



10

WORKER MOBILITY: Migration, Immigration, and Turnover

Worker mobility plays a critical role in market economies. Because the job of any market is to promote voluntary exchange, society relies on the free movement of workers among employers to allocate labor in a way that achieves maximum satisfaction for both workers and consumers. The flow (either actual or threatened) of workers from lower-paying to higher-paying jobs, for example, is what forces firms that are paying below-equilibrium wages to increase their wage offers. The existence of compensating wage differentials, to take another example, also depends on the ability of informed workers to exercise choice among employment opportunities in the search for enhanced utility.

Mobility, however, is costly. Workers must take time to seek out information on other jobs, and for at least some workers, job search is most efficient if they quit their current job first (to look for work in a new geographic area, for example). Severing ties with the current employer means leaving friends and familiar surroundings, and it may mean giving up valuable employee benefits or the inside track on future promotions. Once a new job is found, workers may well face *monetary*, and will almost certainly face *psychic*, costs of moving to new surroundings. In short, workers who move to new employers bear costs in the near term so that utility can be enhanced later on. Therefore, the human capital model introduced in chapter 9 can be used to analyze mobility investments by workers.

THE DETERMINANTS OF WORKER MOBILITY

The human capital model views mobility as an investment in which costs are borne in some early period in order to obtain returns over a longer period of time. If the present value of the benefits associated with mobility exceeds the costs, both monetary and psychic, we assume that people will decide to change jobs or move, or both. If the discounted stream of benefits is not as large as the costs, then people will decide against such a change.

What determines the present value of the net benefits of mobility—that is, the benefits minus the costs—determines the mobility decision. These factors can be better identified by writing out the formula to use if we were to precisely calculate these net benefits:

$$\text{Present Value of Net Benefits} = \sum_{t=1}^T \frac{B_{jt} - B_{ot}}{(1+r)^t} - C \quad (10.1)$$

where:

B_{jt} = the utility derived from the new job (j) in the year t

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T = the length of time (in years) one expects to work at job j

r = the rate of discount

C = the utility lost in the move itself (direct and psychic costs)

Σ = a summation—in this case the summation of the yearly discounted net benefits over a period running from year 1 to year T

Clearly, the present value of the net benefits of mobility will be larger the greater is the utility derived from the new job, the less happy one is in the job of origin, the smaller are the immediate costs associated with change, and the longer is one's horizon (that is, the greater is T and the lower is r). These observations lead to some clear-cut predictions about which groups in society will be most mobile and about the *patterns* of mobility we would expect to observe.

GEOGRAPHIC MOBILITY

Mobility of workers among countries, and among regions within a country, is an important fact of economic life. Roughly 100 million people in the world live in a country different from the one in which they were born, and Table 10.1 indicates that for the world's larger economies, immigrants typically constitute from 5 to 20 percent of the labor force. One study indicated that of the people who migrated to another country from 1975 to 1980, two-thirds went to the United States, Canada, or Australia.¹

¹Rachel M. Friedberg and Jennifer Hunt, "The Impact of Immigrants on Host Country Wages, Employment, and Growth," *Journal of Economic Perspectives* 9, no. 2 (Spring 1995): 23–44.

TABLE 10.1 Immigrants as a Percentage of the Labor Force, Selected Countries, 1995–1998

<i>Country</i>	<i>Immigrants as a Percentage of Labor Force</i>
Australia	24.8
Canada	19.2
France	6.1
Germany	9.1
Italy	1.7
Japan	0.2
Sweden	5.1
United Kingdom	3.9
United States	11.7

Source: Organisation for Economic Co-Operation and Development, *Trends in International Migration*, Annual Report 2000 (OECD, 2001), Table A.2.3.

Within the United States during a recent one-year period (1999–2000), almost 5 million workers—3.7 percent of all those employed—moved out of state, and almost half of those moved to a different *region* (the South experienced the largest net influx, while the Northeast had the largest net outflow).² When asked about their reasons for moving, 70 to 85 percent of workers cite economic reasons. Roughly one-third of those moving among states stay with their current employers, but taking account of those whose move is motivated by economic factors *and* who change employers, about half of all interstate moves are precipitated by a change in employment.³ This emphasis on job change suggests that human capital theory can help us understand which workers are most likely to undertake investments in geographic mobility and the directions in which mobility flows will take place.

The Direction of Migratory Flows

Human capital theory predicts that migration will flow from areas of relatively poor earnings possibilities to places where opportunities are better. Studies of migratory flows support this prediction. In general, the results of such studies suggest that the *pull* of good opportunities in the areas of destination are stronger than the *push* of poor opportunities in the areas of origin. In other words, while people are

²U.S. Bureau of the Census, *Geographic Mobility: March 1999 to March 2000*, www.census.gov; then go to “subjects” and “migration,” Tables 8, 18.

³Ann P. Bartel, “The Migration Decision: What Role Does Job-Mobility Play?” *American Economic Review* 69 (December 1979): 775–786. See also Larry Schroeder, “Interrelatedness of Occupational and Geographical Labor Mobility,” *Industrial and Labor Relations Review* 29 (April 1976): 405–411.

more attracted to places where earnings are expected to be better, they do not necessarily come from areas where opportunities are poorest.

The most consistent finding in these detailed studies is that people are attracted to areas where the real earnings of full-time workers are highest. Studies find no consistent relationship, however, between unemployment and in-migration, perhaps because the number of people moving with a job already in hand is three times as large as the number moving *to look* for work. If one already has a job in a particular field, the area's unemployment rate is irrelevant.⁴

Most studies have found that, contrary to what we might expect, the characteristics of the place of origin do not appear to have much net influence on migration. While those in the poorest places have the greatest *incentives* to move, the very poorest areas also tend to have people with lower levels of wealth, education, and skills—the very people who seem least *willing* (or able) to move. To understand this phenomenon, we must turn from the issue of *where* people go to a discussion of *who* is most likely to move. (In addition, there is the issue of *when* people move. See Example 10.1, which pulls together the issues of who, where, and when in analyzing one of the most momentous internal migrations in the history of the United States—the Great Migration of blacks from the South to the North in the first half of the twentieth century.)

Personal Characteristics of Movers

Migration is highly selective in the sense that it is not an activity in which all people are equally likely to be engaged. To be specific, mobility is much higher among the young and the better-educated, as human capital theory would suggest.

Age Age is the single most important factor in determining who migrates. The peak years for mobility are the ages 20–24; 15 percent of this age group migrates across county or state lines each year. By age 32 this rate of migration is roughly 10 percent, and by age 47 it is only 5 percent.

There are two explanations for the fact that migration is an activity primarily for the young. First, the younger one is, the longer the period over which benefits from an investment can be obtained, and the larger the present value of these benefits.

Second, a large part of the costs of migration are psychic, the losses associated with giving up friends, community ties, and the benefits of knowing one's way around. As we grow older, our ties to the community become stronger and the losses associated with leaving loom larger.

Education While age is probably the best predictor of who will move, education is the single best indicator of who will move *within* an age group. As can be seen

⁴The level of *new hires* in an area appears to explain migration flows much better than the unemployment rate; see Gary Fields, "Place to Place Migration: Some New Evidence," *Review of Economics and Statistics* 61, no. 1 (February 1979): 21–32. Robert H. Topel, "Local Labor Markets," *Journal of Political Economy* 94, no. 3, pt. 2 (June 1986): S111–S143, contains an analysis of how permanent and transitory shifts in an area's demand affect migration and wages.

EXAMPLE 10.1**The Great Migration: Southern Blacks Move North**

Our model predicts that workers will move whenever the present value of the net benefits of migration is positive. After the Civil War and emancipation, a huge wage gap opened up between the South and the North, with northern wages often twice as high as those in the South. Yet black migration out of the South was very low—only 68,000 during the 1870s.

During World War I, however, the Great Migration began, and over half a million blacks moved out of the South in the 1910s. Black migration during the 1920s was almost twice this high, and it exceeded 1.5 million during the 1940s, so that by 1950 over 20 percent of southern-born blacks had left the region.

Why did this migration take so long to get going? One important factor was low education levels, which made obtaining information about outside opportunities very difficult. In 1880 more than 75 percent of African Americans over age ten were illiterate, but this figure fell to about 20 percent by 1930. One study finds that in 1900 literate adult black males were three times more likely to have migrated than those who were illiterate. In 1940, blacks who had attended high school were twice as likely to have migrated than those with zero to four years of schooling. However, rising literacy alone cannot explain the sudden burst of migration.

The outbreak of World War I seems to have triggered the migration in two ways. First, it caused labor demand in northern industry to soar. Second, it brought the collapse of immigration inflows from abroad. Before World War I, growing northern industries had relied heavily on immigrants from Europe as a source of labor. With the immigration flood slowing to a trickle, employers began to hire black workers—even sending agents to recruit in the South. Job opportunities for blacks in the North finally opened up and many responded by moving.

A study using census data from 1870 to 1950 finds that, as expected, northern states in which wages were highest attracted more black migrants, as did those in which manufacturing growth was more rapid. Reduced European immigration seems to have spurred black migration, and it is estimated that if European immigration had been completely restricted at the turn of the century, the Great Migration would have started much sooner.

Data from: William J. Collins, "When the Tide Turned: Immigration and the Delay of the Great Black Migration," *Journal of Economic History* 57, no. 3 (September 1997), 607–632; Robert A. Margo, *Race and Schooling in the South, 1880–1950* (Chicago: University of Chicago Press, 1990).

from Table 10.2, which presents U.S. migration rates for people ages 30–34, more education does make one more likely to move between states.

One cost of migration is that of ascertaining *where* opportunities are and *how good* they are likely to be. If one's occupation has a national labor market, as is the case for many college graduates, it is relatively easy to find out about opportunities in distant places. Jobs are advertised in national newspapers, recruiters from all over visit college campuses and employment agencies make nationwide searches.

However, if the relevant labor market for one's job is localized, it is difficult to find out where opportunities might be better. For a janitor in Beaumont, Texas, finding out about employment opportunities in the north-central region, say, is difficult and may require quitting Beaumont and moving north to mount an effective search.

The Role of Distance

Human capital theory clearly predicts that as migration costs rise, the flow of migrants will fall. The costs of moving increase with distance for two reasons. First,

TABLE 10.2 U.S. Migration Rates for People Age 30–34, by Educational Level, 1999–2000, (in percentages)

<i>Educational Level (in Years)</i>	<i>Moving between Counties within States</i>	<i>Moving out of State</i>
9–11	6.0	3.8
12	3.7	4.1
13–15	4.5	4.7
16	4.6	6.1
17 or more	6.1	7.7

Source: U.S. Bureau of the Census, *Geographical Mobility: March 1999 to March 2000*, www.census.gov, then go to “subjects” and “migratory” Table 6.

acquiring trustworthy *information* on opportunities elsewhere is easier when employment prospects are closer to home. Second, the time and money cost of a move and for trips back to see friends and relatives, and hence the psychic costs of the move, rise with distance. Thus, we would clearly expect to find that people are more likely to move short distances than long distances.

In general, this expectation is borne out by the statistics. Of the 23 million employed Americans who changed their place of residence during the March 1999–March 2000 period, 57 percent moved to a different house in the same county, 21 percent moved to a different county in the same state, 12 percent changed states within the same region, and 9 percent moved to a different region.⁵

Interestingly, lack of education appears to be a bigger deterrent to long-distance migration than does age (other influences held constant), a fact that can shed some light on whether information costs or psychic costs are the primary deterrent. As suggested by our arguments in the previous subsection, the age deterrent is closely related to psychic costs, while educational level and ease of access to information are closely linked. The apparently larger deterrent of educational level suggests that information costs may have more influence than psychic costs on the relationship between migration and distance.⁶

Skills, the Earnings Distribution, and International Migration

To this point, our examples of factors that influence geographic mobility have related to domestic migration, but the influences of age, access to information,

⁵U.S. Bureau of the Census, *Geographical Mobility: March 1999–March 2000*, www.census.gov; then go to “subjects” and “migration,” Table 8.

⁶Aba Schwartz, “Interpreting the Effect of Distance on Migration,” *Journal of Political Economy* 81 (September/October 1973): 1153–1167.

EXAMPLE 10.2**Migration and One's Time Horizon**

Economic theory suggests that those with longer time horizons are more likely to make human-capital investments. Can we see evidence of this theoretical implication in the horizons of people who are most likely to migrate? A recent paper explores the possibility that people who give greater weight to the welfare of their children and grandchildren have a higher propensity to bear the considerable costs of immigration.

Before 1989, the Soviet Union made it difficult, though not impossible, for Jews to emigrate. After applying for emigration, which itself involved heavy fees, the applicant's property was often confiscated and his or her right to work was often suspended. However, after the collapse of the Soviet Union in 1989, these hassles were eliminated. The monetary benefits of migrating were approximately the same before and after 1989, but the costs fell considerably.

How did migrants from the earlier period—who were willing to bear the very high costs—differ from those who only emigrated when the costs were reduced? The study finds evidence that Jewish women

who migrated to Israel during the earlier period brought with them larger families (on average, 0.4 to 0.8 more children) than otherwise-similar migrants in the later period. This suggests that the benefits of migration to children were a decisive factor in the decision to migrate during the pre-1989 period.

Likewise, a survey of women aged 51 to 61 shows that grandmothers who had immigrated to the United States spend over 200 more hours per year with their grandchildren than American-born grandmothers. They are also more likely to report that they consider it important to leave an inheritance (rather than spending all their wealth on themselves).

Thus, there is evidence consistent with the theoretical implication that those who invest in immigration have longer time horizons (in the sense of putting greater weight on the welfare of their children and grandchildren) than those who do not.

Data from: Eli Berman and Zaur Rzakhonov, "Fertility, Migration and Altruism," National Bureau of Economic Research working paper no. 7545 (February 2000).

the potential gains in earnings, and distance are all relevant to international migration as well. Additionally, because immigrants are self-selected and the costs of immigration are so high, personal discount rates and the horizon over which benefits are calculated are critical and likely to be very different for immigrants and nonmigrants—as illustrated by Example 10.2.

One aspect of the potential gains from migration that is uniquely important when analyzing international flows of labor is the distribution of earnings in the sending as compared with the receiving country. The relative distribution of earnings can help us predict which skill groups within a sending country are most likely to emigrate.

Some countries have a more compressed (equal) earnings distribution than is found in the United States. In these countries, the average earnings differential between skilled and unskilled workers is smaller, implying that the returns to human capital investments are lower than in the United States. Skilled and professional workers from these countries (northern European countries are most notable in this regard) have the most to gain from emigration to the United States. Unskilled workers in countries with more equality of earnings are well paid com-

pared to unskilled workers here and thus have less incentive to move. Immigrants to the United States from these countries therefore tend to be more skilled than the average worker who does not emigrate.

In countries with a less equal distribution of earnings than is found in the United States, skilled workers do relatively well, but there are large potential gains to the unskilled from emigrating to the United States. These unskilled workers may be blocked from making human capital investments within their own countries (and thus from taking advantage of the high returns to such investments that are implied by the large earnings differentials). Instead, their human capital investment may take the form of emigrating and seeking work in the United States. Less-developed countries tend to have relatively unequal earnings distributions, so it is to be expected that immigrants from these countries (and especially Mexico, which is closest) will be disproportionately unskilled.⁷

The Returns to International and Domestic Migration

We have seen that migrants generally move to places that allow them greater earnings opportunities. How great these earnings increases are for individual migrants depends on the reasons and preparation for the move—as vividly illustrated in Example 10.3, which compares the earnings of *political* and *economic* immigrants.

Internal Migration for Economic Reasons The largest gains from migration can be expected among those whose move is motivated by a better job offer and who have obtained this offer through a job-search process undertaken before quitting their prior jobs. A study of men and women in their 20s who were in this category found that, for moves in the 1979–1985 period, earnings increased 14–18 percent more than earnings of nonmigrants. Even those who quit voluntarily and migrated for economic reasons *without* a prior job search earned 6–9 percent more than if they had stayed put.⁸ The returns for women and men who migrated for economic reasons were very similar.

Family Migration Most of us live in families, and if there is more than one employed person in a family the decision to migrate is likely to have different earnings effects on the members. You will recall from chapter 7 that there is more than one plausible model for how those who live together actually make joint labor-supply decisions, but with migration a decision to move might well be made if the *family as a whole* experiences a net increase in total earnings. Total family earnings, of course, could be increased even if one partner's earnings were

⁷For a more thorough discussion of this issue, see George J. Borjas, *Friends or Strangers* (New York: Basic Books, 1990), especially chs. 1 and 7.

⁸Kristen Keith and Abigail McWilliams, "The Returns to Mobility and Job Search by Gender," *Industrial and Labor Relations Review* 52, no. 3 (April 1999): 460–477.

EXAMPLE 10.3

Economic vs. Political Immigrants

Individuals who immigrate to a country like the United States presumably do so because they believe they will be improving their well-being. For some the decision is motivated primarily by economic considerations, and the timing of the move is both voluntary and planned. These individuals may be referred to as *economic* migrants. Others, however, may be forced to flee their countries because of *political* upheavals, and for these individuals the decision may not be planned as far in advance.

What differences might we expect in the economic success of the two groups in the United States? On the one hand, we might expect that economic migrants would initially earn more than political migrants, who were less prepared for the move. On the other hand, members of the latter group do not have the option of ultimately returning to their homelands as the economic migrants do. Because return migration is precluded for political migrants, they have stronger incentives than economic migrants to make human capital investments that have payoffs only in the United

States. In addition, political migrants often leave all their physical or financial assets behind when they flee their homelands; as a result, they may prefer to concentrate a greater share of their subsequent investments in human (rather than physical) capital. For both reasons, we might expect political migrants to have steeper earnings profiles—more rapid earnings growth with years in the United States—than economic migrants.

One recent study found that political refugees coming in the late 1970s earned 11 percent less than economic immigrants in 1980, but by 1990 they earned 24 percent more. The political refugees were more likely to attend school, improve their English skills, and apply for citizenship.

Data from: Kalena E. Cortes, "Are Refugees Different from Economic Immigrants? Some Empirical Evidence on the Heterogeneity of Immigrant Groups in the United States," working paper no. 41, Center for Labor Economics, University of California, Berkeley (September 2001); and George Borjas, "The Economic Status of Male Hispanic Migrants and Natives in the U.S.," in *Research in Labor Economics*, vol. 6, ed. Ronald Ehrenberg (Greenwich, Conn.: JAI Press, 1984), 65–122.

to fall as a result of the move, as long as the other partner experienced relatively large gains. Considering family migration decisions raises the issue of *tied movers*—those who agree to move for family reasons, not necessarily because the move improves their own earnings.

Among those in their 20s who migrated in the 1979–1985 period, quitting jobs and moving for *family* reasons caused earnings to decrease by an average of 10–15 percent—although searching for a new job before moving apparently held wage losses to zero.⁹ Clearly, migrating as a tied mover can be costly to an individual. Women move more often than men for family reasons, but as more complete college or graduate school and enter careers, their willingness to move for family reasons may fall. The growing preference among college-educated couples for living in large urban areas, where both have access to many opportunities without moving, reflects the costs of migrating as a tied mover.¹⁰

⁹Keith and McWilliams, "The Returns to Mobility and Job Search by Gender."

¹⁰Dora L. Costa and Matthew E. Kahn, "Power Couples: Changes in the Locational Choice of the College Educated, 1940–1990," *Quarterly Journal of Economics* 115, no. 4 (November 2000): 1287–1315.

TABLE 10.3 Ratio of Wages, Immigrant to Native-Born Men, 1970–1990

<i>A. Comparison with All Native-Born Men, Ages 25–64</i>			
<i>Immigrants Arriving in</i>	<i>1970</i>	<i>1980</i>	<i>1990</i>
1965–1969	0.834	0.922	1.011
1975–1979	—	0.724	0.822
1985–1989	—	—	0.683
<i>B. Comparison with Ethnically Similar Natives, Ages 25–34 in Years Shown: Asians</i>			
1965–1969	0.824	1.091	1.085
1975–1979	—	0.803	0.898
1985–1989	—	—	0.757
<i>C. Comparison with Ethnically Similar Natives, Ages 25–34 in Years Shown: Mexicans</i>			
1965–1969	0.735	0.835	0.805
1975–1979	—	0.662	0.705
1985–1989	—	—	0.661

Source: George Borjas, "The Economics of Immigration," *Journal of Economic Literature* 32, no. 4 (December 1994), Tables 3, 7.

Returns to Immigration Comparing the earnings of *international* immigrants with what they would have earned had they not emigrated is generally not feasible, owing to a lack of data on earnings in the home country.¹¹ Thus, studies of the returns to immigration have focused on comparisons with native-born workers in the host country. Most of the published research has been done on the United States, and Table 10.3 contains data from different time periods on the wages, relative to those for native-born Americans, of three cohorts of male immigrants: those who came in the late 1960s, the late 1970s, and late 1980s.

We can observe three phenomena from Table 10.3. First, as can be seen from looking at the ratios printed in boldface type, immigrants earn substantially less than natives (including those who are ethnically similar) when they first arrive. Second, if we look along the rows for the 1965–1969 and 1975–1979 cohorts, it is clear that relative wages increase from their initially low levels, which means that wages of immigrants rise faster than those of natives during at least the immigrants' first

¹¹Barry R. Chiswick, *Illegal Aliens: Their Employment and Employers* (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 1988), mentions two studies that compared the earnings or living standards of Mexican immigrants with the conditions under which they lived before they left. In one study it was found that living conditions, as indexed by the availability of running water and electricity, rose substantially. The other study reported that the earnings of Mexican apple harvesters in Oregon, even after deducting the costs of migration, were triple what they would have been in Mexico.

decade in this country. Increases in the second decade are generally smaller and less certain to be above those for natives. Third, from comparing the initial (bold-face) ratios across the three cohorts, we see that each cohort of immigrants did less well at entry than its predecessor.

Immigrants' Initial Earnings That immigrants initially earn substantially less than natives is hardly surprising. Even after controlling for the effects of age and education (the typical immigrant is younger and less educated than the typical native), immigrants earn less owing to their difficulties with English, their unfamiliarity with American employment opportunities, and their lack of an American work history (and employers' consequent uncertainties about their productivity).

The fall in the initial earnings of successive immigrant groups relative to U.S. natives has been widely studied in recent years. It appears to reflect the fact that immigrants to the United States are coming increasingly from countries with relatively low levels of educational attainment, and they are therefore arriving in America with less and less human capital.¹²

Immigrants' Earnings Growth Earnings of immigrants rise relatively quickly, which no doubt reflects their high rates of investment in human capital after arrival. After entry, immigrants typically invest in themselves by acquiring work experience and improved proficiency in English, and these investments raise the wages they can command. For example, a recent study found that English fluency raises immigrant earnings by an average of 17 percent in the United States, 12 percent in Canada, and 9 percent in Australia. Of course, not all immigrants have the same incentives to become proficient in English. Those who live in enclaves where business is conducted in their native tongue, those who expect to return to their homeland, and those who immigrated for other than economic reasons are less likely to invest time and money in learning English.¹³

Earnings Growth and Return Migration In Table 10.3, the earnings growth immigrants experience relative to natives is measured by comparing the relative earnings of immigrants who have been in the United States for ten years, say, with their relative earnings upon entry a decade earlier. This method of measuring growth, however, may *overstate* the growth individual immigrants can expect when they arrive, because those who have difficulty finding or keeping a job, learning English, or improving their earnings for some other reason are more likely than other immigrants to return to their country of origin. If only those who are "successful" remain in the United States for as long as ten years, the data underlying

¹²George Borjas, "The Economics of Immigration," *Journal of Economic Literature* 32, no. 4 (December 1994): 1667–1717, and George Borjas, *Heaven's Door: Immigration Policy and the American Economy* (Princeton: Princeton University Press, 1999).

¹³Barry R. Chiswick and Paul W. Miller, "The Endogeneity between Language and Earnings: International Analyses," *Journal of Labor Economics* 13, no. 2 (April 1995): 246–288; and Barry R. Chiswick and Paul W. Miller, "Language Skills and Earnings among Legalized Aliens," *Journal of Population Economics* 12, no. 1 (February 1999): 63–91.

Table 10.3 do not reflect those whose migration investment turned sour and who left, say, after five years.

Return migration is not inconsequential. About 20 percent of all moves are back to a place where one previously lived, and various analyses suggest that those most likely to move back are the ones for whom the original move did not work out well.¹⁴ One study also found that those who return are the ones who were *closest to the margin* (expected the least net gains) when they first decided to come.¹⁵ Recent research on earnings growth has used difficult-to-get longitudinal data, which permit us to follow the earnings of individual immigrants through time and thus capture data on the less successful before they leave. The findings of this research confirm that the rate at which entering immigrants can expect their earnings to rise toward those of ethnically similar natives is slower than is implied by looking along the rows in Table 10.3—and that the relative earnings of non-Hispanic whites may even fall.¹⁶

POLICY APPLICATION: RESTRICTING IMMIGRATION

Nowhere are the analytical tools of the economist more important than in the area of immigration policy; the lives affected by immigration policy number in the millions each year. After a brief outline of the history of U.S. immigration policy, this section will analyze in detail the consequences of illegal immigration, a phenomenon currently attracting widespread attention.

U.S. Immigration History

The United States is a rich country whose wealth and high standard of living make it an attractive place for immigrants from nearly all parts of the world. For the first 140 years of its history as an independent country, the United States followed a policy of essentially unrestricted immigration (the only major immigration restrictions were placed on Asians and on convicts). The flow of immigrants was especially large after 1840, when U.S. industrialization and political and economic upheavals in Europe made immigration an attractive investment for millions. Officially recorded

¹⁴John Vanderkamp, "Migration Flows, Their Determinants and the Effects of Return Migration," *Journal of Political Economy* 79 (September/October 1971): 1012–1031; Fernando A. Ramos, "Outmigration and Return Migration of Puerto Ricans," in *Immigration and the Work Force*, ed. George J. Borjas and Richard B. Freeman (Chicago: University of Chicago Press, 1992); and Borjas, "The Economics of Immigration," 1691–1692.

¹⁵George J. Borjas and Bernt Bratsberg, "Who Leaves? The Outmigration of the Foreign-Born," *Review of Economics and Statistics* 78, no.1 (February 1996): 165–176.

¹⁶Wei-Yin Hu, "Immigrant Earnings Assimilation: Estimates from Longitudinal Data," *American Economic Review* 90, no. 2 (May 2000): 368–372; and Darren Lubotsky, "Chutes or Ladders? A Longitudinal Analysis of Immigrant Earnings," working paper no. 445, Industrial Relations Section, Princeton University, August 2000.

immigration peaked in the first decade of the twentieth century, when the *yearly* flow of immigrants was more than 1 percent of the population (see Table 10.4).

Restrictions In 1921, Congress adopted the Quota Law, which set annual quotas on immigration on the basis of nationality. These quotas had the effect of reducing immigration from eastern and southern Europe. This act was followed by other laws in 1924 and 1929 that further restricted immigration from southeastern Europe. These various revisions in immigration policy were motivated, in part, by widespread concern over the alleged adverse effect on native employment of the arrival of unskilled immigrants from eastern and southern Europe.

In 1965, the passage of the Immigration and Nationality Act abolished the quota system based on national origin that so heavily favored northern and western Europeans. Under this law, as amended in 1990, overall immigration is formally restricted to 675,000 people per year, with 480,000 spots reserved for family-reunification purposes, 140,000 reserved mostly for immigrants with exceptional skills who are coming for employment purposes, and 55,000 for “diversity” immigrants (from countries that have not recently provided many immigrants to the United States). Political refugees, who must meet certain criteria relating to persecution in their home countries, are admitted without numerical limit. The fact that immigration to the United States is a very worthwhile investment for many more people than can legally come, however, has created incentives for people to live in the country illegally.

Illegal Immigrants Illegal immigration can be divided into two categories of roughly equal size: immigrants who enter legally but overstay or violate the provisions of their visas, and those who enter the country illegally. Over 30 million

TABLE 10.4 Officially Recorded Immigration: 1901 to 1998

<i>Period</i>	<i>Number (in thousands)</i>	<i>Annual Rate (per thousand of U.S. population)</i>	<i>Year</i>	<i>Number (in thousands)</i>	<i>Annual Rate (per thousand of U.S. population)</i>
1901–1910	8,795	10.4	*1990	1,536	6.1
1911–1920	5,736	5.7	*1991	1,827	7.3
1921–1930	4,107	3.5	*1992	974	3.8
1931–1940	528	0.4	*1993	904	3.5
1941–1950	1,035	0.7	*1994	804	3.1
1951–1960	2,515	1.5	1995	593	2.3
1961–1970	3,322	1.7	1996	916	3.5
1971–1980	4,389	2.0	1997	798	2.8
1981–1990	7,338	3.1	1998	660	2.4

*Includes illegal immigrants granted amnesty under the Immigration Reform and Control Act of 1986.

Source: U.S. Immigration and Naturalization Service, 1998 *Statistical Yearbook*, Table 1.

people enter the United States each year under nonimmigrant visas, usually as students or visitors. Once here, the foreigner can look for work, although it is illegal to work at a job under a student's or visitor's visa. If the student or visitor is offered a job, he or she can apply for an "adjustment of status" to legally become a permanent resident, although the chances for approval as an employment-based immigrant are slim for the ordinary worker.

The other group of illegal immigrants enter the country without a visa. Immigrants from the Caribbean often enter through Puerto Rico, whose residents are U.S. citizens and thus are allowed free entry to the mainland. Others walk across the Mexican border. Still others are smuggled into the United States or use false documents to get through entry stations. For obvious reasons, it is difficult to establish the number of illegal immigrants who have come to the United States; however, the flow of illegals is believed to be 275,000 per year, and the total number residing in the United States in 1996 was estimated at 5 million.¹⁷

By the 1980s, illegal immigration had become a very prominent policy issue. The Secretary of Labor estimated in late 1979 that if only *half* of the jobs held by illegal aliens were given to U.S. citizens, the unemployment rate would drop from 6 percent to 3.7 percent. Similar beliefs led Congress to pass the Immigration Reform and Control Act of 1986, which imposed penalties on *employers* who knowingly hire illegal aliens (previously, the only penalty for illegal employment was deportation). The sanctions against employers included fines ranging from \$250 to \$10,000 per illegal worker, with penalties escalating throughout that range for repeated offenses. Jail terms were prescribed for "pattern and practice" offenders.

The policies people advocate are based on their beliefs about the consequences of immigration for employers, consumers, taxpayers, and workers of various skill levels and ethnicities. Nearly everyone with an opinion on this subject has an economic model implicitly or explicitly in mind when addressing these consequences; the purpose of this section is to make these economic models explicit and to evaluate them.

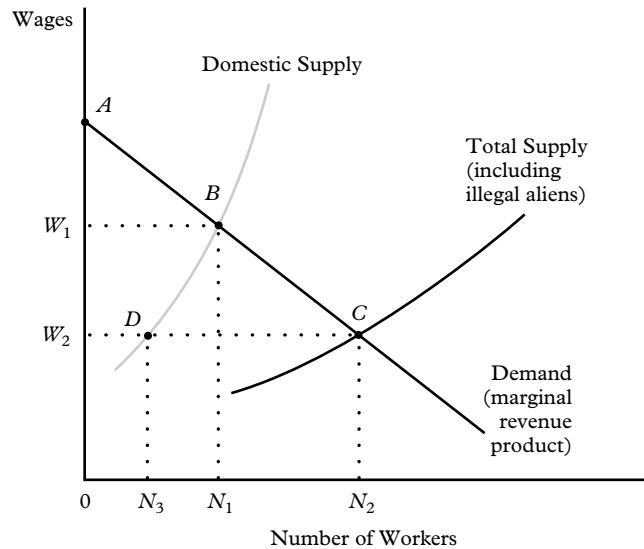
Naive Views of Immigration

There are two opposing views of illegal immigration that can be considered naive. One view is that every illegal immigrant deprives a citizen or legal resident of a job. For example, a Department of Labor official told a House committee studying immigration, "I think it is logical to conclude that if they are actually employed, they are taking a job away from one of our American citizens."¹⁸ According to this view, if x illegal aliens are deported and others kept out, the number of unemployed Americans would decline by x .

¹⁷U.S. Immigration and Naturalization Service, *1998 Statistical Yearbook of the Immigration and Naturalization Service*, ch. 7, p. 199.

¹⁸Elliott Abrams and Franklin S. Abrams, "Immigration Policy—Who Gets In and Why?" *Public Interest* 38 (Winter 1975): 25.

FIGURE 10.1
Demand and Supply of Rough Laborers



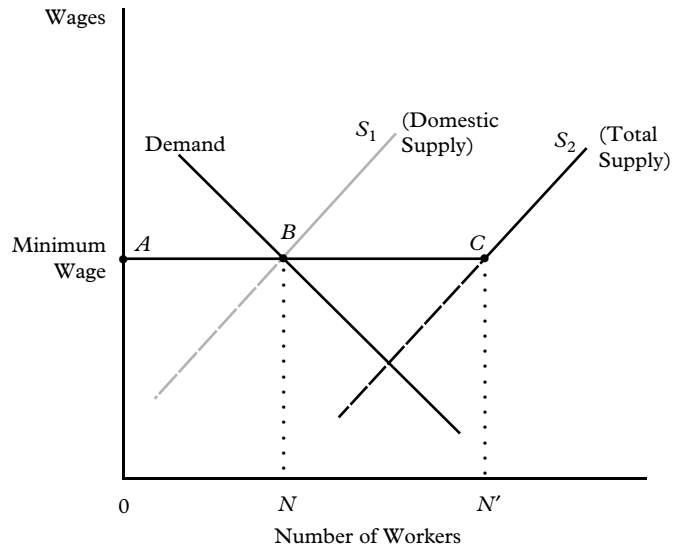
At the opposite end of the policy spectrum is the equally naive argument that the illegals perform jobs no American citizen would do:

You couldn't conduct a hotel in New York, you couldn't conduct a restaurant in New York...if you didn't have rough laborers. We haven't got the rough laborers anymore....Where are we going to get the people to do that rough work?¹⁹

Both arguments are simplistic because they ignore the slopes of the demand and supply curves. Consider, for example, the labor market for the job of "rough laborer"—any job most American citizens find distasteful. Without illegal immigrants, the restricted supply of Americans to this market would imply a relatively high wage (W_1 in Figure 10.1). N_1 citizens would be employed. If illegal aliens entered the market, the supply curve would shift outward and perhaps flatten (implying that immigrants were more responsive to wage increases for rough laborers than citizens were). The influx of illegals would drive the wage down to W_2 , but employment would increase to N_2 .

Are Americans unwilling to do the work of rough laborers? Clearly, at the market wage of W_2 , many more immigrants are willing to work at the job than U.S. citizens are. Only N_3 citizens would want these jobs at this low wage, while the remaining supply ($N_2 - N_3$) is made up entirely of immigrants. If there were no immigrants, however, N_1 Americans would be employed at wage W_1 as rough laborers. Wages would be higher, as would the prices of the goods or services produced with this labor,

¹⁹Abrams and Abrams, 26.

FIGURE 10.2**Demand and Supply of Rough Laborers with a Minimum Wage**

but the job would get done. The only shortage of American citizens is at the low wage of W_2 ; at W_1 there is no shortage (review chapter 2 for a discussion of labor shortages).

Would deporting those illegal immigrants working as rough laborers create the same number of jobs for U.S. citizens? The answer is clearly no. If the $N_2 - N_3$ immigrants working as laborers were deported and all other illegal immigrants were kept from the market, the number of Americans employed as laborers would rise from N_3 to N_1 and their wages would rise from W_2 to W_1 (Figure 10.1). $N_2 - N_1$ jobs would be destroyed by the rising wage rate associated with deportation. Thus, while deportation would increase the employment and wage levels of Americans in the market for laborers, it would certainly not increase employment on a one-for-one basis.

There is, however, one condition in which deportation *would* create jobs for American citizens on a one-for-one basis: when the federal minimum wage law creates a surplus of labor. Suppose, for example, that the supply of American laborers is represented by ABS_1 in Figure 10.2 and the total supply is represented by ACS_2 . Because an artificially high wage has created a surplus, only N of the N' workers willing to work at the minimum wage can actually find employment. If some of them are illegal immigrants, sending them back—coupled with successful efforts to deny other immigrants access to these jobs—would create jobs for a comparable number of Americans. However, the demand curve would have to intersect the domestic supply curve (ABS_1) at or to the left of point B to prevent the wage level from rising (and thus destroying jobs) after deportation.

The analyses above ignore the possibility that if low-wage immigrant labor is prevented from coming to the jobs, employers may transfer the jobs to countries with abundant supplies of low-wage labor. Thus, it may well be the case that

unskilled American workers are in competition with foreign unskilled workers anyway, whether those workers are employed in the United States or elsewhere. However, not all unskilled jobs can be moved abroad, because not all outputs can be imported (most unskilled services, for example, must be performed at the place of consumption); therefore, our analyses will continue to focus on situations in which the “export” of unskilled jobs is infeasible or very costly.

An Analysis of the Gainers and Losers

The claim that immigration is harmful to American workers is often based on a single-market analysis like that contained in Figure 10.1, where only the effects on the market for rough labor are examined. As far as it goes, the argument is plausible. When immigration increases the supply of rough laborers, both the wages and the employment levels of American citizens working as laborers are reduced. The total wage bill paid to American laborers falls from W_1ON_1B in Figure 10.1 to W_2ON_3D . Some American workers leave the market in response to the reduced wage, and those who stay earn less. Even if the immigration of unskilled labor were to adversely affect domestic laborers, however, it would be a mistake to conclude that it is necessarily harmful to Americans as a *whole*.

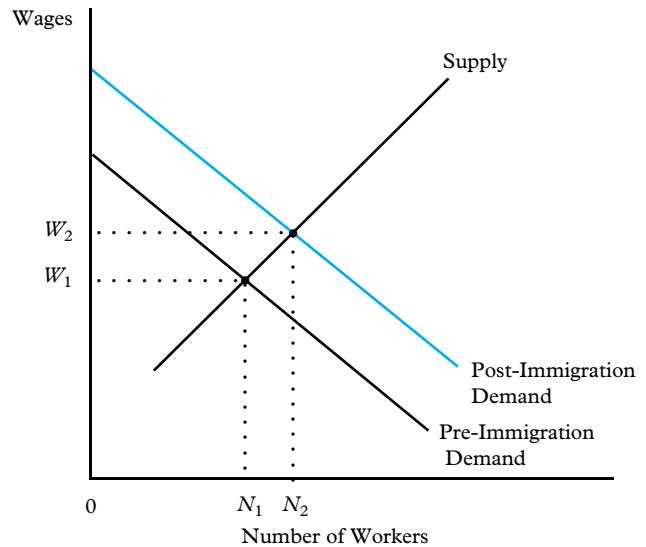
Consumers Immigration of “cheap labor” clearly benefits consumers using the output of this labor. As wages are reduced and employment increases, the goods and services produced by this labor are increased in quantity and reduced in price.

Employers Employers of rough labor (to continue our example) are obviously benefited, at least in the short run. In Figure 10.1, profits are increased from W_1AB to W_2AC . This rise in profitability will have two major effects. By raising the returns to capital, it will serve as a signal for investors to increase investments in plant and equipment. Increased profits will also induce more people to become employers. The increases in capital and the number of employers will eventually drive profits down to their normal level, but in the end the country’s stock of capital is increased and opportunities are created for some workers to become owners.

Scale and Substitution Effects Our analysis of the market for laborers assumed that the influx of immigrants had no effect on the demand curve (which was held fixed in Figure 10.1). This is probably not a bad assumption when looking at just one market, because the fraction of earnings immigrant laborers spend on the goods and services produced by rough labor may be small. However, immigrants do spend money in the United States, and this added demand creates job opportunities for others (see Figure 10.3). Thus, workers who are not close substitutes for unskilled immigrant labor may benefit from immigration because of the increase in consumer demand attendant on this addition to our working population.

Recall from chapter 3 that if the demand for skilled workers increases when the wage of unskilled labor falls, the two grades of labor are *gross complements*. Assuming skilled and unskilled labor are substitutes in the production process, the only way they could be gross complements is if the *scale effect* dominated the substitution effect. In the case of immigration we may suppose the scale effect to be very large, because as the working population rises, aggregate demand is increased. While theoretical

FIGURE 10.3
Market for All Labor Except Unskilled



analysis cannot *prove* that the demand for skilled workers is increased by the immigration of unskilled labor if the two grades of labor are substitutes in the production process, it can offer the observation that an increase in demand for skilled workers remains a distinct possibility. Of course, any type of labor that is *complementary* with unskilled labor in the production process—supervisory workers, for example—can expect to gain from an influx of unskilled immigrants.

Most studies that attempt to actually measure the strength of substitution and scale effects use local labor markets as units of observation. Comparisons can be made of native wage and employment levels in the same area before and after an increase in immigration (as in Example 10.4), or comparisons can be made for a given year among areas with very different immigrant compositions. While there is some evidence that low-skilled immigrants are substitutes in production for natives with less than a high school education, these studies generally find very small effects of immigration on the wages and employment levels of resident workers.²⁰

²⁰David Card, "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration," *Journal of Labor Economics* 19, no. 1 (January 2001): 22–64; Cordelia W. Reimers, "Unskilled Immigration and Changes in the Wage Distributions of Black, Mexican American, and Non-Hispanic White Male Dropouts," and Kristin F. Butcher, "An Investigation of the Effect of Immigration on the Labor-Market Outcomes of African Americans," both in *Help or Hindrance? The Economic Implications of Immigration for African Americans*, ed. Daniel S. Hamermesh and Frank D. Bean (New York: Russell Sage Foundation, 1998), 107–181; James P. Smith and Barry Edmonston, eds., *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration* (Washington, D.C.: National Academy Press, 1997); George J. Borjas, "The Economic Benefits from Immigration," *Journal of Economic Perspectives* 9, no. 2 (Spring 1995): 3–22; Friedberg and Hunt, "The Impact of Immigrants on Host Country Wages, Employment, and Growth"; and Borjas, "The Economics of Immigration."

EXAMPLE 10.4**The Mariel Boatlift and Its Effects
on Miami's Wage and Unemployment Rates**

Between May and September of 1980, some 125,000 Cubans were allowed to emigrate to Miami from the port of Mariel in Cuba. These immigrants, half of whom permanently settled in Miami, increased Miami's overall labor force by 7 percent in under half a year. Because two-thirds of "the Mariels" had not completed high school, and because unskilled workers made up about 30 percent of Miami's workforce, it is likely that the number of *unskilled* workers in Miami increased by 16 percent or more during this short period! Such a marked and rapid increase in labor market size is highly unusual, but it provides an interesting "natural experiment" on the consequences of immigration for a host area.

If immigration has negative effects on wages in the receiving areas, we would expect to observe that the wages of Miami's unskilled workers fell relative to the wages of its skilled workers *and* relative to the wages of unskilled workers in otherwise comparable cities. Neither relative decline occurred; in fact, the wages of unskilled black workers in Miami actually rose relative to wages of unskilled blacks in four comparison cities (Atlanta, Los Angeles, Houston, and Tampa).

Similarly, the unemployment rate among low-skilled blacks in Miami improved, on average, relative to that in other cities during the five years following the boatlift. Among Hispanic workers, there was a predictable increase in Miami's unemployment rate relative to that in the other cities in 1981, but from 1982

to 1985 the Hispanic unemployment rate in Miami fell faster than in the comparison cities.

What accounts for the absence of adverse pressures on the wages and unemployment rates of unskilled workers in the Miami area? First, concurrent rightward shifts in the demand curve for labor probably tended to offset the rightward shifts in labor supply curves.

Second, it also appears that some residents left Miami in response to the influx of immigrants and that other potential migrants went elsewhere; the rate of Miami's population growth after 1980 slowed considerably relative to that of the rest of Florida, so that by 1986 its population was roughly equal to what it was projected to be by 1986 *before* the boatlift. For locational adjustments of residents and potential immigrants to underlie the lack of wage and unemployment effects, these adjustments would have to have been very rapid. Their presence reinforces the theoretical prediction, made earlier in this chapter, that migration flows are sensitive to economic conditions in both sending and receiving areas.

Data from: David Card, "The Impact of the Mariel Boatlift on the Miami Labor Market," *Industrial and Labor Relations Review* 43, no. 2 (January 1990): 245–257. For similar studies, see Jennifer Hunt, "The Impact of the 1962 Repatriates from Algeria on the French Labor Market," *Industrial and Labor Relations Review* 45, no. 3 (April 1992): 556–572, and William Carrington and Pedro De Lima, "The Impact of the 1970s Repatriates from Africa on the Portuguese Labor Market," *Industrial and Labor Relations Review* 49, no. 2 (January 1996): 330–347.

Do the Overall Gains from Immigration Exceed the Losses?

So far, we have used economic theory to analyze the likely effects of immigration on various groups of natives, including consumers, owners, and skilled and unskilled workers. Theory suggests that some of these groups should be clear-cut gainers; among these are owners, consumers, and workers who are complements in production with immigrants. Native workers whose labor is highly substitutable in production with immigrant labor are the most likely losers from

immigration, while the gains or losses for other groups of native workers are theoretically unpredictable owing to potentially offsetting influences of the substitution and scale effects. Further, the estimated effects on the above groups are quite small, although the actual effects still must be classified as uncertain.

In this subsection, we use economic theory to analyze a slightly different question: What does economic theory say about the *overall* effects of immigration on the host country? Put in the context of the *normative* criteria presented in chapter 1, this subsection asks, “If there are both gainers and losers from immigration among natives in the host country, is it likely that the gainers would be able to compensate the losers and still feel better off?” The answer to this question will be yes if immigration increases the aggregate disposable income of natives.

What Do Immigrants Add? Immigrants are both consumers and producers, so whether their influx makes those already residing in the host country richer or poorer, in the aggregate, depends on how much the immigrants *add* to overall production as compared to how much they *consume*. Let us take a simple example of elderly immigrants allowed into the country to reunite with their adult children. If these immigrants do not work, and if they are dependent on their children or on American taxpayers for their consumption, then clearly the overall per capita disposable income among natives must fall. (This fall, of course, could well be offset by the increased utility of the reunited families, in which case it would be a price the host country might be willing to pay.)

If immigrants *work* after their arrival, our profit-maximizing models of employer behavior suggest that they are paid no more than the value of their marginal product. Thus, if they rely only on their own earnings to finance their consumption, immigrants who work do not reduce the per capita disposable income of natives in the host country. Moreover, if immigrant earnings are less than the *full* value of the output they add to the host country, then the total disposable income of natives will increase.²¹

Immigrants and Public Subsidies Most host countries (including the United States) have government programs that may distribute benefits to immigrants. If the taxes paid by immigrants are sufficient to cover the benefits they receive from such programs, then the presence of these immigrants does not threaten the per capita disposable income of natives. Indeed, some government programs, such as national defense, are true *public goods* (whose costs are not increased by immigration), and any taxes paid by immigrants help natives defray the expenses of these programs. However, if immigrants are relatively high users of government support services, and if the taxes they pay do not cover the value of their benefits, then it is possible that the fiscal burden of immigration could be large enough to reduce the aggregate income of natives.

²¹Economic theory suggests this will be the case if the shift in labor supply is large enough to significantly lower the marginal revenue product of labor in the immigrants’ labor market. If so, wages will fall, output will expand, and the *profits from the added output* are captured by owners, who are presumably natives.

Given the declining skills of recent immigrant cohorts, and given that many government programs (public health, welfare, and unemployment insurance, for example) are aimed at subsidizing the poor, there is growing concern that recent immigration to the United States may be harmful to natives. One study found that recent (legal) immigrants are relatively high users of welfare programs (including food stamps and medical and housing subsidies), although another found that they are much less likely than natives to become institutionalized for crime or mental disorders.²²

A study of the net fiscal effects of recent legal immigration suggests that these effects—measured over the lifetimes of the immigrants and their descendants—are *positive*. That is, immigrants and their descendants typically pay more in taxes than they receive in government benefits, with the present value of the surplus averaging \$80,000 per immigrant. The study estimates that net fiscal effects are more likely to be positive if immigrants come as *young adult workers* and if they are *better educated*. For example, immigrants with more than a high school education are estimated to have a positive net fiscal effect averaging \$198,000, while those with a high school education average a positive effect of \$51,000. For legal immigrants with less than a high school education, the net fiscal effects are estimated to be a *negative* \$13,000.²³

Illegal Immigration Illegal immigration has been the major focus of immigration policy in recent years, so it is interesting to consider how it, in particular, is likely to affect the overall disposable incomes of American citizens (and other legal residents). While the exact answer is unknown, three considerations suggest that *illegal immigration may be more likely to increase native incomes than legal immigration!*

First, illegal immigrants come mainly to work, not for purposes of family reunification.²⁴ Therefore, they clearly add to the production of domestic goods and services. Second, while they tend to be poor, they are ineligible for many programs (welfare, food stamps, Social Security, unemployment insurance) that transfer resources to low-income citizens. Third, despite their wish to hide from the government, immigrants cannot avoid paying most taxes (especially payroll, sales, and property taxes); indeed, one study indicated that 75 percent of illegal immigrants had income taxes withheld but that relatively few filed for a refund.²⁵

²²George Borjas and Lynette Hilton, "Immigration and the Welfare State: Immigrant Participation in Means-Tested Entitlement Programs," *Quarterly Journal of Economics* 111, no. 2 (May 1996): 575–604; and Kristin F. Butcher and Anne Morrison Piehl, "Recent Immigrants: Unexpected Implications for Crime and Incarceration," *Industrial and Labor Relations Review* 51, no. 4 (July 1998): 654–679.

²³Smith and Edmonston, *The New Americans*, 334. Somewhat similar findings are reported in Ronald Lee and Timothy Miller, "Immigration, Social Security, and Broader Fiscal Impacts," *American Economic Review* 90, no. 2 (May 2000): 350–354.

²⁴Attempted illegal immigration from Mexico is estimated to be extremely sensitive to changes in Mexico's real wage rate; see Gordon Hanson and Antonio Spilimbergo, "Illegal Immigration, Border Enforcement, and Relative Wages: Evidence from Apprehensions at the U.S.–Mexico Border," *American Economic Review* 89, no. 5 (December 1999): 1337–1357.

²⁵Gregory DeFreitas, *Inequality at Work: Hispanics in the U.S. Labor Force* (New York: Oxford University Press, 1991), 228. The same study showed minimal use of public services by illegal immigrants.

Thus, we cannot rule out the possibility that, despite governmental efforts to prohibit it, the “transaction” of illegal immigration is—to use the normative terminology of chapter 1—Pareto-improving. That is, the immigrants themselves clearly gain (otherwise they would go back home), while as a group, natives may well not lose! The issue is clearly an empirical one, and the net effects of illegal immigration probably deserve more study before the country decides to allocate more resources to stopping it.

EMPLOYEE TURNOVER AND JOB MATCHING

From the perspective of an individual worker, the human capital model suggests that changing jobs is a costly transaction that will be undertaken voluntarily only if the expected benefits are relatively large. Workers, then, are seen as using job mobility as a means of improving their personal well-being. From a more global perspective, however, worker mobility performs the socially useful role of matching workers with the employers who value their skills most highly. In this section we analyze the patterns of mobility that are observed.

Effects of Job Tenure and Age

Workers are unique in the sense that each one has skills and interests that are different from those of others. Employers, for their part, have differing demands for skills and other worker characteristics that are a function of consumer preferences for their products, available production technologies, and even such factors as their management styles. Given that the information workers and employers initially have about each other is incomplete and costly to obtain, the probability that both employer and employee will find they are happy with the “match” is clearly less than 100 percent. Employers will want to fire workers who are less productive within their firms than they expected, and workers will want to quit if they believe they can be treated better elsewhere. Thus, poor matches end with a separation taking place, but good matches tend to endure. The concept of matching has strong implications for job turnover by job tenure and age.

Job Tenure The imperfect information with which employers and employees begin a job match means that the probability of a separation between them should be higher in the early months of the match and become progressively lower as the match endures. In other words, the more successful the match, the longer it will last. Indeed, among American workers in their 20s, we find that about one-third of all new full-time job matches end in the first six months and 50 percent are ended in the first year. The probability of a match’s ending during the second year is 17 percent, and during the third year it has fallen to 8 percent. Cumulating these percentages, we can calculate that 75 percent of the job matches involving young workers have ended after three years.²⁶

²⁶Henry S. Farber, “Mobility and Stability: The Dynamics of Job Change in Labor Markets,” in *Handbook of Labor Economics*, ed. Orley Ashenfelter and David Card (New York: Elsevier, 1999), 2439–2483.

TABLE 10.5 Number of Employers for Whom an Employee Works from Ages 20 to 60, Men, United States and United Kingdom, 1983

Age Group	Number of New Employers during Age Interval		Cumulative Number of Employers	
	U.S.	U.K.	U.S.	U.K.
20–29	3.1	1.9	3.1	1.9
30–39	2.1	1.2	5.2	3.1
40–49	1.4	0.9	6.6	3.9
50–59	0.9	0.6	7.5	4.5

Source: Adapted from S. W. Polachek and W. S. Siebert, *The Economics of Earnings* (Cambridge, Eng.: Cambridge University Press, 1993), 253.

Age The problems of imperfect information that put job matches at risk can be expected to fall as workers become more experienced. As they age, workers find out about their strengths and weaknesses, discover what they like best in jobs or employers, and expand their employment contacts and knowledge about the labor market. Likewise, they establish a work history that employers can use to evaluate them better in the hiring process. Thus, the quality of job matches should rise with age and labor-market experience.

Table 10.5 presents data from both the United States and United Kingdom showing the number of new employers workers have, on average, during various decades of their work lives. Although turnover at all ages is much higher in the United States than in the United Kingdom, job changing clearly declines with age in both countries. While presumably showing the effects of better job matches, this decline is also consistent with the prediction that older workers have reduced incentives to invest in job mobility.²⁷

Other Patterns of Job Mobility

Our human-capital model of job changes initiated by employees suggests that decisions are made taking both benefits and costs into account. It is certainly to be expected that, because of differences in their discount rates or psychic costs of moving, individuals will differ widely in their propensities for job mobility. For example, one study found that almost half of *all* permanent separations over a

²⁷For theoretical analyses of job matching, see Boyan Jovanovic, "Job Matching and the Theory of Turnover," *Journal of Political Economy* 87 (October 1979): 972–990, and Kenneth McLaughlin, "Rent Sharing in an Equilibrium Model of Matching and Turnover," *Journal of Labor Economics* 12, no. 4 (October 1994): 499–523. For a recent study with extensive citations to earlier work, see Alison L. Booth, Marco Francesconi, and Carlos Garcia-Serrano, "Job Tenure and Job Mobility in Britain," *Industrial and Labor Relations Review* 53, no. 1 (October 1999): 43–70.

three-year period involved the 13 percent of workers who had three or more separations during the period.²⁸ Despite individual idiosyncrasies, however, there are clearly *systematic* factors that influence the patterns of job mobility.

Wage Effects Human capital theory predicts that, *other things equal*, a given worker will have a greater probability of quitting a low-wage job than a higher-paying one. That is, workers employed at lower wages than they could obtain elsewhere are the most likely to quit. Indeed, a very strong and consistent finding in virtually all studies of worker quit behavior is that, holding worker characteristics constant, employees in industries with lower wages have higher quit rates. At the level of individual workers, research indicates that those who change employers have more to gain from a job change than those who stay and that, indeed, their wage growth after changing is faster than it would have been had they stayed.²⁹

Effects of Employer Size From Table 10.6, it can be seen that *quit rates tend to decline as firm size increases*. One explanation for this phenomenon is that large firms offer more possibilities for transfers and promotions. Another, however, builds on the fact that large firms generally pay higher wages.³⁰ This explanation asserts that large firms tend to have highly mechanized production processes, where the output of one work team is highly dependent on that of production groups preceding it in the production chain. Larger firms, it is argued, have greater needs for dependable and steady workers because employees who shirk their duties can impose great costs on a highly interdependent production process. Large firms, then, establish “internal labor markets” for the reasons suggested in chapter 5; that is, they hire workers at entry-level jobs and carefully observe such hard-to-screen attributes as reliability, motivation, and attention to detail. Once having invested time and effort in selecting the best workers for its operation, a large firm finds it costly for such workers to quit. Thus, large firms pay high wages to reduce the probability of quitting because they have substantial firm-specific screening investments in their workers.³¹

Gender Differences It has been widely observed that women workers have higher quit rates, and therefore shorter job tenures, than men. To a large degree, this higher quit rate probably reflects lower levels of firm-specific human capital

²⁸Patricia M. Anderson and Bruce D. Meyer, “The Extent and Consequences of Job Turnover,” *Brookings Papers on Economic Activity: Microeconomics* (1994): 177–248.

²⁹Donald O. Parsons, “Models of Labor Market Turnover: A Theoretical and Empirical Survey,” in *Research in Labor Economics*, vol. 1, ed. Ronald Ehrenberg (Greenwich, Conn.: JAI Press, 1977), 185–223; Michael G. Abbott and Charles M. Beach, “Wage Changes and Job Changes of Canadian Women: Evidence from the 1986–87 Labour Market Activity Survey,” *Journal of Human Resources* 29, no. 2 (Spring 1994): 429–460; Christopher J. Flinn, “Wages and Job Mobility of Young Workers,” *Journal of Political Economy* 94, no. 3, pt. 2 (June 1986): S88–S110; and Monica Galizzi and Kevin Lang, “Relative Wages, Wage Growth, and Quit Behavior,” *Journal of Labor Economics* 16, no. 2 (April 1998): 367–391.

³⁰Walter Oi, “The Fixed Employment Costs of Specialized Labor,” in *The Measurement of Labor Cost*, ed. Jack E. Triplett (Chicago: University of Chicago Press, 1983).

³¹This argument is developed more fully and elegantly in Walter Oi, “Low Wages and Small Firms,” in *Research in Labor Economics*, vol. 12, ed. Ronald Ehrenberg (Greenwich, Conn.: JAI Press, 1991).

TABLE 10.6 Monthly Quit Rates per 100 Workers by Firm Size, Selected Industries (1977–1981 averages)

Industry	Number of Employees			
	<250 Employees	250–499	500–999	1000 and Over
All manufacturing	3.28	3.12	2.40	1.50
Food and kindred products	3.46	4.11	3.95	2.28
Fabricated metal products	3.33	2.64	2.12	1.20
Electrical machinery	3.81	3.12	2.47	1.60
Transportation equipment	3.90	2.78	2.21	1.41

Source: Walter Oi, "The Durability of Worker-Firm Attachments," report to the U.S. Department of Labor, Office of the Assistant Secretary for Policy, Evaluation, and Research, March 25, 1983, Table 1.

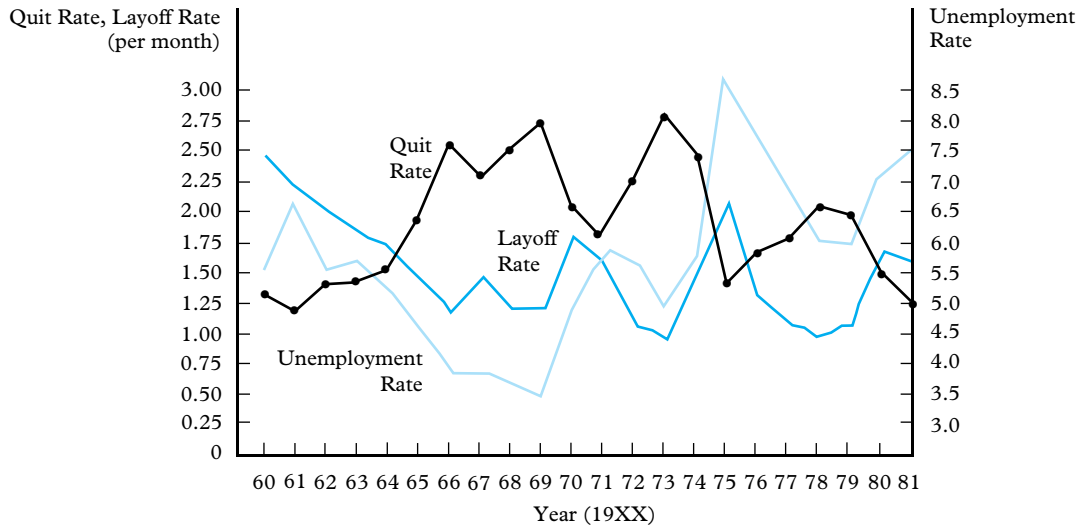
investments. We argued in chapter 9 that the interrupted careers of "traditional" women workers rendered many forms of human capital investment less beneficial than would otherwise be the case, and lower levels of firm-specific training could account for lower wages, lower job tenures, and higher quit rates.³² In fact, once the lower wages and shorter careers of women are controlled for, there appears to be no difference between the sexes in the propensity to quit a job, especially among those with more than a high school education.³³

Cyclical Effects Another implication of human capital theory is that workers will have a higher probability of quitting when it is relatively easy for them to obtain a better job quickly. Thus, when labor markets are *tight* (jobs are more plentiful relative to job seekers), one would expect the quit rate to be higher than when labor markets are *loose* (few jobs are available and many workers are being laid off). This prediction is confirmed in studies of time-series data.³⁴ Quit rates tend to rise when the labor market is tight and fall when it is loose. One measure of tightness is the unemployment rate; the negative relationship between the quit rate and unemployment can be readily seen in Figure 10.4. Another measure of labor market conditions is the layoff rate, which tends to rise in recessions and fall when firms are expanding production. It, too, is inversely correlated with the quit rate, as Figure 10.4 shows.

³²Jacob Mincer and Boyan Jovanovic, "Labor Mobility and Wages," in *Studies in Labor Markets*, ed. Sherwin Rosen (Chicago: University of Chicago Press, 1981).

³³Anne Beeson Royalty, "Job-to-Job and Job-to-Nonemployment Turnover by Gender and Education Level," *Journal of Labor Economics* 16, no. 3 (April 1998): 392–443; Francine Blau and Lawrence Kahn, "Race and Sex Differences in Quits by Younger Workers," *Industrial and Labor Relations Review* 34 (July 1981): 563–577; and Audrey Light and Manuelita Ureta, "Panel Estimates of Male and Female Job Turnover Behavior: Can Female Non-quitters Be Identified?" *Journal of Labor Economics* 10 (April 1992): 156–181.

³⁴Parsons, "Models of Labor Market Turnover," 185–223.

FIGURE 10.4**The Quit Rate and Labor Market Tightness**

One interesting issue is whether the quality of job matches rises or falls during a recession. On the one hand, when job openings are few and job seekers are plentiful, employers have more applicants for each open position and can be more selective in making offers of employment. This reasoning suggests that match quality might increase in a recession. On the other hand, workers can expect fewer offers and may thus be more inclined during recessions to take the first offer that comes along; with workers being *less* selective, match quality might deteriorate. Recent research suggests that the latter influence dominates and that match quality during recessions is reduced.³⁵

Employer Location Economic theory predicts that when the costs of quitting a job are relatively low, mobility is more likely. Industries with high concentrations of employment in urban areas, where a worker's change of employer does not necessarily require investing in a change of residence, appear to have higher rates of turnover (holding wage rates and employee age constant) than industries concentrated in nonmetropolitan areas.³⁶

³⁵Audra J. Bowlus, "Matching Workers and Jobs: Cyclical Fluctuations in Match Quality," *Journal of Labor Economics* 13, no. 2 (April 1995): 335–350.

³⁶Parsons, "Models of Labor Market Turnover," and Farrell E. Bloch, "Labor Turnover in U.S. Manufacturing Industries," *Journal of Human Resources* 14 (Spring 1979): 236–246.

Are Quits Different from Layoffs?

In studying worker mobility, we frequently make distinctions between *worker-initiated* and *employer-initiated* job separations. When an employee makes the decision to move to another job, we typically record the separation as a “quit.” In contrast, if the employer decides to end the match, the separation is recorded as a “permanent layoff” or a “firing.” This distinction at first seems clear, but the line between a quit and a layoff is actually blurry.

Market outcomes are the product of both employer and employee interactions. A worker with a better offer elsewhere may decide to leave, but her current employer had the option of improving her pay or working conditions if it wanted to keep her. If it chose not to take the steps to keep her, did she quit or was she forced out? Likewise, workers with whom the employer has performance issues have the option of taking steps to improve; if they choose not to take those steps, can we draw a clear distinction between their being fired and their having quit? The common distinction between a “voluntary quit” and an “involuntary layoff”, however, does appear to be useful. Workers who are recorded as having quit for a nonfamily reason experience wage increases in their new jobs, while those who are laid off or fired typically are subject to wage losses.³⁷

International Comparisons

It is also possible that the costs of job changing vary internationally. Data in Table 10.5, for example, suggested that workers in the United States are more likely to change employers than workers in the United Kingdom. Indeed, Table 10.7 confirms that, on average, American workers have been with their current employers fewer years than workers in most other developed economies, particularly those in Europe and Japan. We do not know for certain why Americans are more mobile, but one possibility is that they receive lower levels of company training, which could be both a cause and an effect of shorter expected job tenure. Another possibility, however, is that the costs of mobility are lower in the United States (despite the fact that Japan and Europe are more urban). What would create these lower costs?

Some argue that housing policies in Europe and Japan increase the costs of residential, and therefore *job*, mobility. Germany, the United Kingdom, and Japan, for example, have had controls on the rent *increases* that landlords can charge to existing renters, while tending to allow them freedom to negotiate any mutually agreeable rent on their *initial* lease with the renter. Thus, it is argued that renters who moved typically faced very large rent increases. Similarly, subsidized housing is much more common in these countries than in the United States, but since it is limited in supply, those British, German, or Japanese workers fortunate enough to live in subsidized units have been reluctant (it is argued)

³⁷Keith and McWilliams, “The Returns to Mobility and Job Search by Gender.”

TABLE 10.7 Average Job Tenure, Selected Countries, 1995

<i>Country</i>	<i>Average Tenure (in Years) with Current Employer</i>	
	<i>Men</i>	<i>Women</i>
Australia	7.1	5.5
Canada	8.8	6.9
France	11.0	10.3
Germany	10.6	8.5
Japan	12.9	7.9
Netherlands	9.9	6.9
United Kingdom	8.9	6.7
United States	7.9	6.8

Source: Organisation for Economic Co-Operation and Development,
Employment Outlook: July 1997 (OECD: 1997), Table 5.6.

to give them up. The empirical evidence on the implications of housing policy for job mobility, however, is both limited and mixed.³⁸

We could also hypothesize that the United States, Australia, and Canada, all of which exhibit shorter job tenures than most European countries and Japan, are countries that historically have attracted people willing to immigrate from abroad or resettle internally over long distances. In a country of movers, moving may not be seen by either worker or employer as unusual or especially costly.³⁹

Is More Mobility Better?

On the one hand, mobility is socially useful, because it promotes both individual well-being and the quality of job matches. In chapter 8 we pointed out, for example, that mobility (or at least the *threat* of mobility) was essential to the creation of compensating wage differentials. Moreover, the greater the number of workers and employers in the market at any given time, the more flexibility an economy has in making job matches that best adapt to a changing environment. Indeed,

³⁸See Patrick Minford, Paul Ashton, and Michael Peel, "The Effects of Housing Distortions on Unemployment," *Oxford Economic Papers* 40, no. 2 (June 1988): 322–345, and Axel Borsch-Supan, "Housing Market Regulations and Housing Market Performance in the United States, Germany, and Japan," in *Social Protection versus Economic Flexibility: Is There a Trade-Off?* ed. Rebecca M. Blank (Chicago: University of Chicago Press, 1994), 119–156.

³⁹One study, for example, found no evidence that American employers stigmatized employees who frequently changed jobs; see Kristen Keith, "Reputation, Voluntary Mobility, and Wages," *Review of Economics and Statistics* 75, no. 3 (August 1993): 559–563.

when focusing on this aspect of job mobility, economists have long worried whether economies have *enough* mobility. A case in point is the concern whether employers have created “job lock” by adopting pension plans and health insurance policies that are not portable if the employee leaves the firm.⁴⁰

On the other hand, however, lower mobility costs (and thus greater mobility) among workers also weaken the incentives of both employers and employees to invest in specific training or information particular to a job match. Failure to make these investments, it can be argued, reduces the productive potential of employees. Mobility costs can also introduce elements of monopsony into the labor market.

Costs of Turnover and the Monopsony Model

In chapters 3 and 4, we noted that some economists have begun to explore theoretical models that produce monopsony-like behavior by employers in situations in which they are not the sole buyers of labor in a particular market. We now briefly consider the implications for labor *demand* theory of the fact that employee turnover is costly.

Background Issues You will recall that in the standard model of labor demand, each employer is assumed to face a labor supply curve that is horizontal at the market wage rate. That is, any single firm is assumed to be a “wage taker” that can always hire additional workers at a constant (market) wage of, say, W^* . The firm has no incentive to pay *above* the market wage, because it can secure all the employees it wants at W^* , and if it paid *below* the market wage it would lose all its workers to other firms. This horizontal supply curve also means that the *marginal cost* of hiring labor is constant at W^* . With a downward-sloping marginal revenue product of labor curve, the profit-maximizing firm (which hires until marginal revenue product equals W^*) therefore has a downward-sloping labor demand curve.

From the standard model arises the *law of one price*, which states that, in equilibrium, all firms in the market for workers of the same skill will pay the same wage rate, as long as conditions of employment are the same. Two points must be made concerning the law of one price. First, a major implication of this law is that, with the exception of compensating differentials for employment conditions of one sort or another, *wages will be determined by workers’ human capital characteristics*. All firms would have to pay the market wage for each skill group regardless of their level of profitability, their industry, or their size. Under this model, then, *employer characteristics*

⁴⁰See Stuart Dorsey, “Pension Portability and Labor Market Efficiency: A Survey of the Literature,” *Industrial and Labor Relations Review* 48, no. 2 (January 1995): 276–292; Alan C. Monheit and Philip F. Cooper, “Health Insurance and Job Mobility,” and Jonathan Gruber and Brigitte C. Madrian, “Health Insurance and Job Mobility: The Effects of Public Policy on Job Lock,” both in *Industrial and Labor Relations Review* 48, no. 1 (October 1994): 68–102. For a much earlier article, see Arthur Ross, “Do We Have a New Industrial Feudalism?” *American Economic Review* 48, no. 5 (December 1958): 914.

do not influence wages except when either favorable or unfavorable employment conditions give rise to compensating wage differentials.

Second, *worker mobility* is what generates the one price for labor of a given skill. If workers of equal skill were paid different wages by employers with comparable working conditions, the standard, competitive model asserts that the lower-paid ones would quit their jobs and seek employment with higher-paying firms. Wages in the lower-paying firms thereby would be driven up, while wages in the higher-paying firms would be driven down, by worker mobility. The standard model, with its horizontal labor supply curve facing each firm, implicitly assumes that mobility is costless and that the quit rate among workers is infinitely elastic with respect to wages (that is, if a firm were to cut its wages below those paid elsewhere, all its workers would quit).

Mobility Costs and the Firm's Labor Supply Curve The human capital model of job mobility, as captured in equation (10.1), implies that a worker will *not* invest in mobility if the present value of the net benefits is negative. That is, even if the gross benefits of switching one's job are positive, making the change is not worthwhile if these benefits are small relative to the costs of searching for other offers, ending one's current employment relationship, possibly moving to a new residence, and settling into a new job.

If the costs of changing jobs make some wage (or utility) gains not worth capturing, and if these costs differ across individual workers, then we would not expect the quit rate to be infinitely responsive to wages. A small deviation from the market wage by a given firm might induce *some* workers to change employers, but a larger deviation would be required before others are induced to invest in mobility. Of course, we might reasonably expect supply to be more responsive to wages in the long run, because new entrants to the labor force are searching anyway and can choose the best opportunities (or avoid the worst) without having to incur the costs of severing ties with a current employer. However, if information is difficult to obtain and search is costly even in the long run, wage differences across workers with the same human capital characteristics and similar conditions of employment might persist more or less permanently.

Empirically, economists have estimated that workers' quit rates respond to their wages in the expected way (quits rise when wages fall), but the estimated response is considerably less than infinitely elastic.⁴¹ Moreover, there is also evidence of persistent wage differentials across *industries* and *firm-size* groups⁴² that

⁴¹See David Card and Alan B. Krueger, *Myth and Measurement: The New Economics of the Minimum Wage* (Princeton, N.J.: Princeton University Press, 1995), 375, for a summary of evidence on quit rates.

⁴²Steven G. Allen, "Updated Notes on the Interindustry Wage Structure, 1890–1990," *Industrial and Labor Relations Review* 48, no. 2 (January 1995): 305–321; Richard Freeman, "Does the New Generation of Labor Economists Know More Than the Old Generation?" in *How Labor Markets Work*, ed. Bruce E. Kaufman (Lexington, Mass.: Lexington Books, 1988), 205–223; Richard Thaler, "Anomalies: Interindustry Wage Differentials," *Journal of Economic Perspectives* 3 (Spring 1989): 181–193; Jane Osborn, "Interindustry Wage Differentials: Patterns and Possible Sources," *Monthly Labor Review* 123, no. 2 (February 2000): 34–46; and Dominique Goux, "Persistence of Interindustry Wage Differentials: A Reexamination Using Matched Worker-Firm Panel Data," *Journal of Labor Economics* 17, no. 3 (July 1999): 492–533.

EXAMPLE 10.5**Monopsony in the Coal Fields? Probably Not**

West Virginia coal mining at the turn of the twentieth century probably fits the archetype of a monopsony as well as any industry. Most mines were located in remote, sparsely populated areas, so miners wishing to change employers had to relocate. About 80 percent of miners lived in company housing in company towns. But despite these conditions, there is little evidence that employers enjoyed monopsony power.

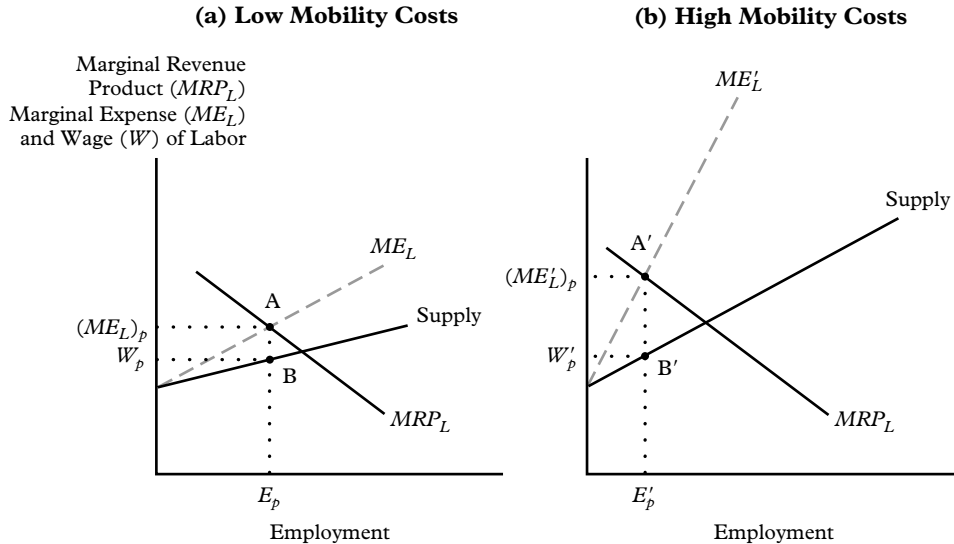
Between 1897 and 1932, the West Virginia coal industry developed rapidly, but unevenly. Using annual data, William Boal investigated the size of the wage changes required to generate these employment shifts from county to county. If large wage changes were required to generate these shifts, employers would have exercised significant monopsony power, since this would imply that they faced upward-sloping labor supply curves. However, only small changes in wages were needed to attract new workers. Boal estimates that employers had the potential to exert a little monopsony power in the short run, but this power was sharply weakened by the effect of low current wages on their own future labor supply. The bottom line is that these employers faced nearly horizontal labor supply curves in the long run.

Why weren't employers able to exert monopsony power, even when there was only a single employer in town? They were handcuffed by very high turnover rates among employees, who could move to any of the hundreds of other mines in the region. Miners and their families relocated frequently, apparently using the same rail lines built to carry the coal itself from each mine to distant markets. Boal cites labor turnover rates in West Virginia ranging from 148 to 234 percent per year. (Labor turnover equals separations as a percent of average number on the payroll.) Many of the miners were single males who found moving very easy, but even married miners moved often. A U.S. Children's Bureau survey of a county in West Virginia in 1920 found that almost 60 percent of the families had lived in the same community for three years or less. In addition, the miners had plenty of information about competing job opportunities and wages. With mobile, informed workers, employers had little ability to exercise monopsony power.

Data from: William M. Boal, "Testing for Employer Monopsony in Turn-of-the-Century Coal Mining," *RAND Journal of Economics* 26, no. 3 (Autumn 1995), 519–536; and Price Fishback, *Soft Coal, Hard Choices: The Economic Welfare of Bituminous Coal Miners, 1890–1930* (New York: Oxford University Press, 1992).

researchers have not been able to explain by differences in workers' human capital or by conditions giving rise to compensating wage differentials. While there are other potential explanations for these findings, the evidence on quit rates and persistent wage differentials is certainly consistent with the presence of search and relocation costs that impede worker mobility. (As illustrated by Example 10.5, however, these costs can be surprisingly low in some cases.)

The presence of mobility costs implies that individual firms well might face upward-sloping labor supply curves over some range of wages and some finite time period. A firm could lower its wages (at least to some extent) without losing all its workers to other firms, and it could raise its wages by some amount without attracting all the workers from other firms. As was pointed out in chapter 3, the essence of the monopsonistic model of employer demand for labor is an upward-sloping labor supply curve to individual employers. It is this upward-sloping supply curve that drives the firm's marginal cost of labor above its wage rate, thus creating uncertainty about how its desired level of employment will respond to a mandated wage increase. (Recall from chapter 3 that when the marginal cost of labor is above the

FIGURE 10.5**Mobility Costs and the Extent to Which the Marginal Costs of Labor Exceed the Wage**

wage, small mandated wage increases can simultaneously raise the wage level and *reduce* the marginal cost of labor.) One possible source of monopsony-like behavior by firms, then, is the presence of costs associated with job changing.⁴³

The Extent of Monopsony-Like Behavior While monopsony-like behavior by an employer is rooted in an upward-sloping labor supply curve, the *extent* to which this behavior deviates from that presumed by the standard labor demand model is a function of the *extent to which marginal costs of labor exceed the wage rate*. If marginal costs are substantially above the wage rate to begin with, for example, then even a relatively large mandated wage increase could still reduce the marginal costs of labor to the firm (and lead to theoretically ambiguous expectations about changes in the level of employment). However, if marginal costs were only slightly above the wage to begin with, the same mandated wage increase might *raise* the marginal costs of labor, which would lead us to expect the conventionally predicted fall in employment.

As illustrated in Figure 10.5, the degree to which a firm's marginal costs of labor exceed its wage rate depends on how steeply sloped its labor supply curve is.⁴⁴ When

⁴³Card and Krueger, *Myth and Measurement*, 373–381, summarizes, and provides references to, the literature on monopsony models that are based on mobility costs.

⁴⁴It can be mathematically proven that, with a straight-line labor supply curve to the firm, such as the ones illustrated in Figure 10.5, the accompanying marginal cost of labor curve has a slope that is *twice* that of the labor supply curve.

mobility costs are lower, the labor supply curve to an individual employer will be flatter (Figure 10.5a) and the associated marginal cost curve will rise relatively slowly. If mobility costs are higher, both the firm's labor supply curve and its marginal costs of labor rise sharply (see Figure 10.5b). Given its marginal revenue product of labor curve, if the firm were faced with a labor supply curve such as the one in panel (a), it would have a profit-maximizing employment level of E_p , would pay a wage of W_p , and the extent to which its marginal costs of labor exceeded its wage rate would be given by the distance AB. If instead the firm faced a supply curve like the one in panel (b), the gap between its marginal costs of labor and its wage rate (W'_p) at the profit-maximizing level of employment (E'_p) would be equal to the distance A'B', which is greater than AB. Thus, the *extent* to which a firm behaves like a monopsonist is a function of how steeply sloped its labor supply curve is—which is, in turn, a function of mobility costs.

REVIEW QUESTIONS

1. The licensing of such occupations as nurses and doctors in the United States requires people in those occupations to pass a test administered by the state in which they seek to work. Saying that “every time a health-care workers moves, some bureaucrat tells him he can’t work,” a national newspaper argued that the United States could reduce health-care costs if it removed state-to-state licensing barriers.
 - a. From the perspective of positive economics, what are the labor market effects of having states, rather than the federal government, license professionals?
 - b. Who would gain and who would lose from federalization of occupational licensing?
2. One way for the government to facilitate economic growth is for it to pay workers in depressed areas to move to regions where jobs are more plentiful. What would be the labor market effects of such a policy?
3. A recent television program examining the issue of Mexican immigration stated that most economists believe immigration is a benefit to the United States.
 - a. State the chain of reasoning underlying this view.
 - b. From a normative perspective, is the key issue wage effects on native workers or subsidies of immigrants by the host country? Why?
4. Suppose the United States increases the penalties for illegal immigration to include long jail sentences for illegal *workers*. Analyze the effects of this increased penalty on the wages and employment levels of *all* affected groups of workers.
5. Other things equal, firms usually prefer their workers to have low quit rates. However, from a social perspective, quit rates can be too low. Why do businesses prefer low quit rates, and what are the social disadvantages of having such rates “too low”?
6. The last two decades in the United States have been characterized by a very wide gap between the wages of those with more education and those with less. Suppose that workers eventually adjust to this gap by investing more in education, with the result that the wages of less-skilled workers rise faster than those of the more-skilled (so that

the wage gap between the two falls). How would a decline in the wage gap between the skilled and the unskilled affect immigration to the United States?

7. It has been said, "The fact that quit rates in Japan are lower than in the United

States suggests that Japanese workers are inherently more loyal to their employers than are American workers." Evaluate this assertion that where quit rates are lower workers have stronger preferences for loyalty.

PROBLEMS

1. Rose lives in a poor country where she earns \$5,000 per year. She has the opportunity to move to a rich country as a temporary worker for five years. Doing the same work, she'll earn \$35,000 per year in the rich country. The cost of moving is \$2,000, and it would cost her \$10,000 more per year to live in the rich country. Rose's discount rate is 10 percent. Rose decides not to move because she
- will be separated from her friends and family. Estimate the psychic costs of Rose's move.
2. Suppose that the demand for rough laborers is $L_D = 100 - 10W$, where W = wage in dollars per hour and L = number of workers. If immigration increases the number of rough laborers hired from 50 to 60, by how much will the short-run profits of employers in this market change?

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