*22f. If immigration leads to a large enough increase in output, it is possible that native workers can be kept at least as well off as before immigration without hurting immigrants or the firms. Give an example of a transfer payment scheme that would accomplish this.

22g. What other effects do immigrants have on labor markets that are not captured in this model?

Applications

Migration After a Job Loss

23. Consider a worker currently making $60,000 in a defense industry plant in the New England area. Suppose the plant is closed because of government spending cutbacks and the worker loses his job. After a prolonged search, the worker decides to change occupations and move to North Carolina. His new job only pays $50,000. Has not migration made this worker worse off? Do such examples contradict the prediction of the human capital investment model that says people invest in mobility only when the present value of the benefits is at least as large as the present value of the costs?

The Causes of Higher Quit Rates for Women

*24. According to the text “It is well established that female workers have had higher propensities toward quitting than male workers.” Empirical evidence also exists which shows that the job tenure of women tends to be significantly lower than that of men, a finding consistent with the view that women have had higher quit rates. The higher quit rates and shorter tenure, in turn, are attributed to the lower levels of firm-specific training obtained by women, a subject discussed in Chapter 5.

*24a. Using the lessons of Chapter 5, review why women are less likely to be offered firm-specific training.

*24b. Review why higher quit rates are expected when a worker does not receive firm-specific training. Would eliminating general training also lead to higher quit rates?

The Effects of Reducing Immigration When a Minimum Wage Applies

25. Consider a labor market where the demand for a particular category of labor is given by the equation

$$L_D = 20 - 2W.$$  

Suppose that the supply curve of workers in this market who are also native-born citizens is given by

$$L_N = 2W,$$

while the supply curve of immigrants (including illegal immigrants) in this market is given by

$$L_I = W.$$  

(This is the same information given in Problem 22 earlier in the chapter.) Suppose the government imposes a minimum wage (in real terms) of 6 that applies to all workers.

25a. Is the minimum wage binding? What would the market-clearing wage be in the absence of the minimum wage (assuming there are no restrictions on immigration)?

25b. What is the quantity of workers demanded at the minimum wage?
25c. What is the total quantity of workers supplied at the minimum wage? How many are native-born workers? How many are immigrants?

25d. How many native workers will actually be employed? How many immigrants will be employed?

25e. The 1986 Immigration Reform and Control Act (sometimes called the Simpson-Rodino Act) made it illegal for firms to hire illegal immigrants. Employers are required to verify if new employees are legal residents, and any firms consistently caught hiring illegal residents could face fines of up to $10,000. Suppose the law, by reducing the expected benefits of migration, has the desired effect of reducing the number of illegal immigrants in this market. In the context of this example, how many native workers will be hired for every immigrant that is not? Would your answer be the same if the minimum wage were not binding? (Based on the discussion in Chapter 5, how would the firm’s cost of complying with the immigration law be classified?)

25f. Another provision of the 1986 Immigration and Control Act was that illegal immigrants who had lived continuously in the United States since 1982 could apply for amnesty and legal resident status. After 5 additional years of continuous residence, these immigrants could then apply to be U.S. citizens. Based on the human capital investment framework, what effect would such a program have on the flow of illegal immigrants?

25g. According to The Wall Street Journal (September 1, 1992, p. A1), in California alone, approximately 1.5 million illegal immigrants took advantage of the amnesty program, and the first wave of applicants were eligible for citizenship on November 6, 1993. Citizenship also makes the former immigrants eligible for welfare assistance. What effect does the expansion of welfare eligibility have on the likelihood that the aggregate income (the sum of earnings, profits, and net government subsidies) of the native-born population will fall?

**Estimating the Earnings Growth of Immigrants**

26. Suppose that the earnings growth for an individual immigrant over time can be represented by the equation

\[ \ln Y_E = \ln Y_0 + rE, \]

where \( \ln \) is the natural logarithm function, \( Y_0 \) is the earnings level an immigrant can expect upon arrival, and \( Y_E \) represents the immigrant’s earnings after spending \( E \) years in the new country. The variable \( E \) is best thought of as the immigrant’s current age minus the age of arrival (e.g., 20 years). The rate of growth of an immigrant’s earnings \( (r) \) is assumed to be constant over time. (See Question 37 in Chapter 9 for a derivation of this equation in the context of educational investments.)

Consider a situation where there have been three waves of immigrants over time. Suppose that individuals in group A arrived at age 20 in 1950, while group B arrived at age 20 in 1970, and group C arrived at age 20 in 1990. The earnings growth for each group, as well as for native-born workers (group N), can be represented by the equations

Group N: \( \ln Y_E = 14 + 0.1E \),
Group A: \( \ln Y_E = 12 + 0.1E \),
Group B: \( \ln Y_E = 11 + 0.1E \),
Group C: \( \ln Y_E = 10 + 0.1E \).
Each group’s earnings are expected to grow at the same rate \( (r = 0.1) \) over time. However, holding all else constant, the later groups are assumed to have lower earnings prospects because of lower levels of productivity. Immigrants are also assumed to always earn less than native-born workers. These earnings schedules are shown in Figure 10-3.

![Figure 10-3](image)

*26a. Suppose that in 1990 a cross-section sample of immigrants is selected that contains one person who is 20 years old, one person who is 40, and one person who is 60. What growth rate of immigrant earnings will be inferred from this data?

*26b. Will the growth rate give an accurate impression of the growth rate of immigrant earnings relative to that of native-born workers? Based on this estimate, what conclusion are people likely to draw?

*27. As in the previous problem, consider a situation where there have been three waves of immigrants over time. Suppose that individuals in group A arrived at age 20 in 1950, while group B arrived at age 20 in 1970, and group C arrived at age 20 in 1990. Also suppose the earnings growth for each group can be represented by the equations

Group A: \( \ln Y_E = 10 + 0.1E \),

Group B: \( \ln Y_E = 12 + 0.1E \),

Group C: \( \ln Y_E = 14 + 0.1E \).

Each group’s earnings are expected to grow at the same rate \( (r = 0.1) \) over time. However, holding all else constant, the latter groups are assumed to have higher earnings prospects because of higher levels of productivity. These earnings schedules are shown in Figure 10-4.

![Figure 10-4](image)
27a. Suppose that in 1990 a cross-section sample of immigrants is selected that contains one person who is 20 years old, one person who is 40, and one person who is 60. What growth rate of immigrant earnings will be inferred from this data?

27b. What changes in methodology could be made to eliminate the bias that occurs in these situations?

27c. In what sense does the bias illustrated in this problem relate to the problems of ability bias and selection bias discussed in Chapter 9?