



CHAPTER 19

Earnings and Discrimination

In the United States today, the typical physician earns about \$200,000 a year, the typical police officer about \$60,000, and the typical fast-food cook about \$20,000. These examples illustrate the large differences in earnings that are so common in our economy. The differences explain why some people live in mansions, ride in limousines, and vacation on the French Riviera, while other people live in small apartments, ride the bus, and vacation in their own backyards.

Why do earnings vary so much from person to person? Chapter 18, which developed the basic neoclassical theory of the labor market, offers an answer to this question. There we saw that wages are governed by labor supply and labor demand. Labor demand, in turn, reflects the marginal productivity of labor. In equilibrium, each worker is paid the value of her marginal contribution to the economy's production of goods and services.

This theory of the labor market, though widely accepted by economists, is only the beginning of the story. To understand the wide variation in earnings



that we observe, we must go beyond this general framework and examine more precisely what determines the supply and demand for different types of labor. That is our goal in this chapter.

19-1 Some Determinants of Equilibrium Wages

Workers differ from one another in many ways. Jobs also have differing characteristics—both in terms of the wages they pay and in terms of their nonmonetary attributes. In this section, we consider how the characteristics of jobs and workers affect labor supply, labor demand, and equilibrium wages.

19-1a Compensating Differentials

When a worker is deciding whether to take a job, the wage is only one of many job attributes that the worker takes into account. Some jobs are easy, fun, and safe, while others are hard, dull, and dangerous. The better the job as gauged by these nonmonetary characteristics, the more people there are who are willing to do the job at any given wage. In other words, the supply of labor for easy, fun, and safe jobs is greater than the supply of labor for hard, dull, and dangerous jobs. As a result, “good” jobs will tend to have lower equilibrium wages than “bad” jobs.

For example, imagine you are looking for a summer job in a local beach community. Two kinds of jobs are available. You can take a job as a beach-badge checker, or you can take a job as a garbage collector. The beach-badge checkers take leisurely strolls along the beach during the day and check to make sure the tourists have bought the required beach permits. The garbage collectors wake up before dawn to drive dirty, noisy trucks around town to pick up garbage. Which job would you want? Most people would prefer the beach job if the wages were the same. To induce people to become garbage collectors, the town has to offer higher wages to garbage collectors than to beach-badge checkers.

Economists use the term **compensating differential** to refer to a difference in wages that arises from nonmonetary characteristics of different jobs. Compensating differentials are prevalent in the economy. Here are some examples:

- Coal miners are paid more than other workers with similar levels of education. Their higher wage compensates them for the dirty and dangerous nature of coal mining, as well as the long-term health problems that coal miners experience.
- Workers who work the night shift at factories are paid more than similar workers who work the day shift. The higher wage compensates them for having to work at night and sleep during the day, a lifestyle that most people find undesirable.
- Professors are paid less than lawyers and doctors, who have similar amounts of education. The higher wages of lawyers and doctors compensate them for missing out on the great intellectual and personal satisfaction that professors’ jobs offer. (Indeed, teaching economics is so much fun that it is surprising that economics professors are paid anything at all!)

19-1b Human Capital

As we discussed in the previous chapter, the word *capital* usually refers to an economy’s stock of equipment and structures. The capital stock includes the farmer’s

compensating differential
a difference in wages
that arises to offset
the nonmonetary
characteristics of
different jobs



“On the one hand, I know I could make more money if I left public service for the private sector, but, on the other hand, I couldn’t chop off heads.”

tractor, the manufacturer's factory, and the teacher's chalkboard. The essence of capital is that it is a factor of production that itself has been produced.

There is another type of capital that, while less tangible than physical capital, is just as important to the economy's production. **Human capital** is the accumulation of investments in people. The most important type of human capital is education. Like all forms of capital, education represents an expenditure of resources at one time to raise productivity in the future. But unlike an investment in other forms of capital, an investment in education is tied to a specific person, and this linkage is what makes it human capital.

human capital
the accumulation of
investments in people,
such as education and
on-the-job training

Not surprisingly, workers with more human capital earn more on average than those with less human capital. College graduates in the United States, for example, earn almost twice as much as those workers who end their education with a high school diploma. This large difference has been documented in many countries around the world. It tends to be even larger in less developed countries, where educated workers are in scarce supply.

From the perspective of supply and demand it is easy to see why education raises wages. Firms—the demanders of labor—are willing to pay more for highly educated workers because these workers have higher marginal products. Workers—the suppliers of labor—are willing to pay the cost of becoming educated only if there is a reward for doing so. In essence, the difference in wages between highly educated workers and less educated workers may be considered a compensating differential for the cost of becoming educated.

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The Increasing Value of Skills

"The rich get richer, and the poor get poorer." Like many adages, this one is not always true, but it has been in recent years. Many studies have documented that the earnings gap between workers with high skills and workers with low skills has increased over the past several decades.

Table 1 presents data on the average earnings of college graduates and of high school graduates without any additional education. These data show the increase in the financial reward from education. In 1975, a man on average earned 42 percent more with a college degree than without one; by 2011, this figure had risen to 75 percent. For a woman, the reward for attending college rose from a 35 percent increase in earnings in 1975 to an 81 percent increase in 2011. The incentive to stay in school is as great today as it has ever been.

Why has the gap in earnings between skilled and unskilled workers widened in recent years? No one knows for sure, but economists have proposed two hypotheses to explain this trend. Both hypotheses suggest that the demand for skilled labor has risen over time relative to the demand for unskilled labor. The shift in demand has led to a corresponding change in the wages of both groups, which in turn has led to greater inequality.

The first hypothesis is that international trade has altered the relative demand for skilled and unskilled labor. In recent years, the amount of trade with other countries has increased substantially. As a percentage of total U.S. production of goods and services, imports have risen from 5 percent in 1970 to 18 percent in 2011, and exports have risen from 6 percent in 1970 to 14 percent in 2011. Because unskilled labor is plentiful and cheap in many foreign countries, the United States tends to import goods produced with unskilled labor and export goods produced with skilled labor. Thus, when international trade expands, the domestic demand for skilled labor rises and the domestic demand for unskilled labor falls.

TABLE 1

Average Annual Earnings by Educational Attainment

College graduates have always earned more than workers without the benefit of college, but the salary gap has grown even larger over the past few decades.

	1975	2011
Men		
High school, no college	\$48,720	\$46,038
College graduates	\$69,146	\$80,508
Percent extra for college grads	+42%	+75%
Women		
High school, no college	\$28,066	\$32,249
College graduates	\$37,804	\$58,229
Percent extra for college grads	+35%	+81%

Note: Earnings data are adjusted for inflation and are expressed in 2011 dollars. Data apply to full-time, year-round workers age 18 and over. Data for college graduates exclude workers with additional schooling beyond college, such as a master’s degree or Ph.D.

Source: U.S. Census Bureau and author’s calculations.

IN THE NEWS

Higher Education as an Investment

Is a college degree a good investment compared with, say, stocks and bonds? According to the Hamilton Project, a research effort run by a prominent Washington think tank, the answer is a resounding “yes.”

Regardless of the Cost, College Still Matters

By Michael Greenstone and Adam Looney

As America continues its recovery from the Great Recession, there is an ongoing debate in the media and among policymakers about the value of a college degree in today’s economic climate. One issue that is receiving a significant amount of attention is the rising cost of college. Indeed, tuition has increased by almost 50 percent in the last 30 years, prompting some people to ask whether college is still worth the price of admission. In this month’s analysis, The Hamilton Project confirms its previous findings that the returns to college attendance are much higher than other investments, such as stocks, bonds, and real estate. We also find that the returns

to college have been largely constant over the last 35 years, indicating that the rising tuition costs have been offset by the increased earnings premium for college graduates. . . . In most respects, a college degree has never been more valuable. Recent college graduates earn more money and have an easier time finding employment than their peers who only have a high school diploma. What may be less intuitive is that these gaps have been growing in recent years. A young college graduate earned about \$4,000 more per year in the 1980s, adjusting for inflation, than someone of the same age who did not attend college (averaged across the entire population, not just those in the workforce). Over the last three decades, that figure has climbed to \$12,000 per year. Differences in employment rates between college graduates and non-graduates have



not demonstrated as clear of a trend over this period, with one key exception. In recent years—particularly in the aftermath of the Great Recession—college has become an increasingly important determinant of one’s employment status. Today, a college graduate is almost 20 percentage points more likely to be employed than someone with only a high school diploma. This “employment gap” between college and high school graduates is the largest in our nation’s history. . . . While the evidence is clear about the life-long value of more education, skeptics are increasingly pointing to rising tuition costs to claim that college is not as sound of an investment as it once was. And it is true that tuition has increased significantly over the past few decades. In 1980, it cost an average of about

The second hypothesis is that changes in technology have altered the relative demand for skilled and unskilled labor. Consider, for instance, the introduction of computers. Computers raise the demand for skilled workers who can use the new machines and reduce the demand for the unskilled workers whose jobs are replaced by the computers. For example, many companies now rely more on computer databases, and less on filing cabinets, to keep business records. This change raises the demand for computer programmers and reduces the demand for filing clerks. Thus, as more firms use computers, the demand for skilled labor rises and the demand for unskilled labor falls.

Economists have found it difficult to gauge the validity of these two hypotheses. It is possible that both are true: Increasing international trade and technological change may share responsibility for the increasing income inequality we have observed in recent decades. In the next chapter, we discuss the issue of increasing inequality in more detail. ▲

19-1c Ability, Effort, and Chance

Why do major league baseball players get paid more than minor league players? Certainly, the higher wage is not a compensating differential. Playing in the major leagues is not a less pleasant job than playing in the minor leagues; in fact, the opposite is true. The major leagues do not require more years of schooling or

\$56,000 (adjusting for inflation) to attend a university for four years. This figure includes tuition, fees, and the “opportunity cost,” or income one foregoes to attend school instead of holding a job. (This figure excludes room and board: one must eat and sleep whether she is in college or not.) In 2010, four years of college cost more than \$82,000, a nearly 50 percent increase over that 30-year period.

This increase in tuition is based on calculations from the National Center for Education Statistics but it may overstate the rise in the costs of college. First, this rise in tuition does not account for recent increases in financial aid. Thus, while the sticker price of college may have gone up, it is unclear to what extent the cost to students and their families has increased. Indeed, according to the College Board, the actual cost of a four-year degree has remained relatively constant over the last 15 years.

Regardless of the magnitude of the exact increase in tuition, a sole focus on the cost of college is misleading because it only tells half of the story. Specifically, the monetary benefits of a college degree have increased dramatically over the last few decades. An individual

who entered college in 1980 could expect to earn about \$260,000 more over the course of her life compared to someone who received only a high school diploma. In contrast, for someone starting college in 2010, the expected lifetime increase in earnings relative to a high school graduate was more than \$450,000. These estimates are adjusted both for inflation and the fact that most of this additional income will come much later in a graduate's life.

Even if we assume that all students actually pay tuition at the published rates, the bottom line is this: while college may be 50 percent more expensive now than it was 30 years ago, the increase to lifetime earnings that a college degree brings is 75 percent higher. In short, the cost of college is growing, but the benefits of college—and, by extension, the cost of not going to college—are growing even faster.

The returns to an investment in a college education, therefore, are high. The Hamilton Project estimated that investing in a four-year degree yields a return of above 15 percent. While this is down slightly from almost 18 percent in the late '90s, attending college remains one of the best ways one can invest

her money. The return to college is more than double the average return over the last 60 years experienced in the stock market (6.8 percent), and more than five times the return to investments in corporate bonds (2.9 percent), gold (2.3 percent), long-term government bonds (2.2 percent), or housing (0.4 percent).

The cost of college can be daunting for many families, but it is precisely because college is such a sound investment that there is an important role for government to ensure that loan programs are plentiful and accessible. The nation and the economy are strengthened when college attendance is determined by students' abilities, not their families' financial background. Indeed, it is not just the direct recipients of these loans that benefit from the increased number of Americans who are able to go to college. One recent study showed that even individuals with only a high school diploma earn more when they live in cities populated with more college graduates. More education is not just good for individuals; it's a good investment for the broader community. ▲

Source: The Hamilton Project at the Brookings Institution, October 5, 2012.

more experience. To a large extent, players in the major leagues earn more just because they have greater natural ability.

Natural ability is important for workers in all occupations. Because of heredity and upbringing, people differ in their physical and mental attributes. Some people are strong, others weak. Some people are smart, others less so. Some people are outgoing, others awkward in social situations. These and many other personal characteristics determine how productive workers are and, therefore, play a role in determining the wages they earn.

Closely related to ability is effort. Some people work hard; others are lazy. We should not be surprised to find that those who work hard are more productive and earn higher wages. To some extent, firms reward workers directly by paying people based on what they produce. Salespeople, for instance, are often paid a percentage of the sales they make. At other times, hard work is rewarded less directly in the form of a higher annual salary or a bonus.

Chance also plays a role in determining wages. If a person attended a trade school to learn how to repair televisions with vacuum tubes and then found this skill made obsolete by the invention of solid-state electronics, she would end up earning a low wage compared to others with similar years of training. The low wage of this worker is due to chance—a phenomenon that economists recognize but do not shed much light on.

How important are ability, effort, and chance in determining wages? It is hard to say because these factors are difficult to measure. But indirect evidence suggests that they are very important. When labor economists study wages, they relate a worker's wage to those variables that can be measured, such as years of schooling, years of experience, age, and job characteristics. All these measured variables affect a worker's wage as theory predicts, but they account for less than half of the variation in wages in our economy. Because so much of the variation in wages is left unexplained, omitted variables, including ability, effort, and chance, must play an important role.

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The Benefits of Beauty

People differ in many ways, one of which is physical attractiveness. The actor Ryan Gosling, for instance, is a handsome man. In part for this reason, his movies attract large audiences. Not surprisingly, the large audiences mean a large income for Mr. Gosling.

How prevalent are the economic benefits of beauty? Labor economists Daniel Hamermesh and Jeff Biddle tried to answer this question in a study published in the December 1994 issue of the *American Economic Review*. Hamermesh and Biddle examined data from surveys of individuals in the United States and Canada. The interviewers who conducted the survey were asked to rate each respondent's physical appearance. Hamermesh and Biddle then examined how much the wages of the respondents depended on the standard determinants—education, experience, and so on—and how much they depended on physical appearance.

Hamermesh and Biddle found that beauty pays. People who are deemed more attractive than average earn 5 percent more than people of average looks, and people of average looks earn 5 to 10 percent more than people considered less attractive than average. Similar results were found for men and women.

What explains these differences in wages? There are several ways to interpret the "beauty premium."

One interpretation is that good looks are themselves a type of innate ability determining productivity and wages. Some people are born with the physical attributes of a movie star; other people are not. Good looks are useful in any job in which workers present themselves to the public—such as acting, sales, and waiting on tables. In this case, an attractive worker is more valuable to the firm than an unattractive worker. The firm's willingness to pay more to attractive workers reflects its customers' preferences.

A second interpretation is that reported beauty is an indirect measure of other types of ability. How attractive a person appears depends on more than just heredity. It also depends on dress, hairstyle, personal demeanor, and other attributes that a person can control. Perhaps a person who successfully projects an attractive image in a survey interview is more likely to be an intelligent person who succeeds at other tasks as well.

A third interpretation is that the beauty premium is a type of discrimination, a topic to which we return later. ▀

19-1d An Alternative View of Education: Signaling

Earlier we discussed the human-capital view of education, according to which schooling raises workers' wages because it makes them more productive. Although this view is widely accepted, some economists have proposed an alternative theory, which emphasizes that firms use educational attainment as a way of sorting between high-ability and low-ability workers. According to this alternative view, when people earn a college degree, for instance, they do not become more productive, but they do *signal* their high ability to prospective employers. Because it is easier for high-ability people to earn a college degree than it is for low-ability people, more high-ability people get college degrees. As a result, it is rational for firms to interpret a college degree as a signal of ability.

The signaling theory of education is similar to the signaling theory of advertising discussed in Chapter 16. In the signaling theory of advertising, the advertisement itself contains no real information, but the firm signals the quality of its product to consumers by its willingness to spend money on advertising. In the signaling theory of education, schooling has no real productivity benefit, but the worker signals her innate productivity to employers by her willingness to spend years at school. In both cases, an action is being taken not for its intrinsic benefit but because the willingness to take that action conveys private information to someone observing it.

Thus, we now have two views of education: the human-capital theory and the signaling theory. Both views can explain why more educated workers tend to earn more than less educated workers. According to the human-capital view, education makes workers more productive; according to the signaling view, education is correlated with natural ability. But the two views have radically different predictions for the effects of policies that aim to increase educational attainment. According to the human-capital view, increasing educational levels for all workers would raise all workers' productivity and thereby their wages. According to the signaling view, education does not enhance productivity, so raising all workers' educational levels would not affect wages.

Most likely, the truth lies somewhere between these two extremes. The benefits to education are probably a combination of the productivity-enhancing effects of human capital and the productivity-revealing effects of signaling. The relative size of these two effects is an open question.



cinemafestival/Shutterstock.com

Good looks pay.

19-1e The Superstar Phenomenon

Although most actors earn little and often take jobs as waiters to support themselves, Leonardo DiCaprio earns millions of dollars for each film he makes. Similarly, while most people who play tennis do it for free as a hobby, Maria Sharapova earns millions on the pro tour. DiCaprio and Sharapova are superstars in their fields, and their great public appeal is reflected in astronomical incomes.

Why do DiCaprio and Sharapova earn so much? It is not surprising that incomes differ within occupations. Good carpenters earn more than mediocre carpenters, and good plumbers earn more than mediocre plumbers. People vary in ability and effort, and these differences lead to differences in income. Yet the best carpenters and plumbers do not earn the many millions that are common among the best actors and athletes. What explains the difference?

To understand the tremendous incomes of DiCaprio and Sharapova, we must examine the special features of the markets in which they sell their services. Superstars arise in markets that have two characteristics:

- Every customer in the market wants to enjoy the good supplied by the best producer.
- The good is produced with a technology that makes it possible for the best producer to supply every customer at low cost.

If Leonardo DiCaprio is the best actor around, then everyone will want to see his next movie; seeing twice as many movies by an actor half as talented is not a good substitute. Moreover, it is *possible* for everyone to enjoy a performance by Leonardo DiCaprio. Because it is easy to make multiple copies of a film, DiCaprio can provide his service to millions of people simultaneously. Similarly, because tennis matches are broadcast on television, millions of fans can enjoy the extraordinary athletic skills of Maria Sharapova.

We can now see why there are no superstar carpenters and plumbers. Other things being equal, everyone prefers to employ the best carpenter, but a carpenter, unlike a movie actor, can provide her services to only a limited number of customers. Although the best carpenter will be able to command a somewhat higher wage than the average carpenter, the average carpenter will still be able to earn a good living.

19-1f Above-Equilibrium Wages: Minimum-Wage Laws, Unions, and Efficiency Wages

Most analyses of wage differences among workers are based on the equilibrium model of the labor market—that is, wages are assumed to adjust to balance labor supply and labor demand. But this assumption does not always apply. For some workers, wages are set above the level that brings supply and demand into equilibrium. Let's consider three reasons this might be so.

One reason for above-equilibrium wages is minimum-wage laws, as we first saw in Chapter 6. Most workers in the economy are not affected by these laws because their equilibrium wages are well above the legal minimum. But for some workers, especially the least skilled and experienced, minimum-wage laws raise wages above the level they would earn in an unregulated labor market.

A second reason that wages might rise above their equilibrium level is the market power of labor unions. A **union** is a worker association that bargains with employers over wages and working conditions. Unions often raise wages above the level that would prevail in their absence perhaps because they can threaten

union

a worker association that bargains with employers over wages and working conditions

to withhold labor from the firm by calling a **strike**. Studies suggest that union workers earn about 10 to 20 percent more than similar, nonunion workers.

A third reason for above-equilibrium wages is suggested by the theory of **efficiency wages**. This theory holds that a firm can find it profitable to pay high wages because doing so increases the productivity of its workers. In particular, high wages may reduce worker turnover, increase worker effort, and raise the quality of workers who apply for jobs at the firm. If this theory is correct, then some firms may choose to pay their workers more than they would normally earn.

Above-equilibrium wages, whether caused by minimum-wage laws, unions, or efficiency wages, have similar effects on the labor market. In particular, pushing a wage above the equilibrium level raises the quantity of labor supplied and reduces the quantity of labor demanded. The result is a surplus of labor, or unemployment. The study of unemployment and the public policies aimed to deal with it is usually considered a topic within macroeconomics, so it goes beyond the scope of this chapter. But it would be a mistake to ignore these issues completely when analyzing earnings. Although most wage differences can be understood while maintaining the assumption of equilibrium in the labor market, above-equilibrium wages play a role in some cases.

strike

the organized withdrawal of labor from a firm by a union

efficiency wages

above-equilibrium wages paid by firms to increase worker productivity

Quick Quiz Define compensating differential and give an example. • Give two reasons why more educated workers earn more than less educated workers.

19-2 The Economics of Discrimination

Another source of differences in wages is discrimination. **Discrimination** occurs when the marketplace offers different opportunities to similar individuals who differ only by race, ethnic group, sex, age, or other personal characteristics. Discrimination reflects some people's prejudice against certain groups in society. Discrimination is an emotionally charged topic that often generates heated debate, but economists try to study the topic objectively to separate myth from reality.

discrimination

the offering of different opportunities to similar individuals who differ only by race, ethnic group, sex, age, or other personal characteristics

19-2a Measuring Labor-Market Discrimination

How much does discrimination in labor markets affect the earnings of different groups of workers? This question is important, but answering it is not easy.

There is no doubt that different groups of workers earn substantially different wages, as Table 2 demonstrates. The median black man in the United States is paid

TABLE 2

Median Annual Earnings by Race and Sex

	White	Black	Percent by Which Earnings Are Lower for Black Workers
Men	\$50,070	\$39,483	21 %
Women	\$37,719	\$33,501	11 %
Percent by Which Earnings Are Lower for Women Workers	25 %	15 %	

Note: Earnings data are for the year 2011 and apply to full-time, year-round workers age 14 and over.

Source: U.S. Census Bureau.

21 percent less than the median white man, and the median black woman is paid 11 percent less than the median white woman. The differences by sex are also significant. The median white woman is paid 25 percent less than the median white man, and the median black woman is paid 15 percent less than the median black man. Taken at face value, these differentials look like evidence that employers discriminate against blacks and women.

Yet there is a potential problem with this inference. Even in a labor market free of discrimination, different people have different wages. People differ in the amount of human capital they have and in the kinds of work they are able and willing to do. The wage differences we observe in an economy are, to some extent, attributable to the determinants of equilibrium wages we discussed in the preceding section. Simply observing differences in wages among broad groups—whites and blacks, men and women—does not prove that employers discriminate.

Consider, for example, the role of human capital. In 2011, among men age 25 and older, 32 percent of the white population had a college degree, compared with 18 percent of the black population. Among women age 25 and older, 31 percent of the white population had a college degree, compared with 21 percent of the black population. Thus, at least some of the difference between the wages of whites and the wages of blacks can be traced to differences in educational attainment.

Moreover, human capital may be more important in explaining wage differentials than years of schooling suggest. Historically, public schools in predominantly black areas have been of lower quality—as measured by expenditure, class size, and so on—than public schools in predominantly white areas. If we could measure the quality as well as the quantity of education, the differences in human capital among these groups would seem even larger.

Human capital acquired in the form of job experience can also help explain wage differences. In particular, women are more likely to interrupt their careers to raise children. Among the population aged 25 to 34 (when many people have small children at home), only 75 percent of women are in the labor force, compared to 90 percent of men. As a result, female workers, especially at older ages, tend to have less job experience than male workers.

Yet another source of wage differences is compensating differentials. Men and women do not always choose the same type of work, and this fact may help explain some of the earnings differential between men and women. For example, women are more likely to be secretaries, and men are more likely to be truck drivers. The relative wages of secretaries and truck drivers depend in part on the working conditions of each job. Because these nonmonetary aspects are hard to measure, it is difficult to gauge the practical importance of compensating differentials in explaining the wage differences that we observe.

In the end, the study of wage differences among groups does not establish any clear conclusion about the prevalence of discrimination in U.S. labor markets. Most economists believe that some of the observed wage differentials are attributable to discrimination, but there is no consensus about how much. The only conclusion about which economists are in consensus is a negative one: Because the differences in average wages among groups in part reflect differences in human capital and job characteristics, they do not by themselves say anything about how much discrimination there is in the labor market.

Of course, differences in human capital among groups of workers may also reflect a kind of discrimination. The less rigorous curriculums historically offered to female students, for instance, can be considered a discriminatory practice. Similarly, the inferior schools historically available to black students may be

traced to prejudice on the part of city councils and school boards. But this kind of discrimination occurs long before the worker enters the labor market. In this case, the disease is political, even if the symptom is economic.

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Is Emily More Employable than Lakisha?

Although measuring the extent of discrimination from labor-market outcomes is hard, some compelling evidence for the existence of such discrimination comes from a creative “field experiment.” Economists Marianne Bertrand and Sendhil Mullainathan answered more than 1,300 help-wanted ads run in Boston and Chicago newspapers by sending in nearly 5,000 fake résumés. Half of the résumés had names that were common in the African-American community, such as Lakisha Washington or Jamal Jones. The other half had names that were more common among the white population, such as Emily Walsh and Greg Baker. Otherwise, the résumés were similar. The results of this experiment were published in the *American Economic Review* in September 2004.

The researchers found large differences in how employers responded to the two groups of résumés. Job applicants with white names received about 50 percent more calls from interested employers than applicants with African-American names. The study found that this discrimination occurred for all types of employers, including those who claimed to be an “Equal Opportunity Employer” in their help-wanted ads. The researchers concluded that “racial discrimination is still a prominent feature of the labor market.” ▲

19-2b Discrimination by Employers

Let’s now turn from measurement to the economic forces that lie behind discrimination in labor markets. If one group in society receives a lower wage than another group, even after controlling for human capital and job characteristics, who is to blame for this differential?

The answer is not obvious. It might seem natural to blame employers for discriminatory wage differences. After all, employers make the hiring decisions that determine labor demand and wages. If some groups of workers earn lower wages than they should, then it seems that employers are responsible. Yet many economists are skeptical of this easy answer. They believe that competitive, market economies provide a natural antidote to employer discrimination. That antidote is called the profit motive.

Imagine an economy in which workers are differentiated by their hair color. Blondes and brunettes have the same skills, experience, and work ethic. Yet because of discrimination, employers prefer to hire workers with brunette hair. Thus, the demand for blondes is lower than it otherwise would be. As a result, blondes earn a lower wage than brunettes.

How long can this wage differential persist? In this economy, there is an easy way for a firm to beat out its competitors: It can hire blonde workers. By hiring blondes, a firm pays lower wages and thus has lower costs than firms that hire brunettes. Over time, more and more “blonde” firms enter the market to take advantage of this cost advantage. The existing “brunette” firms have higher costs and, therefore, begin to lose money when faced with the new competitors. These losses induce the brunette firms to go out of business. Eventually, the entry of blonde firms and the exit of brunette firms cause the demand for blonde workers

to rise and the demand for brunette workers to fall. This process continues until the wage differential disappears.

Put simply, business owners who care only about making money are at an advantage when competing against those who also care about discriminating. As a result, firms that do not discriminate tend to replace those that do. In this way, competitive markets have a natural remedy for employer discrimination.

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Segregated Streetcars and the Profit Motive

In the early 20th century, streetcars in many southern cities were segregated by race. White passengers sat in the front of the streetcars, and black passengers sat in the back. What do you suppose caused and maintained this discriminatory practice? And how was this practice viewed by the firms that ran the streetcars?

In a 1986 article in the *Journal of Economic History*, economic historian Jennifer Roback looked at these questions. Roback found that the segregation of races on streetcars was the result of laws that required such segregation. Before these laws were passed, racial discrimination in seating was rare. It was far more common to segregate smokers and nonsmokers.

Moreover, the firms that ran the streetcars often opposed the laws requiring racial segregation. Providing separate seating for different races raised the firms' costs and reduced their profits. One railroad company manager complained to the city council that, under the segregation laws, "the company has to haul around a good deal of empty space."

Here is how Roback describes the situation in one southern city:

The railroad company did not initiate the segregation policy and was not at all eager to abide by it. State legislation, public agitation, and a threat to arrest the president of the railroad were all required to induce them to separate the races on their cars.... There is no indication that the management was motivated by belief in civil rights or racial equality. The evidence indicates their primary motives were economic; separation was costly.... Officials of the company may or may not have disliked blacks, but they were not willing to forgo the profits necessary to indulge such prejudice.

The story of southern streetcars illustrates a general lesson: Business owners are usually more interested in making profits than in discriminating against a particular group. When firms engage in discriminatory practices, the ultimate source of the discrimination often lies not with the firms themselves but elsewhere. In this particular case, the streetcar companies segregated whites and blacks because discriminatory laws, which the companies opposed, required them to do so. ▀

19-2c Discrimination by Customers and Governments

The profit motive is a strong force acting to eliminate discriminatory wage differentials, but there are limits to its corrective abilities. Two important limiting factors are customer preferences and government policies.

To see how customer preferences for discrimination can affect wages, consider again our imaginary economy with blondes and brunettes. Suppose that restaurant owners discriminate against blondes when hiring waiters. As a result, blonde waiters earn lower wages than brunette waiters. In this case, a restaurant can open up with blonde waiters and charge lower prices. If customers care only about the

quality and price of their meals, the discriminatory firms will be driven out of business, and the wage differential will disappear.

On the other hand, it is possible that customers prefer being served by brunette waiters. If this discriminatory preference is strong, the entry of blonde restaurants need not succeed in eliminating the wage differential between brunettes and blondes. That is, if customers have discriminatory preferences, a competitive market is consistent with a discriminatory wage differential. An economy with such discrimination would contain two types of restaurants. Blonde restaurants hire blondes, have lower costs, and charge lower prices. Brunette restaurants hire brunettes, have higher costs, and charge higher prices. Customers who did not care about the hair color of their waiters would be attracted to the lower prices at the blonde restaurants. Bigoted customers would go to the brunette restaurants and would pay for their discriminatory preference in the form of higher prices.

Another way for discrimination to persist in competitive markets is for the government to mandate discriminatory practices. If, for instance, the government passed a law stating that blondes could wash dishes in restaurants but could not work as waiters, then a wage differential could persist in a competitive market. The example of segregated streetcars in the previous case study is one example of government-mandated discrimination. Similarly, before South Africa abandoned its formal policy of racial segregation called apartheid in 1990, blacks were prohibited from working in some jobs. Discriminatory governments pass such laws to suppress the normal equalizing force of free and competitive markets.

To sum up: *Competitive markets contain a natural remedy for employer discrimination. The entry of firms that care only about profit tends to eliminate discriminatory wage differentials. These wage differentials persist in competitive markets only when customers are willing to pay to maintain the discriminatory practice or when the government mandates it.*

case study

Discrimination in Sports

As we have seen, measuring discrimination is often difficult. To determine whether one group of workers is discriminated against, a researcher must correct for differences in the productivity between that group and other workers in the economy. Yet in most firms, it is difficult to measure a particular worker's contribution to the production of goods and services.

One type of firm in which such measurements are easier is the sports team. Professional teams have many objective measures of productivity. In baseball, for instance, we can measure a player's batting average, the frequency of home runs, the number of stolen bases, and so on.

Studies of sports teams suggest that racial discrimination has, in fact, been common and that much of the blame lies with customers. One study, published in the *Journal of Labor Economics* in 1988, examined the salaries of basketball players and found that black players earned 20 percent less than white players of comparable ability. The study also found that attendance at basketball games was larger for teams with a greater proportion of white players. One interpretation of these facts is that, at least at the time of the study, customer discrimination made black players less profitable than white players for team owners. In the presence of such customer discrimination, a discriminatory wage gap can persist, even if team owners care only about profit.

A similar situation once existed for baseball players. A study using data from the late 1960s showed that black players earned less than comparable white

IN THE NEWS

Gender Differences

Economic research is shedding light on why men and women choose different career paths.

The Difference between Men and Women, Revisited: It's about Competition

By Hal R. Varian

Gender differences are a topic of endless discussion for parents, teachers and social scientists. . . . A noteworthy case in point is a recent National Bureau of Economic Research working paper by a Stanford economist, Muriel Niederle, and Lise Vesterlund, a University of Pittsburgh economist, titled, “Do Women Shy Away From Competition? Do Men Compete Too Much?”

It is widely noted that women are not well represented in high-paying corporate jobs,

or in mathematics, science and engineering jobs. As the authors observe, the “standard economic explanations for such occupational differences include preferences, ability and discrimination.”

To this list the authors add a new factor: attitudes toward competitive environments. If men prefer more competitive environments than women, then there will be more men represented in areas where competition is intense.

Of course, discussions of gender differences of any sort can only be statements about averages; it is clear that there are women who thrive in competitive environments and men who do not. Furthermore, attitudes toward competition may be ingrained or a result of factors like social stereotyping.



Is there any evidence that the hypothesis is true? Do men really prefer more competitive environments than women? One could cite anecdote after anecdote, but the authors took a much more direct approach: they ran an experiment.

By using an experiment, the authors were able to determine not only whether men and women differ in their willingness to compete, but more important, whether they differ in their willingness to compete conditioned on their actual performance.

The economists asked 80 subjects, divided into groups of two women and two men, to add up sets of five two-digit

players. Moreover, fewer fans attended games pitched by blacks than games pitched by whites, even though black pitchers had better records than white pitchers. Studies of more recent salaries in baseball, however, have found no evidence of discriminatory wage differentials.

Another study, published in the *Quarterly Journal of Economics* in 1990, examined the market prices of old baseball cards. This study found similar evidence of discrimination. The cards of black hitters sold for 10 percent less than the cards of comparable white hitters, and the cards of black pitchers sold for 13 percent less than the cards of comparable white pitchers. These results suggest customer discrimination among baseball fans. ▲

Quick Quiz Why is it hard to establish whether a group of workers is being discriminated against? • Explain how profit-maximizing firms tend to eliminate discriminatory wage differentials. • How might a discriminatory wage differential persist?

19-3 Conclusion

In competitive markets, workers earn a wage equal to the value of their marginal contribution to the production of goods and services. There are, however, many things that affect the value of the marginal product. Firms pay more for workers who are more talented, more diligent, more experienced, and more educated

numbers for five minutes. The subjects performed the task first on a piece-rate basis (50 cents for each correct answer) and then as a tournament (the person with the most correct answers in each group received \$2 per correct answer, while other participants received nothing). Note that a subject with a 25 percent chance of being a winner in the tournament received the same average payment as in the piece-rate system.

All participants were told how many problems they got right, but not their relative performance. After completing the two tasks, the subjects were asked to choose whether they preferred a piece-rate system or a tournament for the third set of problems.

There were several interesting findings in this experiment. First, there were no differences between men and women in their performance under either compensation system. Despite this, twice as many men selected the tournament as women (75 percent versus 35 percent).

Even if one accounts for performance by comparing only men and women with the

same number of correct answers, the women have a 38 percent lower probability of choosing the tournament compensation.

Why were the men much more likely to choose the tournament? Perhaps it was because they felt more confident about their abilities. The data support this hypothesis, with 75 percent of the men believing that they won their four-player tournament, while 43 percent of the women thought they were best in their group.

Though both groups were overconfident about their performance, the men were much more so.... The results of this experiment are consistent with the finding by a Berkeley finance professor, Terry Odean, that men trade stocks excessively, apparently because they (wrongly) feel that they have exceptional ability to pick winners. Women trade less, but do better on average, because they are more likely to follow a buy-and-hold strategy.

The authors summarized their experimental results by saying, "From a payoff-maximizing perspective, high-performing women enter the tournament too rarely, and low-performing men

enter the tournament too often." The low-performing men and the high-performing women are both hurt by this behavior but, in this experiment at least, the costs to the women who did not choose the tournament when they should have exceeded the costs to the men who should have avoided the tournament.

One should not read too much into one study. But if it is really true that women choose occupations that involve less competition, then one may well ask why. Sociobiologists may suggest that such differences come from genetic propensities; sociologists may argue for differences in social roles and expectations; developmental psychologists may emphasize child-rearing practices. Whatever the cause, Ms. Niederle and Ms. Vesterlund have certainly raised a host of interesting and important questions.

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Source: *New York Times*, March 9, 2006.

because these workers are more productive. Firms pay less to those workers against whom customers discriminate because these workers contribute less to revenue.

The theory of the labor market we have developed in the last two chapters explains why some workers earn higher wages than other workers. The theory does not say that the resulting distribution of income is equal, fair, or desirable in any way. That is the topic we take up in Chapter 20.

Summary

- Workers earn different wages for many reasons. To some extent, wage differentials compensate workers for job attributes. Other things being equal, workers in hard, unpleasant jobs are paid more than workers in easy, pleasant jobs.
- Workers with more human capital are paid more than workers with less human capital. The return to accumulating human capital is high and has increased over the past several decades.
- Although years of education, experience, and job characteristics affect earnings as theory predicts, there is much variation in earnings that cannot be explained by things that economists can measure. The unexplained variation in earnings is largely attributable to natural ability, effort, and chance.
- Some economists have suggested that more educated workers earn higher wages not because education raises productivity but because workers with high natural ability use education as a way to signal their high ability to employers. If this signaling theory is correct, then increasing the educational attainment of all workers would not raise the overall level of wages.

- Wages are sometimes pushed above the level that brings supply and demand into balance. Three reasons for above-equilibrium wages are minimum-wage laws, unions, and efficiency wages.
- Some differences in earnings are attributable to discrimination based on race, sex, or other factors. Measuring the amount of discrimination is difficult, however, because one must correct for differences in human capital and job characteristics.
- Competitive markets tend to limit the impact of discrimination on wages. If the wages of a group of workers are lower than those of another group for reasons not related to marginal productivity, then nondiscriminatory firms will be more profitable than discriminatory firms. Profit-maximizing behavior, therefore, can reduce discriminatory wage differentials. Discrimination persists in competitive markets, however, if customers are willing to pay more to discriminatory firms or if the government passes laws requiring firms to discriminate.

Key Concepts

compensating differential, *p.* 396
human capital, *p.* 397

union, *p.* 402
strike, *p.* 403

efficiency wages, *p.* 403
discrimination, *p.* 403

Questions for Review

1. Why are coal miners paid more than other workers with similar amounts of education?
2. In what sense is education a type of capital?
3. How might education raise a worker's wage without raising the worker's productivity?
4. What conditions lead to highly compensated superstars? Would you expect to see superstars in dentistry? In music? Explain.
5. Give three reasons a worker's wage might be above the level that balances supply and demand.
6. What difficulties arise in deciding whether a group of workers has a lower wage because of discrimination?
7. Do the forces of economic competition tend to exacerbate or ameliorate discrimination based on race?
8. Give an example of how discrimination might persist in a competitive market.

Quick Check Multiple Choice

1. Ricky leaves his job as a high school math teacher and returns to school to study the latest developments in computer programming, after which he takes a higher-paying job at a software firm. This is an example of
 - a. a compensating differential.
 - b. human capital.
 - c. signaling.
 - d. efficiency wages.
2. Lucy and Ethel work at a local department store. Lucy, who greets customers as they arrive, is paid less than Ethel, who cleans the bathrooms. This is an example of
 - a. a compensating differential.
 - b. human capital.
 - c. signaling.
 - d. efficiency wages.
3. Fred runs a small manufacturing company. He pays his employees about twice what other firms in the area pay, even though he could pay less and still recruit all the workers he wants. He believes that higher wages make his workers more loyal and hard-working. This is an example of
 - a. a compensating differential.
 - b. human capital.
 - c. signaling.
 - d. efficiency wages.
4. A business consulting firm hires Vivian because she was a math major in college. Her new job does not require any of the mathematics she learned, but the firm believes that anyone who can graduate with a math degree must be very smart. This is an example of
 - a. a compensating differential.
 - b. human capital.
 - c. signaling.
 - d. efficiency wages.
5. Measuring how much discrimination affects labor market outcomes is difficult because
 - a. data on wages are crucial but not readily available.
 - b. firms misreport the wages they pay to hide discriminatory practices.
 - c. workers differ in their attributes and the types of jobs they have.
 - d. the same minimum-wage law applies to workers in all groups.
6. The forces of competition in markets with free entry and exit tend to eliminate wage differentials that arise from discrimination by
 - a. employers.
 - b. customers.
 - c. government.
 - d. all of the above.

Problems and Applications

1. College students sometimes work as summer interns for private firms or the government. Many of these positions pay little or nothing.
 - a. What is the opportunity cost of taking such a job?
 - b. Explain why students are willing to take these jobs.
 - c. If you were to compare the earnings later in life of workers who had worked as interns and those who had taken summer jobs that paid more, what would you expect to find?
2. As explained in Chapter 6, a minimum-wage law distorts the market for low-wage labor. To reduce this distortion, some economists advocate a two-tiered minimum-wage system, with a regular minimum wage for adult workers and a lower, “subminimum” wage for teenage workers. Give two reasons a single minimum wage might distort the labor market for teenage workers more than it would the market for adult workers.
3. A basic finding of labor economics is that workers who have more experience in the labor force are paid more than workers who have less experience (holding constant the amount of formal education). Why might this be so? Some studies have also found that experience at the same job (called *job tenure*) has an extra positive influence on wages. Explain why this might occur.
4. At some colleges and universities, economics professors receive higher salaries than professors in some other fields.
 - a. Why might this be true?
 - b. Some other colleges and universities have a policy of paying equal salaries to professors in all fields. At some of these schools, economics professors have lighter teaching loads than professors in some other fields. What role do the differences in teaching loads play?
5. Imagine that someone offered you a choice: You could spend 4 years studying at the world’s best university, but you would have to keep your attendance there a secret. Or you could be awarded an official degree from the world’s best university, but you couldn’t actually attend. Which choice do you think would enhance your future earnings more? What does your answer say about the debate over signaling versus human capital in the role of education?
6. When recording devices were first invented more than 100 years ago, musicians could suddenly supply their music to large audiences at low cost. How do you suppose this development affected the income of the best musicians? How do you suppose it affected the income of average musicians?
7. A current debate in education is whether teachers should be paid on a standard pay scale based solely upon their years of training and teaching experience, or whether part of their salary should be based upon their performance (called “merit pay”).
 - a. Why might merit pay be desirable?
 - b. Who might be opposed to a system of merit pay?
 - c. What is a potential challenge of merit pay?
 - d. A related issue: Why might a school district decide to pay teachers significantly more than the salaries offered by surrounding districts?
8. When Alan Greenspan (who would later become chairman of the Federal Reserve) ran an economic consulting firm in the 1960s, he primarily hired female economists. He once told the *New York Times*, “I always valued men and women equally, and I found that because others did not, good women economists were cheaper than men.” Is Greenspan’s behavior profit-maximizing? Is it admirable or despicable? If more employers were like Greenspan, what would happen to the wage differential between men and women? Why might other economic consulting firms at the time not have followed Greenspan’s business strategy?
9. This chapter considers the economics of discrimination by employers, customers, and governments. Now consider discrimination by workers. Suppose that some brunette workers do not like working with blonde workers. Can this worker discrimination explain lower wages for blonde workers? If such a wage differential existed, what would a profit-maximizing entrepreneur do? If there were many such entrepreneurs, what would happen over time?

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