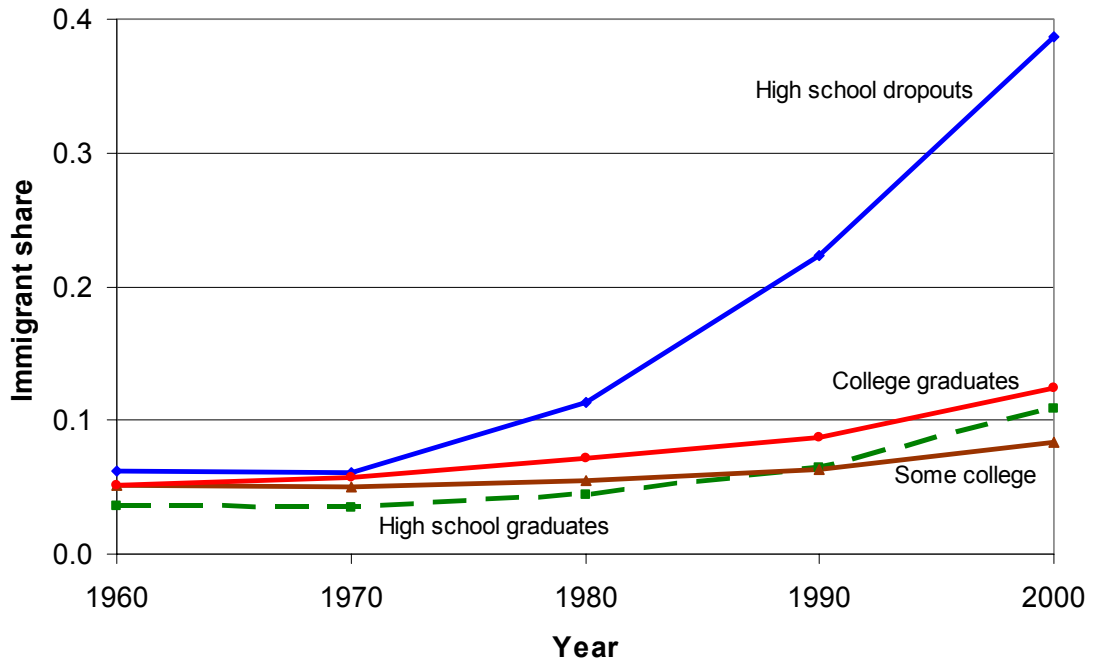
A. Trends in clustering

B. Trends in the immigrant share

Notes: The workforce is defined as the group of persons aged 18 to 64 who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial Census. The "other immigrant states" include Florida, Illinois, New Jersey, New York, and Texas.

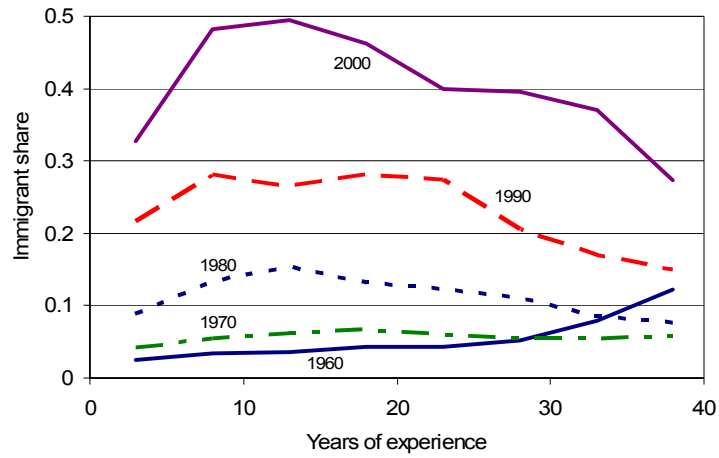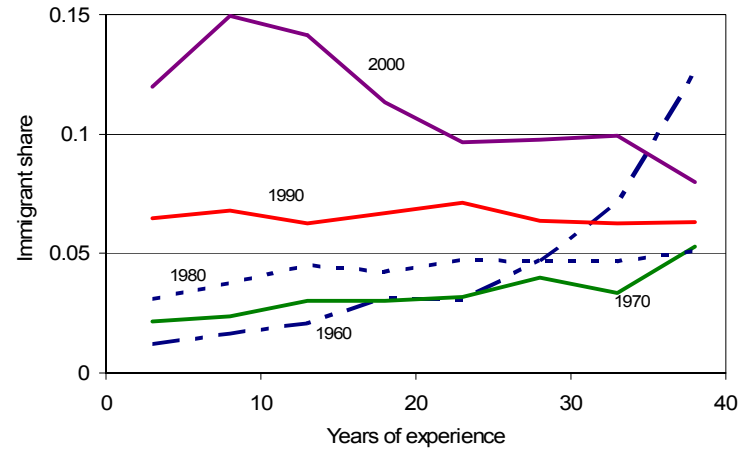**Figure 3. The immigrant share in the U.S. workforce, by educational attainment**

Notes: The workforce is defined as the group of persons aged 18 to 64 who are not enrolled in school and who worked in the civilian sector at least one week in the year prior to each decennial Census.

A. High School Dropouts

B. High School Graduates

C. Some College
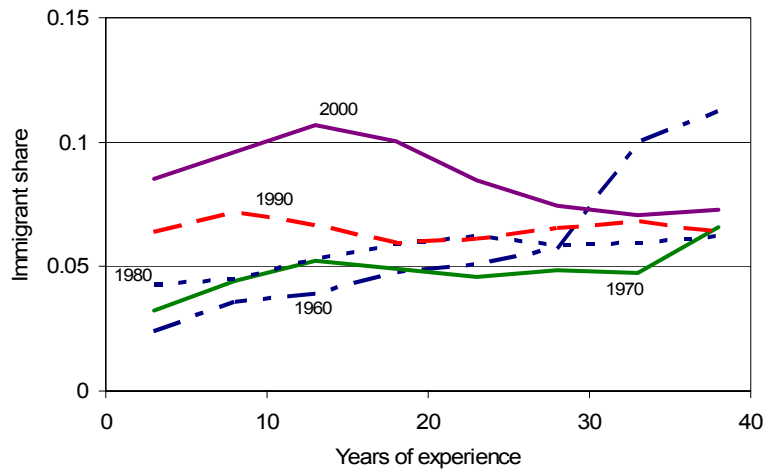
D. College Graduates
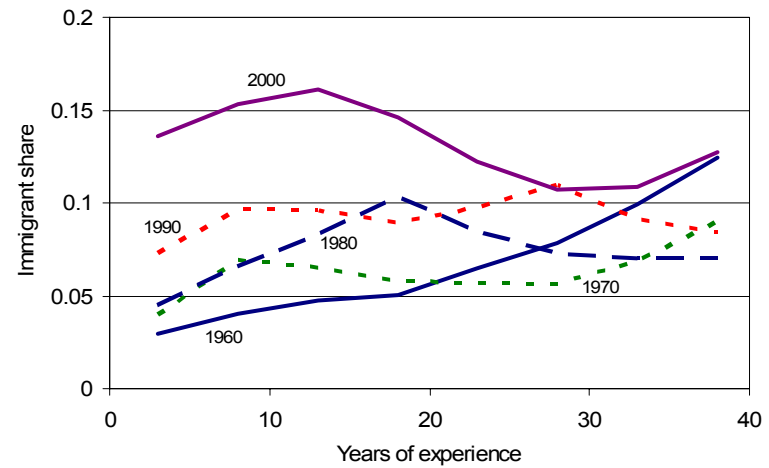
Figure 4. U.S. immigration by skill group, 1960-2000

Notes: Within each education group, workers are aggregated into experience groups defined in five-year intervals. The immigrant shares are calculated in the sample of men aged 18-64 who are not enrolled in school and who worked in the civilian sector at least one week in the calendar year preceding the Census.
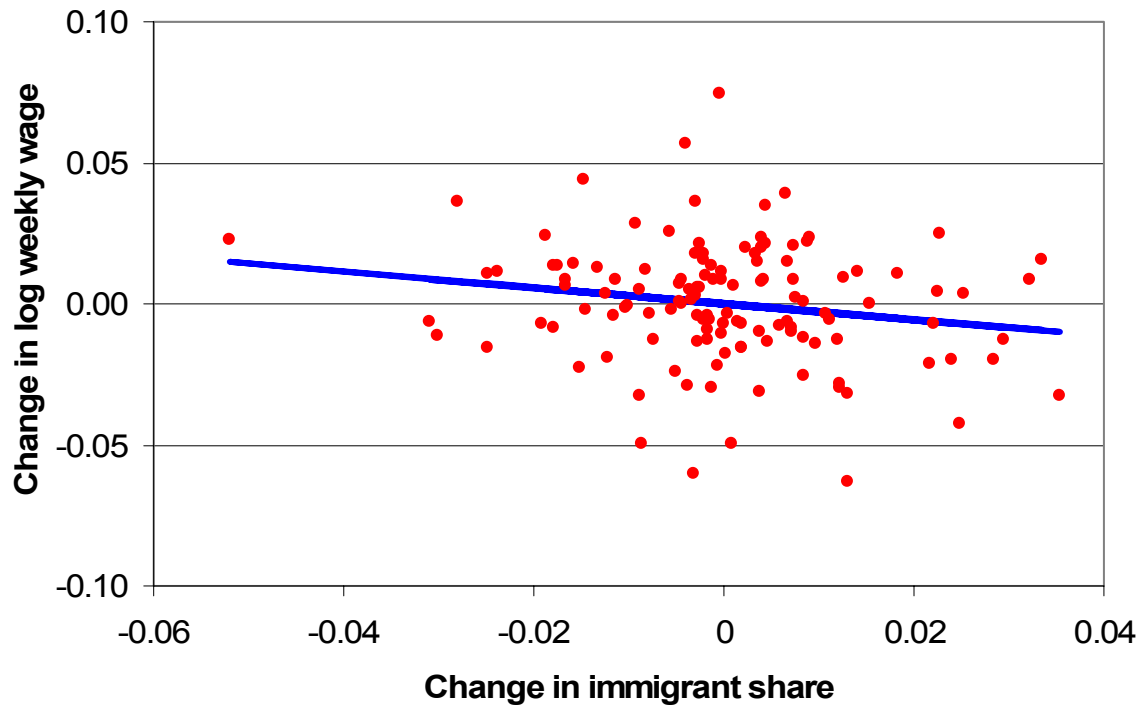
Figure 5. Scatter diagram relating wages and immigration in the U.S. labor market, 1960-2000

Note: Each point in the scatter represents the adjusted decadal change in the log weekly wage and the immigrant share for a native education-experience group. The statistics are calculated in the sample of men aged 18-64 who are not enrolled in school and who worked in the civilian sector at least one week in the calendar year preceding the Census.

Table 1. Education distributions of native and immigrant workers in the United States

	Year				
	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Natives					
High school dropouts	49.3%	35.3%	20.6%	10.5%	7.2%
High school graduates	31.2	39.9	42.7	36.8	32.9
Some college	9.7	11.9	17.6	28.7	31.7
College graduates	9.7	12.9	19.1	24.0	28.2
Immigrants					
High school dropouts	59.4%	44.6%	37.0%	30.6%	29.4%
High school graduates	21.2	28.1	27.9	26.1	25.9
Some college	9.7	12.1	14.5	19.7	18.7
College graduates	9.7	15.2	20.6	23.6	25.9

Notes: The statistics are calculated in the sample of persons aged 18-64 who worked at least one week in the year prior to the Census and are not enrolled in school.

Table 2. The impact of the 1980-2000 immigrant influx in the United States
on the earnings of native workers
(Percent change in weekly earnings)

	All workers	High school dropouts	High school graduates	Some college	College graduates
Short run:					
All men:	-3.3%	-7.0%	-1.8%	-2.0%	-3.3%
White	-3.2	-6.8	-1.8	-2.0	-3.3
Black	-4.1	-7.3	-1.9	-2.0	-3.2
Hispanic	-4.6	-7.7	-1.9	-1.9	-3.2
Long run:					
All men	0.1	-3.6	1.6	1.4	0.1
White	0.2	-3.4	1.6	1.4	0.1
Black	-0.7	-3.9	1.4	1.4	0.2
Hispanic	-1.2	-4.3	1.5	1.5	0.2

Source: Calculations based on Borjas (2003).

Table 3. The economic benefits from immigration in the United States, 1960-2000

	1960	1970	1980	1990	2000
As percent of GDP:					
Change in labor earnings	-1.20%	-1.14%	-1.52%	-1.99%	-2.84%
Change in firm's profits	1.23%	1.17%	1.57%	2.09%	3.05%
Immigration surplus	0.03%	0.03%	0.05%	0.10%	0.22%
In billions of 2002 dollars:					
Change in labor earnings	-$30.05	-$42.98	-$78.26	-$141.63	-$278.37
Change in firm's profits	$30.87	$44.08	$81.03	$148.57	$299.82
Immigration surplus	$0.82	$1.10	$2.78	$6.94	$21.46

Source: The "immigration surplus" gives the increase in national income that accrues to the native-born population of the United States. All of the calculations assume that the capital stock is fixed.

Table 4. The Impact of Immigration on the U.S. Social Insurance Payroll Tax Rate

		Tax rate under alternative scenarios		
Year:	Base Case	Doubling immigration in U.S.	Doubling low-skill immigration in U.S.	Doubling high-skill immigration in U.S.
2000	.135	.135	.135	.135
2050	.238	.224	.245	.230
2100	.274	.267	.295	.264

Source: Fehr, Jokish, and Kotlikoff (2004), Table 3.