Legal U.S. Immigration
Influences on Gender, Age, and Skill Composition

Chapter 1 - Introduction

Michael J. Greenwood, *University of Colorado at Boulder*
John M. McDowell, *Arizona State University*

One of the least understood aspects of human migration is the composition of the migration flows. Numerous studies have described migrant composition in terms of measures such as age, education, occupation, income, employment status, gender, and more, but few studies have actually attempted to explain or model such aspects. Why do certain migration flows consist of relatively more men than women, relatively more young than old, or relatively more skilled than unskilled? We do not have good answers to such questions. The primary objective of this study is to model the gender, age, and skill composition of legal immigration to the United States.

For many years, immigration issues were not widely studied, presumably because immigration was not an important source of U.S. population growth, either absolutely or relatively. For example, the foreign-born population increased by about 283,000 during the 1920s and contributed only 1.7 percent of the incremental national population between 1920 and 1930. The Depression discouraged immigration during the 1930s, and World War II prevented immigration during the 1940s. During the 1950s and 1960s, the "baby boom," as it came to be called, attracted far more attention as a demographic phenomenon than immigration. What attention was directed at international migration issues by economists during this period was mainly by economic historians, who focused on the period of unrestricted flows, and by those interested in the "brain drain," who were concerned with the flow of high-level personnel from poor to rich countries (Greenwood 1983).

Immigration to the United States began to change dramatically with the U.S. immigration law enacted in 1965 that opened the door to immigration from Asia (which had virtually been banned since the 1880s). Because European countries were experiencing rapid economic growth in the 1960s, demand for entry from these countries was low, and immigration from the Americas (especially from Mexico) was becoming important.

These changes produced an immigration policy debate that became more heated during the 1970s and (especially) the 1980s, and immigration issues began to find their place in the mainstream literature of economics. The work of Barry Chiswick, who used census microdata to study the earnings assimilation of the foreign-born, was particularly noteworthy. George Borjas, who formed "synthetic" immigrant cohorts using 1970 and 1980 census microdata to also study

earnings assimilation, further emphasized the importance of immigration in the economics profession. Today, immigration issues are widely studied and discussed in various social science disciplines.

ECONOMIC EFFECTS OF IMMIGRANTS

Do immigrant workers cause a reduction of domestic wage rates and displace domestic workers from jobs? This question has long been asked in the United States. The United States Immigration Commission, after meeting from 1907 to 1911, concluded that immigration was responsible for many of the poor working conditions then evident in the country. Bernard (1953, p. 57) felt that the Commission misrepresented the impacts of immigrant workers on domestic job opportunities:

> One of the most persistent and recurrent fallacies in popular thought is the notion that immigrants take away the jobs of native Americans. This rests on the misconception that only a fixed number of jobs exist in any economy and that any newcomer threatens the job of any old resident.

Bernard argued that immigrants as consumers cause an expansion of the market and encourage increased investment expenditures, thereby further contributing to increased aggregate demand. Moreover, immigrants contribute importantly to technological progress and entrepreneurial activity. Bernard is suggesting that immigration causes an outward shift of not only the labor supply schedule, but also the labor demand schedule, but he presents no reason why the demand shift should dominate the supply shift. If the supply shift dominated the demand shift, the consequence would be that wages would fall and indigenous workers would be displaced, though not to the extent that would have happened had no offsetting demand shift occurred.

Substantial quantitative evidence suggests that the position advocated by Bernard may have prevailed in the United States up to 1900 and perhaps even to 1920, during which time aggregate economies of scale probably existed. However, opposing evidence also exists; for example, Jerome (1926) showed that during the nineteenth century, immigration rose during expansionary periods and fell during contractionary periods, with the effect that immigration did not contribute to unemployment as much as would be the case if immigration were not so responsive to the domestic business cycle.

Spengler (1958), in a conceptual (rather than empirical) work, argued that the main economic consequences of immigration are derived from two demographic effects of immigration. 1) In the short run, immigration increases the rates of population and labor force growth, which in turns boost the rate of growth of output. 2) Immigration also changes a nation's age composition, favoring working ages and augmenting the nation's labor force, while reducing the dependency ratio (i.e., the ratio of the nonworking population to the total population). Spengler recognizes that this second effect is also short run, with the

long-run effect dependent upon such factors as the size, sex composition, continuity, and precise temporal dimension of the flows.

Spengler (1956) also argued that the skill composition of immigration changed as the sources of U.S. immigrants shifted from western and northern Europe to southern and eastern Europe. The "first wave" of immigrants (see p. 37) had served as a catalyst in U.S. economic growth, since it included many innovators and entrepreneurs. He contends that the "second wave" of immigrants, on the other hand, originated primarily in relatively underdeveloped, agriculturally oriented economies, and those immigrants tended to be illiterate and lacking in occupational and industrial skills. However, with American industry becoming more mechanized at about the same time as their arrival, this wave of immigrants satisfied the growing demand for unskilled labor in the nation's cities. Thus, the "second wave" performed a more or less passive role in U.S. economic development.

In general, historical evidence suggests that the direct consequence of immigration was to affect adversely the wages and working conditions of less-skilled domestic workers. As Williamson (1982, p. 254) wrote, "surely, in the absence of mass migrations, the real wage would have risen faster and inequality trends would have been less pronounced." Indirectly, however, the effects of immigration may have been strongly positive. Economies of scale may have been increasing in the aggregate until the early years of the twentieth century, and immigration may have contributed to the faster achievement of these economies. Moreover, immigration's impacts on land and mineral development, as well as on capital accumulation and the general growth of markets, may well have been positive. Hill (1975), studying the period 1840–1880, concludes that the existence of a 10 percent economy of scale would cause observed immigration over the period to increase per capita income by 3.1 percent.

Finally, Williamson (1982) stressed the idea of the "absorptive capacity" of permanent immigrant settlement in the United States, referring to the effects of immigrants on the wages of domestic workers. If absorptive capacity is high, immigration will have little if any depressing effect on wages. Absorptive capacity is high if the native labor force has high supply elasticities (i.e., native secondary workers are crowded out of the labor force), if demand elasticities are high, and, in a dynamic model, if a high elasticity of response of land and capital with respect to immigration prevails. Quantitatively, the forces that presently underlie absorptive capacity may be considerably different than they were historically.

The debate today frequently focuses on illegal alien immigrants (although it could as well focus on less-skilled immigrants in general), and widespread disagreement exists about the effects of immigrants on native-born workers. Briggs (1975a, 1975b) has expressed what might be called the "replacement hypothesis," asserting that illegal aliens depress local wage levels and take jobs that would otherwise be held by native workers. Hartley (1972, p. 66) supports this

view, arguing that illegal aliens "displace low income American workers, hampering unionizing efforts, encourage employers to disregard wage, hours, and working conditions statutes and generally depress the labor market."

Other writers have put forth what might be called the "segmentation hypothesis." Abrams and Abrams (1975), for example, have taken a position that the jobs filled by illegal aliens are not at the expense of native workers. They argue that the labor market is sufficiently segmented that American workers are insulated from direct employment effects caused by immigrants.[1] Piore (1979) has pressed this argument even further by arguing that one component of labor demand in advanced industrial societies is for jobs that are simply undesirable to the native labor force. As a consequence of this demand and the failure of the native labor force to meet the demand, a migrant labor market develops and thrives. Marshall (1986) has taken an intermediate position, arguing that while it would be unrealistic to argue that illegal immigrants do not displace any domestic workers, it would equally unrealistic to argue that the displacement is one for one. The "controversy therefore is over the extent of displacement not whether or not it occurs" (p. 26).

The most common approach to studying the economic consequences of immigration is the production-theory approach, which essentially asks whether immigrants and natives are complements or substitutes in production. The magnitudes of the wage and employment changes due to immigration depend upon the elasticities of labor demand and domestic labor supply, the magnitude of any immigration quota, and other assumptions. In general, the more inelastic the demand and supply relationships are, the greater will be the reduction of domestic wages due to a given number of immigrants. Moreover, the displacement effect will be greater the more elastic the domestic labor supply is and the less elastic the labor demand is.

One of the most troubling assumptions of the production-theory approach is that labor is homogeneous. Such an assumption rules out issues of the differing impact of immigration on various members of the native-born labor force. Borjas (1985 and 1987b) provided evidence that earlier immigrant cohorts generally do relatively better (in terms of earnings) than both natives and immigrants in more recent cohorts, thus suggesting that immigrant "quality" has been declining over time. While this evidence is inferential, Borjas (1992) and others (Smith 1991; LaLonde and Topel 1991b) also have noted a decline in observable skills, such as educational attainment, in more recent immigrant cohorts. If U.S. immigration is becoming more oriented toward less-skilled individuals, the most directly relevant demand and supply elasticities are those in the low-wage labor market. Furthermore, if the labor market is indeed nonhomogeneous, issues concerning the ease or difficulty of transferring skills internationally (as well as those associated with the economic adaptability of immigrants and their offspring in the receiving country) take on added importance.

Studies that take the production-theory approach often recognize that the short-term impacts of immigrants on native-born workers may differ from the long-term impacts. In the short run, physical capital is fixed and time is insufficient to accumulate additional human capital. In the long run, however, general capital accumulation and intersectoral shifts of capital may be induced by immigration, and the immigrants themselves may invest in human capital. The domestic groups with which the immigrants initially competed in the domestic labor market may therefore differ from those with which they later compete.

The short-term effects of immigration should be to increase the relative rates of return on factors of production that are complementary to the migrants? skills and resources and to decrease the rates of return of factors that are substitutable for those of the migrants. Thus, for example, if migrant labor can be substituted for native labor, the relative earnings of native owners of capital will rise, whereas native labor earnings will fall. A number of models assume three factors: capital and two classes of labor, skilled and unskilled. Considering the case of three factors of production and assuming a constant elasticity of substitution (CES) production function, Chiswick (1982) suggested that immigration of either type of labor will increase aggregate per capita income.[2] However, migration results in a decrease in the marginal product of native workers who possess the same type of labor skill as immigrants and results in an increase in the marginal product of both capital and the other type of labor. Thus, if immigrants are assumed to be less skilled than the average native worker, immigration will increase the average earnings of skilled workers and owners of capital and decrease the average earnings of low-skilled native-born workers.

The increase in the wage differential between skilled and unskilled workers that results from the inflow of unskilled migrants will set in motion another set of adjustments. Members of the indigenous population who were at the margin between whether to invest in more human capital are now more likely to make such investments. As this skill adjustment occurs, the wages of unskilled workers will rise relative to those of skilled workers. Over time immigrants will also adjust the level of their skills. Consequently, the initial impacts of the immigrants may differ considerably from the ultimate impacts.

EMPIRICAL MEASURES OF THE EFFECTS OF IMMIGRATION

Aggregate Effects

A few studies have attempted to simulate the effects of immigration on native-born workers by using relevant demand and supply estimates. For instance, Johnson (1979) argued that because estimates of the elasticity of supply of low-skilled labor are close to zero, employment among low-skilled native workers will fall only slightly due to immigration, but these estimates imply a strong negative impact on their earnings. In a later paper, Johnson (1980) postulates that in many industries domestic wages are inflexible downward in the short run.

Consequently, immigrants who find jobs do so at the expense of the employment of native-born workers. The rate of labor market displacement depends on the magnitude of various parameters. Using a plausible range of these parameters, Johnson (1980, p. 335) suggested "a labor market displacement effect that is only around 10 percent."

Using cross-sectional data for 1970, Grossman (1982) estimated a translog production function to determine the substitutability between capital, employed native workers, employed second-generation native workers, and employed foreign-born workers. Based on measures derived from factor-share equations estimated for 19 standard metropolitan statistical areas (SMSAs) for 1969, she concluded that "both second generation workers and foreign workers are substitutes for native workers, but second generation workers are much more highly substitutable for natives than are foreign-born workers. In-migrants substitute for second generation workers more easily than for native workers" (p. 599).

Considering the effect of a 10 percent increase in the number of legal U.S. immigrants and assuming that the wage rates of native workers are downwardly rigid (as they might be in the short run), she concludes that native employment would fall by only 0.8 percent and wages of the foreign-born would fall by 2.2 percent. In the long run, however, if all wages were flexible, native workers would suffer about a 1.0 percent decrease in wages, second-generation workers a 0.8 percent decrease, and foreign-born workers a 2.3 percent decrease, but the price of capital would rise by 4.2 percent. Thus, Grossman (1982, p. 602) concludes that "large inflows of immigrants . . . do not pose serious economic threats to natives, although the effects are not negligible."[3] These findings are consistent with Borjas's (1986a) conclusion that during the 1970s, male immigrants failed to affect the earnings of black men but had a small negative influence on the earnings of native white men.

Grossman's empirical results are now widely accepted, but her estimates must be interpreted with caution.[4] Using a production-theory approach but with a special form of the normalized quadratic functional form, Greenwood, Hunt, and Kohli (1996) found that, in the short run, an exogenous increase in the number of (recent) immigrants causes the employment of native workers to fall, but the effect is quantitatively small. This decrease in employment of native workers contributes to a short-run decline in gross domestic product, but this decline is also quantitatively small. Because the rental price of capital rises, owners of capital are better off. In the long run, the wages of native workers fall only slightly. However, the wages of recent immigrants fall considerably. The wage of nonrecent immigrants rises, which suggests that recent immigrants are more like native workers than nonrecent immigrants.[5]

Given the differences in underlying methodologies and data sets examined and Borjas's inclusion of controls for the skill levels of individuals, the similarity of

the findings of Borjas (1986a), Grossman (1982), and Greenwood, Hunt, and Kohli (1996)—that immigrants have had a very small (negative) impact on the earnings of the native-born population—is of considerable interest. Indeed, a recent study by the National Research Council (1997, p. 5–23) concluded that "the weight of the empirical evidence suggests that the impact of immigration on the wages of competing native-born workers is small—possibly reducing them by only 1 or 2 percent." These findings, however, imply nothing about how quickly the economy adjusts to an exogenous change in labor supply. Even though the resulting change in wages may be small, adjustment costs may be large.[6]

Moreover, in each study, different immigrant groups are aggregated into a single homogeneous population. Several important issues are raised by this approach. First, since existing evidence illustrates that immigrants of different racial and ethnic background differ in terms of the characteristics they possess upon arrival in the United States, one may question whether immigration's impacts on native workers differ by race and/or ethnic origin. Furthermore, the various analyses deal primarily with the impact of legal immigrants on broadly defined classes of native workers. Therefore, their conclusions may be questioned, because more finely defined subclasses of workers may have impacts that are unidentified.[7]

Subgroup Effects

The impacts of racial and ethnic groups were studied in the 1980s by, among others, Borjas (1986a, 1986b, 1987a), Stewart and Hyclack (1986), King et al. (1986), and DeFreitas (1988). The conclusions of those who have developed more or less direct evidence regarding the aggregate effects of immigration on native workers (as a whole) refute the segmentation hypothesis in its extreme form. Immigration appears to cause a decrease in employment of low-skilled, native-born persons, but only a small decrease. The wages of such workers probably fall also, but again only slightly. Subdividing of the domestic labor market and further refinements in classifying immigrant groups have led to similar conclusions of negligible or, at most, very small immigration impacts. Interestingly, these impacts are sometimes positive. DeFreitas' (1988) view of immigration, as a sequential process in which some newcomers integrate into ethnic job clusters and, over time, disperse from these enclaves to exert competitive pressures on low-skilled native workers, seems to be a plausible explanation for some of the observed coexistence of complementary and substitution relationships. However, it should be noted that analyses based on 1990 data are still rare. The large influx of the 1980s and its focus on California could have changed the various relationships.

Others have studied the effects of immigrants on young workers. Matta and Popp (1988) as well as Kimenyi (1989) argued that recent immigrants are substitutes for low-skilled native-born workers. Wingarden and Khor (1991) found only small effects of illegal aliens on teenagers' unemployment, but Borjas,

Freeman, and Katz (1992) found a significant impact of trade and immigration on the most disadvantaged U.S. workers.

Industry-Specific Effects

Although the aggregate supply of unskilled labor may be quite inelastic and the aggregate demand for such labor is elastic, conditions may be considerably different in specific industries or occupations. Consequently, while the effects of immigrants on the total employment of unskilled persons and on their national average wage may be small, the effects on workers at a subnational level could be considerable, yet obscured in the aggregate.

Differences in age and educational composition, combined with less-than-perfect transferability of skills to the U.S. labor market, contribute to an occupational distribution of recent immigrants that is somewhat more oriented toward less-skilled occupations. The U.S. workforce as a whole is considerably more concentrated in the managerial and professional and in the technical, sales, and administrative support occupations than is the new immigrant population; immigrants are more concentrated in service and in operator, fabricator, and laborer occupations. Immigrants who have been in the United States for a longer period have an occupational distribution that is similar to that for all U.S. workers, which suggests either that the older immigrants had a different initial bundle of skills or that over time they were assimilated into the U.S. economy.

Industry-specific studies have been conducted for agriculture (Duf-field 1990; Mines and Martin 1984); manufacturing (DeFreitas and Marshall 1984; Waldinger 1985; Maram and King 1983); and the service sector (Maram and King 1983). The many industry case studies are largely descriptive (as opposed to analytical) contributions, but taken as a whole, two conclusions emerge. First, in certain industries located in specific regions, such as Los Angeles and New York, employment displacement effects of immigrant workers are clearly evident.[8] These negative effects are frequently felt by earlier cohorts of immigrants, but native-born workers also suffer job displacement. Second, employers find immigrant hiring networks to be advantageous. No study has specifically analyzed why these networks are advantageous, but we can infer that relatively substantial cost savings must be realized through the use of network hiring.

Region-Specific Effects

The concentration of the foreign-born population of the United States differs considerably by census division and state. Whereas earlier immigrants of European origin tended to locate in eastern cities and then spread out from there, contemporary immigrants from Asia and the Americas tend to locate in western and southern areas. For example, in 1980, 40.9 percent of Miami's employees and 23.9 percent of Los Angeles's employees were foreign-born, but only 6.0 percent of Detroit's and 4.7 percent of Denver's. Such differential concentrations of the

foreign-born suggest that the economic impacts of immigrants may differ in various regions of the United States, even though labor and capital flows along with interregional trade presumably spread and smooth the effects somewhat nationally. Studies of regional effects have included those of Smith and Newman (1977), Davila and Mattila (1985), Muller and Espenshade (1985), McCarthy and Valdez (1986), Card (1990), and LaLonde and Topel (1991a, 1991b).

In general, the empirical evidence appears to indicate that in areas where immigrant concentrations are particularly high (such as the southwestern border and Los Angeles), some wage-depressing effects are evident.[9] Moreover, some job displacement also seems to exist. These effects are most concentrated among the less-skilled and lower-income native residents of these regions.

More research is clearly required to identify the markets in which the immigrants compete, as well as to measure the relevant demand and domestic labor supply elasticities in these markets. One observation seems clear, however. The more narrowly defined the industrial sector and/or the region in question, the more likely are investigators to find negative consequences of immigration to native workers and earlier immigrant groups.

STUDIES BEYOND PRODUCTION THEORY

One of the major problems with most existing studies is that they focus on a single channel of immigrant influence, the production-theory channel; that is, they are concerned with whether immigrants and natives are substitutes or complements in production. However, immigrants may also influence native workers through a number of other channels, and these additional influences may offset or reinforce those exerted through the production-theory channel (Greenwood 1994; Greenwood and Hunt 1995). Another problem in many studies is that labor and capital mobility are not incorporated explicitly.

The production-theory effect can lead to either a decrease or an increase in aggregate labor income depending on whether immigrants and natives are complements or substitutes and the size of the relevant elasticities. Consequently, this effect can lead to higher or lower levels of local demand in an area. Moreover, the greater the wealth of the immigrants, the larger their sources of nonlabor income, and therefore the greater will be the stimulation of local final demand in an area due to immigrant settlement there.

Agglomeration effects—economies that accrue to an entire area due to increased population and scale—are rarely considered in the context of immigration, and the internal migrations caused by immigrants' effects on local wages are also seldom focused on. These channels of influence (and others) could be integrated into a single model, and two recent studies introduce channels of immigrant influence beyond the production-theory channel. The first of these is by Altonji and Card (1991), who developed a structural model that in addition to

production theory includes output demand and exports from the metropolitan region. Their local demand effect occurs through increased population. Four skill categories of native labor are considered, and each is low-skilled. Altonji and Card did not econometrically estimate many of their model's parameters, did not explicitly include capital as an input, and did not explicitly incorporate labor mobility. They estimated parts of their model with 1970 and 1980 census data for 120 SMSAs. Although their econometric results are somewhat sensitive to the specification and estimation procedure used, their preferred results suggest that "a 1 percentage point increase in the fraction of immigrants in an SMSA reduced less-skilled native wages by roughly 1.2 percent" (p. 226).

The second recent study that introduces several channels of immigrant influence is by Greenwood and Hunt (1995). The main distinguishing features of this study are that it includes capital, explicitly models area supply-and-demand relationships in a structural manner, and incorporates several channels through which immigrants may affect natives, including production theory, local demand (including immigrant demand separately), net export demand, labor force participation, and migration. Both capital and labor are mobile.

Greenwood and Hunt used the recently available Gross State Product Accounts, which represent a more comprehensive database than that available to previous researchers, to estimate capital and output. Simulation results indicate that although immigrants and natives are substitutes in production, when other channels of influence are taken into account, the negative effects stemming from substitutability in production are substantially mitigated. Moreover, under certain assumptions the effects on native wages and employment are positive, which in turn leads to a positive correlation between native migration and immigration (similar to the observation made by Butcher and Card [1991] with respect to the 1980s).[10] However, increased immigration causes somewhat lower wages among the foreign-born, which is consistent with previous studies using alternative models.

IMMIGRANT COMPOSITION AND ITS IMPORTANCE

Immigrant composition is important, because who is permitted to enter may differentially affect the U.S. economy, native-born workers, and prior immigrants. The economic consequences of immigration to the United States are far-reaching, and they depend upon the characteristics of the immigrants. Given the fact that legal immigration is currently at or near historical highs, the compositional aspects of the immigrant population assume commensurate importance.

Gender is one of these important compositional aspects. Although little research has ever been conducted on the economic effects of immigrant females versus immigrant males, these effects are likely to be considerably different. First, females are less likely than males to be "economic migrants," or migrants

motivated by economic advantages and costs. Female immigrants tend to have lower labor force participation rates and lower earnings than their male counterparts. Female immigrants therefore contribute less to taxes (such as income and Social Security taxes) than male immigrants. They tend to have a higher probability of part-time employment, and they sometimes compete in labor markets that are not common for males (e.g., day care, in-home cleaning services). Moreover, females have longer life expectancy than males, so those female immigrants who qualify for social services and generally for social benefits (such as Social Security and Medicare, as well as Supplemental Security Income) will, on average, demand them for a longer period of time. Finally, the child-bearing capacity of female immigrants increases the growth potential of the second-generation immigrant population and the U.S. population as a whole.

The age composition of immigration also is important. For instance, the age at which immigrants enter the United States is a determinant of the benefits that will be derived from their presence in the country. Other things being equal, immigrants who migrate at younger ages assimilate more rapidly into the U.S. labor force and therefore, since younger immigrants also have more years over which they contribute to the U.S. economy, they provide greater benefits to the United States. Furthermore, younger immigrants tend to be more proficient in English-language skills during their subsequent post-entry years than immigrants who enter at older ages. Greater proficiency in English-language skills further augments the immigrants' labor force productivity and also facilitates their more general social and cultural assimilation. In addition, the age composition of immigrants may influence the magnitude of the costs that immigrant families impose on the U.S. economy, since age composition importantly determines the dependency ratio within newly entering immigrant families. Immigrant families that arrive in the United States with young children may impose costs on social service providers (such as the public school system), but the returns to these investments (such as to education) may not accrue until many years in the future.

On the other end of the age spectrum, individuals who migrate at older ages may constitute a net burden on the U.S. economy, since they enter at ages at which their reliance on certain social services (e.g., health care) may be particularly high. Yet, age and human capital accumulation (in the form of formal education and job experience) go hand-in hand. Thus, in addition to implications for entrepreneurship and technical change, the immigration of older persons typically implies a potential direct impact on older native workers. They also have more nonlabor income, which more positively affects local labor demand, and their greater assets allow older immigrants to actively participate in housing and other (e.g., stock) markets. For these and other reasons, the age of immigrants is an important determinant of their economic impacts, but this aspect of immigration has not been extensively studied.

Finally, the skill composition of immigrants has many potential effects on the U.S. economy. The supply of highly skilled immigrant workers is often

stressed as a matter of critical importance to the maintenance of a vibrant and competitive U.S. workforce in an economy that is increasingly becoming more globalized. Moreover, in an era of rapid technological change, highly skilled workers are necessary to keep productivity at the frontiers of technological developments. Yet, many of the studies that conclude that less-skilled immigrants have small but non-negligible impacts on the least-skilled domestic workers use data from 1970 and refer to immigration that occurred during the 1960s. Not only was immigration somewhat greater during the 1970s and 1980s than during the 1960s, but it also appears to have shifted toward less-skilled migrants. Several other studies have concluded that more highly skilled native workers are positively affected or perhaps are unaffected by immigration, again at least in the short run. In general, however, the literature is lacking in studies that identify precisely why the more highly skilled workers enjoy short-run benefits. Such benefits could result from factor complementarity, from the demand effects of the immigrants, from capital accumulation directly related to immigration, and/or from other causes.

In addition, migrant skill levels may be linked to many of the influences discussed earlier in the context of the age composition of migrants. Highly skilled workers are more economically productive than less skilled workers. Therefore, highly skilled workers add more to overall U.S. productivity, and their higher incomes contribute more to the private sector in the form of consumption expenditures and to the public sector in the form of tax payments. In addition to their higher incomes, highly skilled workers generally have higher levels of education. By virtue of their education and innate abilities, such workers are likely to be more proficient in English when they enter the United States, and if they are not, to learn English-language skills more quickly, and therefore they are able to assimilate more rapidly in the U.S. economy. Given the linkage between skill level and income/education levels, the skill composition of immigrants also may influence the dependency ratio within immigrant families, as well as affect the overall U.S. fertility rate in subsequent years. Crime rates too are related to income and education levels. Therefore, the skill level of migrants should affect the extent to which immigrants impose a net cost on U.S. society.

OVERVIEW OF THIS STUDY

The research that is described here is based on a "human capital" approach to immigration. Although we attempt to account for factors such as political conditions and religion in source countries, much of our focus is on the benefits and costs of migrating legally to the United States. Such a focus entails explanatory variables such as relative per capita gross domestic product (GDP) and distance to the United States from source countries of immigrants. Because all sorts of institutional impediments inhibit free international movement, the force of economic incentives is blunted. Consequently, the models developed below attempt to control for institutional restrictions in two ways. First, we distinguish those immigrants who are numerically restricted under U.S. law from those who

are exempt. Second, we introduce a number of "policy controls" as independent variables in our various models. These controls reflect such factors as naturalization to U.S. citizenship of persons born in different countries, as well as various programs (e.g., lotteries) that may have caused deviations from otherwise "normal" admission procedures.

Perhaps the most unique type of variable included in the study is a vector or set of source-country social program indicators. Four types of social programs are examined: 1) old-age pension systems, 2) sickness and maternity programs, 3) unemployment insurance programs, and 4) family allowances. We anticipate that because such programs involve transfers or redistributions between various groups in source countries, they influence the differential economic advantages of residing in various countries relative to residing in the United States. Thus, such programs will play a role in influencing not only the rate of legal migration to the United States, but also the gender, age, and skill composition of the migrants.

As an illustration of our thinking regarding the importance of social programs in source countries, consider unemployment insurance programs, which involve transfers from older workers with lower unemployment rates to younger workers with higher unemployment rates. In a typical country, the unemployment rate of persons in their twenties may be three times higher than that of persons in their forties. The younger workers also have migration propensities that are often three or four times higher than those of workers 20 years older. Thus, the benefits of unemployment insurance programs accrue differentially to an age class that otherwise has a high propensity to migrate. Consequently, such programs should discourage migration, and especially the migration of younger persons, while twisting the age composition of U.S. immigration toward older persons. Similar modes of thinking underlie many other social programs examined in this study.

The study is organized as follows. Chapter 2 sketches the history of U.S. immigration policy, and Chapter 3 provides a brief history of U.S. immigration. Chapter 4 provides details on the data that underlie the models that are estimated in Chapters 5 through 8. Chapter 5 discusses a model of the determinants of overall U.S. immigration. Chapters 6, 7, and 8 develop models of the gender, age, and occupational composition of U.S. immigration, respectively; the models also distinguish immigrants who are numerically exempt under U.S. law from those who are numerically restricted. Chapter 9 provides a summary and conclusions.

Notes

1. Also see Gordon (1975).
2. A CES production function requires that each elasticity of substitution between input pairs be equal, which in turn implies that no differential pattern of factor complementary exists.
3. Grossman's analysis is based on the assumption that characteristics of immigrants are similar to those of U.S. legal, employed residents in 1969. Since these characteristics may have changed over time, the conclusions may also have to be modified somewhat.

4. Greenwood, Hunt, and Kohli (1996) point out that her estimated production function is not well behaved and that it fails to satisfy the required concavity conditions.
5. Greenwood, Hunt, and Kohli suggest that the result appears to be consistent with findings regarding immigrant assimilation that indicate age-earnings profiles of immigrants that are initially lower than those of otherwise comparable native counterparts, but after a period of years catch up with and later surpass those of the natives. They are also consistent with declining immigrant quality over time.
6. Simon, Moore, and Sullivan (1993) report evidence of little or no observed increase in aggregate native unemployment, even in the relatively short run during which adjustment costs should be most severe.
7. Questions may also be raised concerning the relevance of the conclusions to the assessment of the impact of undocumented aliens on domestic workers. For evidence related to impacts of undocumented workers, see Bean, Lowell, and Taylor (1988), DeFreitas (1988), the companion U.S. General Accounting Office reports (1986, 1988), and Grossman (1984).
8. The fact that case studies reveal the most negative impacts on native and legal workers is not particularly surprising. Research employing the case-study methodology focuses on situations where researchers expect to find negative impacts. Regions and industries where negative impacts are likely to be found are generally known. For researchers knowledgeable about immigration in specific regions, occupations and even firms where negative effects might be found are also well known. Obviously, such knowledge frequently directs the researchers to cases that show adverse consequences for native and legal workers.
9. Topel (1994) concludes that, in the West, immigration of less-skilled Hispanics and Asian workers has adversely affected the wages of natives, especially less-skilled natives, thus contributing to the wage inequality observed in the West. This inference is indirect, however, since the Current Population Survey data that are used did not allow nativity status to be identified. Moreover, concerning the possible sources of the increase in the wage gap between highly educated and less educated individuals during the 1980s, Borjas and Ramey (1994) are unable to reject noncointegration between the college-to-high-school dropout wage series and the percentages of immigrants.
10. Filer (1992) describes a different pattern for the 1970s in which the location of immigrants in various places encourages out-migration of natives.