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Immigration: The Effects on Low-Skilled and High-Skilled Native-Born Workers

Linda Levine
Specialist in Labor Economics

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Summary

The large influx of immigrants in recent decades has led to an equally long, still unresolved debate over their effect on the labor market outcomes of native-born workers. Economic theory posits that an increase in the supply of labor, such as from immigration, will reduce the wages and employment of native-born workers. Studies, utilizing two approaches to test the theory, have produced conflicting results with differing implications for public policy.

The concentration of foreign-born workers in certain cities and skill groups led some economists to posit that immigration's greatest impact would be felt by similarly skilled native-born workers living in those areas. Studies thus have compared differences in labor market outcomes between native-born workers who live in high- versus low-immigrant areas and who most often compete for jobs with foreign-born workers; given the composition of the recent immigrant flow, these would be low-skilled U.S. workers. Most inter-area analyses have found scant evidence that foreign-born labor adversely affects the labor market prospects of U.S. workers in general. A few inter-area studies have estimated a slight negative impact on low-skilled natives—who represent a small share of total U.S. employment.

Other economists have argued that the inter-area approach underestimates immigration's consequences because it assumes that labor, capital, and goods do not rapidly adjust to the immigration-induced increase in the supply of labor. If, for example, native-born competitors quickly decide to leave high-immigrant areas, their movements would spread any employment and wage effects due to immigration across the nation, and thereby make it difficult for spatially based research to detect any impact. Some analysts, therefore, have concluded that immigration's labor market effects can best be identified by examining data at the national level. The economy-wide approach is not without its limitations, however. The relationship between internal labor migration and immigration remains unsettled as well.

Several national studies have estimated that immigration, given its composition in recent decades, has hurt—albeit to differing degrees—the labor market opportunities of the least skilled and experienced U.S. workers. If a policy goal is to improve the prospects of U.S. workers who have not graduated from high school, this research suggests that changing the skill composition of legal immigrants and reducing the flow of unauthorized aliens might be fruitful courses of action. However, some of the very limited number of analyses that focus on high-skilled workers in particular (e.g., those in computer science and engineering fields) estimate that an increase in foreign labor adversely affects comparably skilled native-born workers. Thus, shifting the immigrant supply toward higher-skilled workers might not only harm this native-born skill group, but also undercut the most often recommended means of ameliorating immigration's impact on low-skilled U.S. workers, namely, pursuing additional education.

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Introduction

Immigration has been a contentious issue since the nation's inception. During periods of substantial immigration, it has not been unusual for the native-born population to raise objections on many grounds—cultural, religious, ethnic, and economic. The focus of the latest national debate over high levels of immigration is largely on its economic effects, that is, whether immigration provides net economic benefits to society.

The current debate has been concerned with the impact of immigration on the public budget and the private economy. In terms of budgetary effects, the question is whether immigrants receive more in public services than they pay in taxes. Immigrants also affect the private economy in their capacity as workers: if the admission of foreign-born workers lowers wages, which, in turn, results in more goods being produced at lower prices, then U.S. consumers would benefit; if immigration results in lower wages, then U.S. workers would be harmed. The debate over immigration policy has been devoted more to the well-being of U.S. workers than to consumer welfare.

The report opens with a discussion of how to analyze the impact of immigrants on the pay and job opportunities of native-born workers. It then uses this framework to examine and interpret the empirical literature on the subject. The report concludes with a discussion of policy implications.

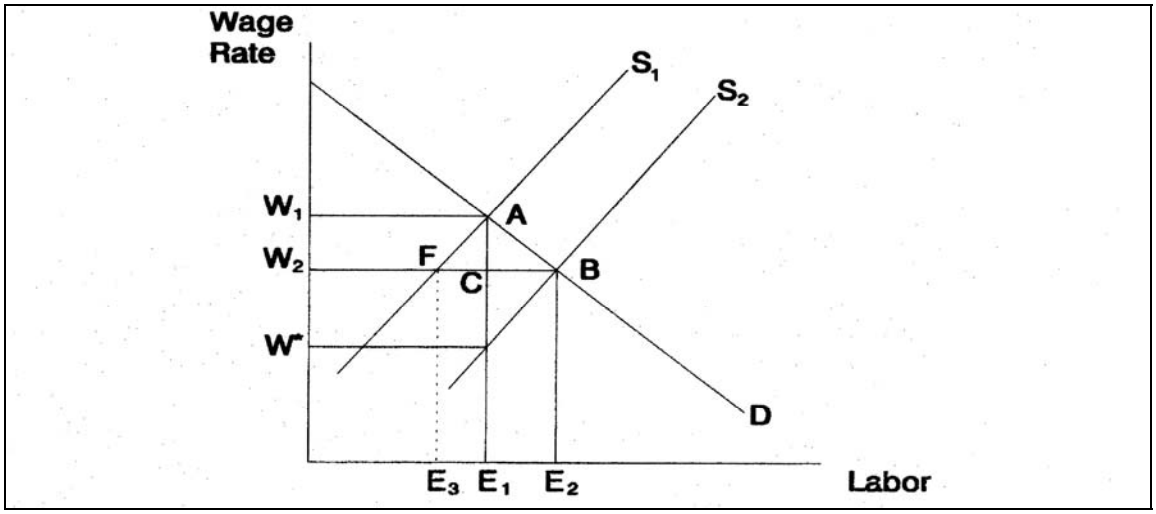
Immigration and the Labor Market

Before the entrance of foreign-born workers to the U.S. labor market, the amount of labor that workers are willing to supply to employers is represented by the curve labeled S_1 in **Figure 1**. The supply curve is upward sloping because workers are willing to offer more labor (e.g., work more hours) in response to higher real wages. Employers' demand for labor is represented by the curve labeled D, which slopes downward because each worker that is hired contributes less to the firm's revenues than the prior worker. A firm stops hiring workers when the last employee added to the payroll contributes as much to revenues as the wage the employee is willing to accept. This is represented by point A, with total pre-immigration employment equal to E_1 and natives' real wage equal to W_1.

The increase in the supply of labor due to the addition of foreign-born workers is represented by S_2. At any given wage rate, more workers now are willing to offer their services to employers. Because the contribution of the last worker hired (E_1) to the firm's revenues is greater than his asking wage (W^*, which is lower than the pre-immigration wage, W_1), the firm is willing to expand employment beyond E_1. The firm once again continues to add workers to the payroll until the contribution of the last employee hired is just equal to the wage the employee is willing to accept. This is represented by point B, with total post-immigration employment equal to E_2 and the wage rate of native- and foreign-born workers equal to W_2.

In summary, supply-and-demand theory predicts that the real wage rate for all workers will fall from W_1 to W_2 after the entrance of immigrants to the U.S. labor market. In the process, total U.S. employment expands from E_1 to E_2, native-born employment contracts from E_1 to E_3, and foreign-born employment increases from zero to E_2 minus E_3.

Figure 1. The Effects on Native-Born Workers of an Increase in the Supply of Foreign-Born Workers



Distributional Issues

In this manner, immigration is expected to redistribute national employment. Because the lower post-immigration wage (W_2) makes work less rewarding, some native-born workers will find other activities more attractive. As a consequence, they leave the labor force and employment among the native-born population, as noted above, declines (from E_1 to E_3). The initial employment of foreign-born workers (E_2 minus E_1) expands as they assume a portion of the jobs formerly held by native-born workers (E_1 minus E_3). The latter has been referred to as the "displacement effect." The actual size of the displacement as well as the wage effect will depend upon how sensitive labor demand and domestic labor supply are to a change in the wage rate.[1]

In addition to reallocating national employment, immigration also is expected to redistribute national income by reducing the amount that accrues to native-born workers and increasing the amount that accrues to owners of capital and foreign-born workers. The difference between the pre- and post-immigration wages of native-born workers is not lost to the economy but is instead reallocated: part of the wages that previously went to native-born workers (W_1ACW_2) now goes to capital holders and part (E_3FCE_1) to foreign-born workers.

In addition to its distributional effects, immigration is expected to expand national output and income. The increase in total employment (from E_1 to E_2), which results from the entrance of immigrants to the U.S. labor market, adds to national income (by E_1ABE_2). Part of the increase (E_1CBE_2) goes to foreign-born workers in the form of wages. The remainder of the increase in national income (the "immigration surplus," ABC) goes to nonlabor factors of production, such as owners of capital.[2] The total benefits that capital owners derive from increased immigration is

[1] This sensitivity is depicted graphically by the steepness of the supply or demand curve's slope. The steeper (more inelastic) the slope, the less the supply of or demand for labor changes for a given change in the wage rate. The flatter (more elastic) the slope, the more supply or demand changes for a given change in the wage rate.

[2] George J. Borjas, "The Economic Benefits from Immigration" (working paper, no. 4955, National Bureau of Economic Research, Cambridge, Massachusetts, December 1994).

equal to the immigration surplus (ABC) and part of the wages transferred from native-born workers (W_1ACW_2).

The Model's Assumptions

The simple neoclassical model just presented makes a variety of assumptions, including that labor is homogenous and that immigrants are perfectly interchangeable with all native-born workers. Depending upon the socioeconomic characteristics of foreign-born workers, however, their effect on different groups of native-born workers could vary.[3] If immigrants are close substitutes for a subset of native-born workers—the less skilled, for example—then only this group's wages or employment prospects might be depressed in the manner shown in **Figure 1**. Alternatively, the demand for and returns to those production factors that complement immigrants' skills might rise as a result of the increase in immigrant employment (e.g., capital and skilled native-born labor). Thus, the skill composition of foreign-born vis-a-vis native-born workers is expected to influence which native-born workers' labor market outcomes might benefit from or be harmed by an expansion of immigration.

The model also assumes that, in the short run,[4] immigration affects labor supply but not labor demand. However, by doing such things as investing financial capital they might have brought with them, using their human capital (e.g., entrepreneurial or innovative abilities), or purchasing U.S.-produced goods and services, immigrants may well expand aggregate output and increase labor demand beyond their own employment.[5] If immigration were to raise the demand for labor in the U.S. economy, which would be represented by a rightward shift of the demand curve in **Figure 1**, it would mitigate its potentially adverse consequences for native-born workers.

In addition, the model does not take into account long-run adjustments that native-born workers might make in response to immigration. It assumes that the quantity and quality of native-born workers do not change after an inflow of immigrants. If some native-born workers perceive that their labor market prospects have changed for the worse, however, they might invest in their own human capital (i.e., undertake education and training).[6] This could raise their productivity in their current jobs or it could cause them to change occupations. The wage prospects of native-born workers who increased their human capital investment would thus tend to rise—thereby offsetting any initial adverse effects of immigration—and to equalize the net gain for all native-born labor force participants.

Native-born workers also can make long-run adjustments to immigration by moving across local economies. Factors of production—both labor and capital—are geographically mobile and they, like goods, can flow between areas thereby linking seemingly unconnected local markets. If, for example, some native-born workers who are close substitutes for immigrants saw their wage or job prospects being eroded, they might migrate to areas with fewer competitors and better

[3] Michael J. Greenwood and John M. McDowell, "The Factor Market Consequences of U.S. Immigration," *Journal of Economic Literature*, December 1986. (Hereafter cited as Greenwood and McDowell, *The Factor Market Consequences of U.S. Immigration*.)

[4] The short run is defined as that period in which at least one of the firm's factors of production is fixed (e.g., the state of technology and the quantity of physical capital or of highly skilled labor).

[5] Greenwood and McDowell, *The Factor Market Consequences of U.S. Immigration*.

[6] Carmel U. Chiswick, "The Impact of Immigration on the Human Capital of Natives," *Journal of Labor Economics*, v. 17, no. 4, 1989.

opportunities. Native-born substitutes who are residing elsewhere might avoid high-immigrant communities, as well. Similarly, firms that rely heavily on less-skilled workers might have an incentive to open plants in high-immigrant communities if their labor costs would be lower and their profits higher than expanding in their current locations, thereby suppressing job opportunities in the communities where the existing plants are located.[7] Over some period, then, these movements of labor, capital, and goods could spread immigration's labor market impacts from high-immigrant areas to the rest of the country.

What Does the Empirical Literature Have to Say?

Does the theory sketched in **Figure 1** translate into fact? The model suggests that some native-born workers may be made worse off through lower wages or diminished job prospects because immigration increases the supply of labor available to the nation's employers. But, theory also suggests that immigration would make consumers (including the above-mentioned native-born workers) better off because it holds down wages and thereby holds down prices of goods and services. The empirical issue is how best to measure the existence and magnitude of the potential wage and employment effects of immigration that the model describes.

Overview of the Literature

Despite the greatly increased presence of foreign-born workers since the 1970s, the foreign-born make up less than one-fifth of U.S. labor force participants.[8] Therefore, immigration is unlikely to have substantially affected the wage or job prospects of the *average* native-born worker. But, if immigrants are concentrated in particular geographic areas, then native-born workers who live in those communities and possess characteristics similar to those of foreign-born workers might be affected.

Such an impact might be detected by comparing the wage and employment opportunities of selected groups of native-born workers in areas with high versus low concentrations of immigrants. Consequently, the first group of analyses reviewed below utilize data for a sample of cities or states disaggregated by immigrant share to estimate the relationship between an increase in their immigrant population and the labor market outcomes of U.S. workers thought to compete with foreign-born workers. *Most of the inter-area studies have found little if any statistically significant and economically meaningful difference between the wage and employment experiences of native-born workers—overall, or disaggregated by race, gender, or skill level—in areas with high versus low concentrations of immigrants. A few studies have estimated a slight negative impact on a small share of the U.S. labor force—low-skilled natives (e.g., those who did not graduate from high school).*

It has been suggested that inter-area research does not provide a complete picture of immigration's effects, however:

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[7] James P. Smith and Barry Edmonston (eds), *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration*, (Washington, DC, National Academy Press, 1997). (Hereafter cited as Smith and Edmonston, *The New Americans*.)

[8] U.S. Congressional Budget Office (CBO), *The Role of Immigrants in the U.S. Labor Market*, (Washington, DC, November 2005). Hereafter referred to as CBO, *The Role of Immigrants in the U.S. Labor Market.*

> The spatially based studies correctly tell us that immigrants have no measurable effect on *particular labor markets*, but they are not informative about the economy-wide effects of immigrants."[9] (Emphasis added.)

As noted in the section of this report concerning the model's assumptions, mobility of production factors and goods could disperse the local effects of immigration across the nation. Differences between areas in the supply of labor by skill category would be minimized if, for example, many low-skilled U.S. workers in high-immigrant cities whose wages had been depressed quickly overcame the monetary, psychological, and information costs of moving, and relocated to cities with better opportunities (i.e., low-immigrant communities). The mobility of labor, capital, and goods between areas thus could make it difficult for spatially based studies to detect the labor market consequences of immigration.[10] This alleged deficiency of the inter-area approach has prompted research into immigration's effect on the aggregate (i.e., national) labor market.

The second group of studies discussed below utilize national data to assess the impact of immigration on native-born workers by skill level. Various explanations have been offered for the increase since the 1970s in wage inequality (i.e., workers increased concentration at the lower end of the wage distribution). Although skill-biased technological change is considered the leading contributor, others include international trade, the level of the federal minimum wage, changes in wage-setting institutions, and immigration.[11] *National analyses typically have estimated that, by immigration's changing the nation's skill composition toward relatively more inexperienced workers who lack a high school degree than otherwise would have been the case,*[12] *immigrants have harmed the labor market prospects of low-skilled native-born workers to a greater extent than those of other skill groups with whom immigrants compete*.

The economy-wide studies that have examined the relationship between immigration and changes in the relative proportions of labor by skill category are not without their own drawbacks, however. Early studies that utilized the "factor-proportions" methodology were faulted because they did not directly estimate the responsiveness of natives' wages to the immigration-induced increase in the relative supply of low-skilled workers, and for this reason, might overstate

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[9] George J. Borjas and Richard B. Freeman, "Introduction and Summary," p. 14 in George J. Borjas and Richard B. Freeman, ed., *Immigration and the Work Force: The Economic Consequences for the United States and Source Areas*, (Chicago, IL, University of Chicago Press, 1992).

[10] Randall K. Filer ("The Effect of Immigrant Arrivals on Migratory Patterns of Native Workers," in Borjas and Freeman, *Immigration and the Work Force*) estimated that an increase in immigration to a particular locality prompts increased out-migration among native-born residents and decreased in-migration among native-born nonresidents. William H. Frey ("Immigration and the Internal Migration 'Flight' from U.S. Metropolitan Areas: Toward a New Demographic Balkanisation." *Urban Studies*, v. 32, nos. 4-5, 1995) found that natives (e.g., non-Latino white high school dropouts) are apt to leave areas that experience large immigrant inflows. Michael J. White and Lori M. Hunter (*The Migratory Response of Native-Born Workers to the Presence of Immigrants in the Labor Market*, Brown University, PSTC Working Paper Series 93-08, 1993) provided evidence that workers in some less-skilled occupations are likely to move away from areas with high immigrant concentrations.

[11] Thomas Klitgaard and Adam Posen, "Morning Session: Summary of Discussion," *FRBNY Economic Policy Review*, January 1995.

[12] Immigrants comprise a disproportionate share of workers who lack a high school diploma. Foreign-born workers' representation among all low-skilled workers in the United States has increased over time, as well, "because of the influx of workers from Mexico and Central America with little education and because of a decline in the number of native-born workers who have not finished high school." Accordingly, immigrants from Mexico and Central America are concentrated in occupations characterized by low educational requirements such as construction, building and grounds cleaning, and food preparation. CBO, *The Role of Immigrants in the U.S. Labor Market*, p. 8.

immigrants' wage effect on U.S. workers.[13] The more recent work of researchers who take a national approach has responded to this, among other, criticisms. Economy-wide analyses also might overstate the impact of immigration in the long run if, for example, they do not take into account natives adjustment to the increased presence of immigrants by completing more years of schooling or choosing different fields of study which takes them out of competition with immigrants for jobs in which foreign-born workers have made substantial inroads.

The assumption by proponents of the national approach—that native-born "substitutes" for and "complements" of foreign-born workers quickly diffuse the effect of immigration across the country—is suspect, as well, because other economic shocks typically have been followed by longer adjustment periods.[14] In addition, the precise relationship between immigration and internal labor migration remains unresolved: studies find a negative, a positive, or no connection between the in- or out-migration of native-born workers and an area's immigrant concentration;[15] and they do not establish causality (i.e., that the observed migration patterns of natives are due to immigration's impact on the labor market).[16]

Based on its review of the inconsistent results provided by inter-area and national studies through the mid-1990s, the National Research Council concluded that

> [I]mmigration has only a small adverse impact on the wage and employment opportunities of competing native-born groups. This effect appears not to be concentrated in the local areas where immigrants live; much of it is probably dispersed across the United States as competing native workers migrate out of the areas to which immigrants move. The migration of native labor and native capital across cities (to take advantage of whatever differential

[13] Rachel M. Friedberg and Jennifer Hunt, "The Impact of Immigrants on Host Country Wages, Employment, and Growth," *Journal of Economic Policy*, v. 1, no. 2, spring 1995. Note: The studies in question assumed that an increase in the supply of low-skilled workers depresses the group's relative wage to the same extent regardless of the source of the supply hike (i.e., foreign-born or native-born labor).

[14] John DiNardo, "Comments and Discussion," of Borjas, Freeman, and Katz in *Brookings Papers on Economic Activity*.

[15] Kristin Butcher and David Card ("Immigration and Wages: Evidence from the 1980s," *American Economic Review*, v. 81, no. 2, May 1991) found that, with the exception of three cities that received 51% of recent immigrants between 1980 and 1985 (New York, Los Angeles, and Miami), native in-migration was positively correlated with inflows of immigrants to the 21 other cities in their analysis. Michael J. White and Yoshie Imai ("The Impact of U.S. Immigration Upon Internal Migration," *Population and Environment*, v. 15, no. 3, January 1994) estimated a slight but statistically insignificant decrease over time in native in-migration to metropolitan areas as their immigrant concentration increased as well as a virtually unchanged trend in out-migration in the face of heightened immigrant area density. Mary M. Kritz and Douglas T. Gurak ("The Impact of Immigration on the Internal Migration of Natives and Immigrants," *Demography*, vol. 38, no. 1, February 2001) found evidence of non-Hispanic native-born white men leaving states that experienced large immigrant inflows during the 1980s, but only for inflows of Latin American and Carribean immigrants; in addition, both native-born and foreign-born men were less likely to leave states that experienced large immigrant inflows compared to other states. The research of Michael J. Greenwood and Gary Hunt ("Economic Effects of Immigrants on Native and Foreign-Born Workers: Complementarity, Substitutability, and Other Channels of Influence," *Southern Economic Journal*, v. 61, April 1995) suggested that these positive, weak negative, or absent correlations might exist because the adverse wage or employment effect on natives is completely offset by immigrants' impact on local demand for products and on area net exports demanded. Richard A. Wright, Mark Ellis, and Michael Reibel ("The Linkage between Immigration and Internal Labor Migration in Large Metropolitan Areas in the United States," *Economic Geography*, vol. 73, no. 2, April 1997) concluded that differences in the specifications that analysts have utilized to estimate the relationship between immigration and internal migration account for their disparate results, including failure to take into account the labor force size of a metropolitan area. See footnote 9 for a description of studies that found evidence of a negative link between immigration and internal labor migration.

[16] Harriet Orcutt Duleep, *The Economic Impact of Immigration: Past Results and New Approaches*, paper presented at the annual meeting of the Association of Public Policy Analysis and Management, Washington, DC, 1995.

economic opportunities initially arise from immigration), as well as the beneficial effect that immigrant groups have on other native groups, suggest the unlikelihood of detecting any sizable negative effect on native workers.[17]

The Findings of Studies Using a Spatial Approach

Bean, Lowell and Taylor estimated the effect of authorized and unauthorized Mexican workers on the earnings of native-born workers in metropolitan labor markets in the southwestern United States in 1980. Regardless of the native-born group in question (e.g., black males, non-Hispanic white males, native Mexican males, and women), the numerical impact of Mexican male immigrants on natives' annual earnings was small.[18] Using an alternative estimation procedure, the researchers found that legal Mexican immigrants slightly lowered the earnings of native-born women and native-born non-Hispanic white men while not affecting the earnings of native-born minorities. In contrast, they estimated that unauthorized Mexican immigrants slightly raised the earnings of all groups studied except Mexican-origin men. The authors explained these results by suggesting that unauthorized Mexican immigrants do not compete with native-born workers as legal immigrants appear to—unauthorized Mexican immigrants may take "secondary" jobs, which are low-paying and unattractive to native-born workers, while legal Mexican immigrants may possess characteristics needed to compete with native-born workers for "primary" jobs. Nonetheless, regardless of the estimation procedure used, the impact of authorized and unauthorized Mexican workers on the annual earnings of native-born workers was small.

LaLonde and Topel found no evidence that immigrants reduce the annual earnings of young native-born black and Hispanic males (i.e., the relationship is statistically insignificant). Because the results were about the same with either weekly or annual earnings as the outcome variable, they surmised that immigrants also have an inconsequential impact on the amount of time worked (i.e., number of weeks worked) by the two native-born groups.[19]

A study by Altonji and Card focused on the implications of increased immigration for less-skilled native-born workers (i.e., those with 12 or less years of schooling). When the researchers accounted for the location decisions of immigrants and compared differences over time in inter-area wage growth, they found that immigration significantly reduced the earnings of the less-skilled group.[20] Altonji and Card analyzed immigration's impact on the employment outcomes of less-skilled natives as well. They concluded that, on balance, inflows of foreign-born labor had neither a large nor systematically positive or negative impact on the job opportunities of less-skilled native-born workers.[21] They did find some evidence of displacement among native-born workers in high-immigrant cities in those industries that employed relatively large and increasing numbers of immigrants between 1970 and 1980, including low-wage manufacturing industries

[17] Smith and Edmonston, *The New Americans*, p. 230.

[18] Frank D. Bean, Lindsay B. Lowell, and Lowell J. Taylor, "Undocumented Mexican Immigrants and the Earnings of Other Workers in the United States," *Demography*, February 1988. (Note: The authors assume that Mexicans who entered the United States before 1975 did so legally and those who entered after 1975 did so illegally.)

[19] Robert J. LaLonde and Robert H. Topel, "Labor Market Adjustments to Increased Immigration," in John M. Abowd and Richard B. Freeman, ed., *Immigration, Trade, and the Labor Market*, (Chicago, IL, University of Chicago Press, 1991).

[20] Joseph G. Altonji and David Card, "The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives," in Abowd and Freeman, *Immigration, Trade, and the Labor Market*.

[21] Ibid.

(e.g., apparel), service industries (e.g., private households), and agriculture. Because the employment outcomes of less-skilled natives across all industries were unaffected, however, the authors suspected that the job losers were able to get new positions in other industries or in other metropolitan areas.

Utilizing data from the 1990 census, Card subsequently analyzed the employment effects of recent immigrants on native-born workers and on earlier immigrants employed in the same occupation-based skill groups. He estimated that immigrants admitted to the United States between 1985 and 1990 who were employed in laborer and low-skilled service occupations slightly reduced the employment rates of natives and older immigrants in this lowest paid, least educated group. Only in the few cities in which the inflow of foreign-born low-skilled competitors during the 1985-1990 period "expanded their unskilled labor forces by as much or more than the Mariel boatlift affected the Miami labor market" did immigration substantially lower the employment rates of young, less-educated natives.[22] Card similarly found that, based upon data from the 2000 census, an increase in the relative supply of male immigrants who failed to complete high school had only a small adverse effect on the relative employment of male native-born dropouts.[23] In contrast, he estimated no relationship between a city's increased supply of low-skilled male immigrants and the wages of their native-born competitors. Card's research led him to suggest that those industries in high-immigrant areas which rely heavily on low-skilled labor (e.g., agriculture; textiles, apparel, and footwear; and low-skilled service industries) have been able to absorb the increase in immigrant supply without harming similar native-born workers.

Schoeni addressed some of the shortcomings of the spatial approach by examining a period of time (the 1970s and 1980s) rather than one year, as is true of most of the other cross-sectional studies discussed above.[24] He also adjusted for cost-of-living differences between cities with varying immigrant concentrations and for the influence of immigrants' location decisions, both of which could bias the results. Schoeni found evidence that immigration has the largest adverse effect on the earnings and employment outcomes of natives with less than a high school degree. To a lesser degree, the labor market experiences of high school graduates appear depressed as well. For example, increased immigration during the 1970s might have caused a 2.2% decline over the decade in the real (inflation-adjusted) wage of low-skilled white men, and increased immigration during the 1980s might have led to a 1.18 percentage point rise in unemployment over that period among low-skilled black men. Similarly, heightened immigration during the 1970s might have prompted a 7.5% decrease in the real weekly wage of low-skilled black women, and heightened immigration during the 1980s might have produced a 0.55 percentage point increase in unemployment among low-skilled white women. Thus, the form of the labor market effect may have changed over time: in the 1970s, the wage of native-born workers bore the brunt of immigration's impact; in the 1980s, the impact shifted to native-born workers' employment according to Schoeni's analysis. While his results support the notion that immigration imposes considerable costs on native-born workers with 12 or less years of schooling, Schoeni concluded that its economy-wide effects are small, because in 1990

[22] David Card, "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration, *Journal of Labor Economics*, 2001, vol. 19, no. 1, p. 58.

[23] David Card, *Is the New Immigration Really So Bad?*, (Cambridge, MA, National Bureau of Economic Research, August 2005).

[24] Robert F. Schoeni, *The Effects of Immigration on the Employment and Wages of Native Workers: Evidence from the 1970s and 1980s*, (Santa Monica, CA, RAND, March 1997).

unaffected workers (i.e., those with more than a high school diploma) made up more than half of all workers.

Johannsson and Weiler similarly covered a span of time (1998-2002) and took the location decisions of low-skilled immigrants into account. They estimated that metropolitan areas experiencing an increase in their low-skilled immigrant population have a significantly lower rate of labor force participation among similar native-born workers. The withdrawal of natives from the local labor force may partly explain the markedly reduced unemployment rate among low-skilled natives in areas with increased immigration. The researchers suggest that "lower-skilled older natives with considerable mobility costs may opt to reduce their participation rather than out-migrate in response to adverse local labor market shocks" such as an immigration-induced increase in the supply of labor.[25]

Federman, Harrington, and Krynski found evidence of displacement among native-born manicurists in California between 1987 and 2002 when areas within the state experienced a very large influx of Vietnamese manicurists. Specifically, it appears that two native (i.e., non-Vietnamese) manicurists were displaced for every five Vietnamese manicurists who entered the labor market. The displacement was manifested more through native-born workers not becoming manicurists than the exit of native-born manicurists from the occupation, which the researchers suggest is why economists find little or no overall effect of immigration on employment among native-born workers. "The dramatic increase in the number of manicuring jobs following the entry of Vietnamese immigrants should dispel the notion that immigrants and natives compete for a fixed number of jobs."[26] New forms of service (e.g., walk-in nail salons) could be partly responsible for the increase in demand for manicurists, according to the authors.

The Findings of Studies Using a Nationwide Approach

Topel analyzed the local supply and demand factors that might have affected the wage of low-skilled compared to high-skilled men during the 1980s. Not only did he find that the wage gap between the two groups widened in every region but that this happened at different rates in different regions. In particular, the West recorded the largest decline in low-skilled men's relative wage.[27] Topel estimated that if it were not for the increased presence of immigrants in the West's labor force, the supply of low-skilled compared to high-skilled men would have fallen by more than it actually did, and the relative wage of low-skilled men consequently would not have fallen by as much as it did. He concluded "... that immigration has played ... [a significant] role in affecting the supply and welfare of low-skilled men," especially in the West where it might have reduced their relative wage by some 10%.[28]

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[25] Hannes Johannsson and Stephan Weiler, "Local Labor Market Adjustment to Immigration," *Growth and Change*, vol. 35, no. 1, winter 2004, p. 74.

[26] Maya N. Federman, David E. Harrington, and Kathy J. Krynski, "Vietnamese Manicurists: Are Immigrants Displacing Natives or Finding New Nails to Polish?", *Industrial and Labor Relations Review*, vol. 59, no. 2, January 2006, p. 315.

[27] Robert H. Topel, "Regional Labor Markets and the Determinants of Wage Inequality," *AEA Papers and Proceedings*, May 1994.

[28] *Ibid.*, p. 21-22. (Note: Part of the relative wage decline could have occurred because of changes in composition rather than in labor supply *per se*. In other words, if unskilled immigrants earn less than unskilled natives the group's average wage would fall. To the extent this is true, the analysis overstates the negative impact of immigration on the relative wage.)

Enchautegui examined how much of the decline during the 1980s in the level of real (inflation-adjusted) wages among workers without a high school diploma was due to the influx of low-skilled foreign-born labor. She estimated that, at the national level, the increased presence in the U.S. labor force of low-skilled foreign-born workers explained just 4% of the 13% decline in real annual earnings of workers with less than 12 years of schooling. From a national perspective, then, the increase in the supply of foreign-born workers without a high school degree had little impact on the erosion in low-skilled workers' earnings during the 1980s. But, the explanatory power of the heightened presence of low-skilled foreign-born workers appears to increase with an area's immigrant density:

> In areas of low immigration, only 2 percent of the wage change can be attributed to increased immigrant representation in the work force. In areas of medium immigration, 14 percent of the wage drop is due to the larger immigrant share among the low skilled, while in areas of high immigration, the influx of immigrants accounts for 43 percent of the 7-percent decline in wages experienced in these areas.... In Los Angeles [an example of a high-immigrant area], the change in the proportion of natives and immigrants accounted for more than half of the 9-percent decline in real wages of low-skilled workers.[29]

Another study directly examined immigration's labor market impact by relating occupational differences in immigrants' share of employment to the wages of natives. Although it could not address whether foreign-born labor contributed to the decline over time in the wage level of low-skilled workers because the research covered just one period, the cross-occupation analysis was conducted on a nationwide basis so it is not susceptible to the previously discussed drawback of the inter-area approach. Camarota estimated that as the share of foreign-born employment in an occupation rose, the earnings of native-born workers fell significantly.[30] Specifically, for every 1% increase in immigrant composition in an occupation, the weekly wage of the average native-born worker in that occupation declined by 0.5%. The data suggest that the largest negative effects were felt by low-skilled labor: among all natives with 12 or less years of schooling, a 1% increase in the employment share of foreign-born workers reduced weekly wages by 0.66%; among all natives in low-skilled occupations (i.e., jobs typically performed by workers with no more than a high school degree), a 1% increase in immigrant composition lowered weekly wages by 0.8%.

Borjas, Freeman, and Katz found that immigration played a statistically significant part in the declining relative wage of low-skilled workers. But they also concluded that it had little effect on either the growth in wage inequality or in the wage gap between college and high school graduates. The economists estimated that, between 1980 and 1995, immigration expanded the relative supply of workers with less than a high school degree by some 15%.[31] If immigration had not been skewed in this manner, the relative wage of the scarcer low-skilled natives would have

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[29] Maria E. Enchautegui, "Immigration and Wage Changes of High School Dropouts," *Monthly Labor Review*, October 1997, p. 8.

[30] Steven A. Camarota, "The Effect of Immigration on Low-Skilled Native Workers: Evidence from the June 1991 Current Population Survey," *Social Science Quarterly*, v. 78, no. 2, June 1997; and Stephen A. Camarota, *The Wages of Immigration: the Effect on the Low-Skilled Labor Market*, (Washington, DC, Center for Immigration Studies, January 1998). (Note: This research employs the same procedure as the Borjas, Freeman, and Katz study to adjust for the undercount of illegal aliens.)

[31] George J. Borjas, Richard B. Freeman, and Lawrence F. Katz, "How Much Do Immigration and Trade Affect Labor Market Outcomes?", *Brookings Papers on Economic Activity*, no. 1, 1997. (Note: The authors adjust for the undercount of illegal aliens in the government data series and estimate the educational attainment of the undercounted component of the foreign-born labor force.)

increased (assuming unchanged employer demand). By becoming a major supplier of low-skilled workers and thereby changing the nation's skill endowment from what it otherwise would have been, immigration may have accounted for some 44% of the decrease over the 15-year period in the relative wage of workers with less than 12 years of schooling. The economists further estimated that immigration lowered the wage of low-skilled workers by about 5% between 1980 and 1995.

Borjas, in more recent analyses, made refinements to the national approach that address some of the previously mentioned criticisms. He found that an increase in the supply of immigrant labor by skill group (defined by educational attainment and years of work experience) over the 1960-2000 period had a significantly adverse impact on the wages of native-born men with whom they competed: a 10% increase in the number of workers in a given skill group reduced the absolute weekly wage of similar native-born males by some 4%, and their employment (i.e., weeks worked), by some 3%.[32] Even after allowing for the positive earnings impact that low-skilled (high-skilled) immigrants can have on native-born workers in high-skilled (low-skilled) groups, Borjas estimated that immigration over the 1980-2000 period reduced the wage of native-born workers in each skill group. Young (i.e., less experienced) native-born males without a high school degree appear to have experienced the greatest negative wage effect, which seemingly was due to the entrance into the United States between 1980 and 2000 of predominantly low-skilled authorized and unauthorized Mexican workers. The author found that the overall wage impact of increased immigration was more modest over the long run as the capital stock adjusted to the greater labor supply.[33]

Ottaviano and Peri similarly studied the effect of immigration between 1990 and 2006 on native-born workers by taking into account both education and experience, but reached very different conclusions, in part because they found foreign-born workers were imperfect substitutes for native-born workers within an education-experience group (i.e., they worked in different occupations and had different skills). The two researchers estimated that, in the long run, the average real wage of U.S. workers increased slightly (by 0.6%) as a result of immigration over the 1990-2006 period.[34] The short-run wage impact on native-born workers (as of 2007, before capital had fully adjusted to the increase in immigrants) was negative and small (0.4%). Ottaviano and Peri further found a smaller real wage loss among the least educated U.S. workers—0.7% in the short run—than had previously been derived, and a positive but very slight effect (0.3%) in the long run for this group.[35]

Borjas, Grogger, and Hanson examined the relationship between immigration and black men's wages, employment opportunities, and incarceration rates. They estimated from 1960-2000 census data that when immigration led to disproportionate increases in the supply of labor to particular skill groups, the earnings of black and white men in the skill group declined by about the same percentage. But, the employment rate of black men fell and the incarceration rate of

[32] George J. Borjas, "The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market," *The Quarterly Journal of Economics*, vol. 68, no. 4, November 2003.

[33] George J. Borjas, *The Evolution of the Mexican-Born Workforce in the United States* (Cambridge, MA, National Bureau of Economic Research, April 2005).

[34] Gianmarco I.P. Ottaviano and Giovanni Peri, *Immigration and National Wages: Clarifying the Theory and the Empirics* (Cambridge, MA, National Bureau of Economic Research, July 2008).

[35] They undertook this reanalysis and extension of earlier work in response to criticism contained in *Imperfect Substitution between Immigrants and Natives: A Reappraisal*, by George J. Borjas, Jeffrey Grogger and Gorden H. Hanson (Cambridge, MA, National Bureau of Economics Research, March 2008).

black men rose to a greater extent than the changes experienced by white men. The researchers emphasized that although immigration contributed to the large changes in employment and incarceration rates among black men since 1960, much remains unexplained. "We would have witnessed a sizable decline in black employment and the concurrent increase in black incarceration rates even if there had been no immigration in the past few decades.[36]

Policy Implications

Some policymakers have proposed further strengthening the U.S. border with Mexico to curtail the entrance of unauthorized aliens and improving enforcement of more stringent sanctions against employers who hire these predominantly low-skilled workers, based in part upon the belief that immigration does, in fact, have adverse consequences for low-skilled native-born workers. It also has been suggested that Congress address the distributional issue some empirical studies have raised by changing the composition of legal immigration. If, for example, individuals permanently admitted to the United States under the employment-based category are largely high-skilled, while those admitted under one or more of the other categories (i.e., family preference, immediate relatives, diversity, or refugees and asylees) are largely low-skilled, then the current numerical limits on the latter might be lowered to mitigate immigration's presumed adverse consequences for less-skilled natives. Indeed, if the skill levels of immigrants do differ by admission category, then an across-the-board cutback in the number of foreign-born persons allowed into the United States would not be an effective remedy for the poor labor market performance of low-skilled natives in recent decades. Only if foreign-born workers who enter under each of the categories has roughly the same skill distribution would an untargeted reduction in the overall level of immigration assist less-skilled U.S. workers.

Yet, changing the composition of immigration may not be the most effective way to improve the plight of low-skilled native-born workers. As noted earlier in this report, several explanations have been offered for the increase in U.S. wage inequality. If other factors (e.g., skill-biased technological change) have played a greater role than the inflow of low-skilled foreign-born workers, then curtailing the immigration of this group may not much affect the wage and employment outcomes of low-skilled U.S. workers.[37]

Moreover, a policy that shifts the composition of foreign-born persons who legally enter the United States—through permanent admissions or temporary worker programs—toward the more skilled might have unintended consequences. An increase in the supply of foreign-born workers to high-skilled occupations might adversely affect the wage and job opportunities of native-born

[36] George J. Borjas, Jeffrey Grogger and Gordon H. Hanson, *Immigration and African-American Employment Opportunities: The Response of Wages, Employment, and Incarceration to Labor Supply Shocks*, (Cambridge, MA, National Bureau of Economic Research, September 2006).

[37] Augustine J. Kposowa ("The Impact of Immigration on Unemployment and Earnings among Racial Minorities in the United States," *Ethnic and Racial Studies*, v.18, no. 3, July 1995) estimates that, although immigration significantly reduced the earnings of native-born non-white workers in 1980, the low skill levels of minorities were a much stronger explanatory factor. "While findings in this study show evidence of competition" between native-born non-whites and immigrants in the labor market, "the real solution to the disadvantaged position of minorities in the US labour market is to address and redress fundamental problems that may be linked to their skill levels. ... From a policy point of view, restricting immigration solely because immigrants compete with minorities in the secondary labour market for jobs that are obviously low-paying and menial is a tacit admission that such jobs should exist and that they are there for minorities to fill. A sounder and fairer strategy would be one that attempted to provide equal opportunities and incentives to minorities so that they too could move to the higher level sectors of the economy." p. 625 and 626.

workers in those fields. Despite the considerable debate that preceded amendments to the professional specialty (H-1B visa) guest worker program made by Congress to increase the arguably inadequate supply of native-born workers qualified to fill information technology jobs,[38] little research has been undertaken to assess the effects of the policy changes on native-born workers.[39]

Perhaps not surprisingly, in light of the conflicting results of the previously discussed literature, there is no consensus among the few studies that have looked specifically at the impact on high-skilled native-born workers of an increase in the supply of comparable foreign-born workers. One researcher tentatively concluded that while allowing into the country H-1B workers with information technology (IT) skills may not depress the wages of U.S. workers in computer-related occupations, the program might adversely affect the group's unemployment rate.[40] Another analysis similarly estimated that an increase in temporary and permanent immigrants does not negatively affect the wages of U.S. workers in professional occupations.[41] Although a third study determined that H-1B workers in computer programming occupations typically are paid much less than U.S. workers similarly employed in the same state,[42] perhaps the number of H-1B programmers in a given state is not sufficiently large to lower the wages of native-born programmers in a given state. In contrast, yet another empirical study found that an increase in the supply of labor to a particular doctoral field caused by an influx of foreign students reduced the earnings of competing science and engineering Ph.D. students who graduated at about the same time. The economist attributed "roughly half of the adverse wage impact of immigration on high-skill labor markets ... to the increased use of low-pay postdoctoral appointments [in science and engineering] as a way of adjusting to the increase in [labor] supply."[43]

If the composition of foreign-born workers were shifted toward the high-skilled, it could make it more difficult to utilize one means commonly suggested to mitigate any adverse distributional effects of immigration. Students and low-skilled native-born workers often have been encouraged to become complements of rather than substitutes for foreign-born workers. Expressed differently, they have been urged to obtain a bachelor's degree or undertake retraining at community colleges, for example, to acquire higher order skills expected to remove them from competition with low-skilled immigrants. But with the admission of more high-skilled foreign-born workers, just obtaining higher skill levels may not be sufficient to avoid potential wage suppression and displacement, based upon the results of at least some of the above-described empirical literature.

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[38] For information, see CRS Report RL31973, *Programs Funded by the H-1B Visa Education and Training Fee, and Labor Market Conditions for Information Technology (IT) Workers*, by Linda Levine and Blake Alan Naughton.

[39] B. Lindsay Lowell, "Skilled Temporary and Permanent Immigrants in the United States," *Population Research and Policy Review*, April 2001, vol. 20, no. 1-2.

[40] Madeline Zavodny, "The H-1B Program and Its Effects on Information Technology Workers," *Federal Reserve Bank of Atlanta Economic Review*, Third Quarter 2003.

[41] Pia M. Orrenius and Madeline Zavodny, *Does Immigration Affect Wages? A Look at Occupation-Level Evidence*, Federal Reserve Bank of Atlanta Working Paper 2003-2a, August 2003.

[42] John Miano, *The Bottom of the Pay Scale: Wages for H-1B Computer Programmers*, Center for Immigration Studies Backgrounder, December 2005.

[43] George J. Borjas, *Immigration in High-Skill Labor Markets: The Impact of Foreign Students on the Earnings of Doctorates*, National Bureau of Economic Research Working Paper 12085, March 2006, p. 27.

Author Contact Information

Linda Levine
Specialist in Labor Economics
llevine@crs.loc.gov, 7-7756