

# Chapter 1

## Introduction

- **Summary**

Labor market issues dominate our lives and the lives of those around us. It is almost impossible to read a newspaper or watch a television news program without encountering a story related to jobs, wages, education, discrimination, unemployment, or a similar topic. The purpose of *Modern Labor Economics* is to provide a logical framework for thinking critically about these kinds of issues.

To think critically one must have information to bring to bear on the issues. A publisher of an introductory economics text, for example, does not rely primarily on the reviews of introductory students, but rather on the reviews of experienced professors. Why? Students with no background in economics would simply be reading the text for content, to try to understand what was written. In contrast, a professor who is already familiar with the topics would be able to assess whether the text contributed anything original, or whether there were better ways to handle a particular topic. The theories and evidence presented in *Modern Labor Economics* are designed to give the reader knowledge of how labor market variables are linked together. These relationships can then be drawn upon to analyze different labor market issues, particularly the effects of various government policies on wages and employment.

Labor economics centers on the **labor market**. Labor markets are different from most other markets because labor can only be rented; workers cannot be bought and sold. There are thus many **nonpecuniary factors** relating to work environment and conditions of employment that are not relevant in other types of markets. However, labor markets are much like other markets in that the market facilitates contact between buyers and sellers, exchanges information about price and quantity of labor services, and allows contracts to be executed.

Chapter 1 of the text focuses on the methodology of modern labor economics. When the focus of the economic inquiry is identifying, understanding, and measuring labor market relationships (i.e., when the focus is trying to uncover “what is” true about the labor market), the analysis is characterized as **positive economics**. When the analysis turns to an evaluation of appropriate labor market outcomes (i.e., when the focus is trying to uncover “what should be” the labor market outcome), the analysis is characterized as **normative economics**.

The methodology of positive economics assumes that when employers and employees come together in the labor market to buy and sell labor services, they will be pursuing specific objectives in a consistent manner subject to certain constraints. Consistency in this case means simply that people’s behavior can be predicted—their choices are made with a purpose in mind and are not random. It does not mean that people do the same thing all of the time. They (usually) learn from mistakes, and they respond differently to different incentives.

The underlying assumption of all economics is resource **scarcity**. Since resources are scarce, individuals and society cannot meet all their wants, and thus must make choices, each of which has a cost, since something else must be given up.

Regarding their specific objectives, it is assumed that the firms will be trying to **maximize profits** and that individual workers will be trying to **maximize their happiness** or satisfaction (called utility). The basic decision rule that leads to both profit maximization and utility maximization is that a particular course of action should be undertaken if the benefits associated with that course of action (the marginal benefits) exceed the (marginal) costs. Combining these elements—pursuing objectives and behaving consistently, yet adapting to changing incentives—constitute what is frequently referred to as a **rationality** assumption, or an assumption of “rational” behavior.

Some benefits (e.g., wages, health insurance, and pension benefits), can be measured in dollars, but others are nonpecuniary (e.g., safety, status, a feeling of fairness, and a sense of meaningful participation in the decision-making process of the firm). These nonpecuniary factors are especially prevalent in the labor market because when labor services are traded, a human being is “attached” to the transaction, and a human being’s happiness can be influenced not only by the wages he receives for his services, but also by a wide range of emotions, feelings, needs, beliefs, and principles.

To help in identifying and understanding the relationships between workers and firms in the labor market, economists build models. A **model** is a deliberate simplification of reality designed to highlight certain key characteristics while pushing other less important aspects into the background. Because of the millions of interactions in markets, each involving unique preferences, information, and constraints, an accurate and “realistic” depiction of all of these interactions would be neither feasible nor useful. Instead, less important aspects can be eliminated or de-emphasized by making simplifying assumptions. For example, the model of labor supply (which will be presented in Chapter 6) assumes individuals derive happiness from just two things, their level of income and their leisure (non-work) time. One critical simplifying assumption economists frequently rely on in an attempt to highlight certain relationships is the concept of *ceteris paribus* (holding all else constant). For example, to trace out the relationship between the wage and the firm’s labor demand, the price the firm charges for its product is often assumed to remain constant.

The success of a model hinges on how well it predicts behavior. It is not always necessary that any particular individual or firm actually behaves as the model assumes. The model can be considered a success if we observe people are behaving “as if” they followed the model—that is, if the model accurately predicts their behavior. What if the model fails to consistently predict how people behave? The model may still be useful in a normative sense. For example, suppose a group of individuals under observation consistently made choices seemingly contrary to a model’s predicted behavior for utility maximization. Further investigation might indicate that they were doing so because of ignorance, misunderstanding, or misperception. In such a case, the model may have helped identify a market imperfection that was impeding rational choice, and might also suggest an appropriate solution to the imperfection.

Most of the normative assessments economists make about labor market outcomes are based on the concept of **Pareto (economic) efficiency**. Pareto efficiency means that an outcome has been reached where all mutually beneficial transactions have been made. These are the kinds of transactions that people enter into voluntarily. If all mutually beneficial transactions have been made, all that remains are transactions where some people gain and some people lose. This satisfies the Pareto criterion.

Rational individuals will not voluntarily enter into exchanges in which they would lose, unless they could be fully compensated by those who gain. If the relative size of the gains and losses do not permit such compensation (or if there is no method to bring about such compensation), then an assessment must be made as to whether the transaction is justified. This is a question, however, that often involves value judgments. Societies can and do make these kinds of assessments from time to time, but they require the government to mandate certain behavior, and the basis of such mandates must be ethical principles.

One such principle might be that the distribution of income should be more equal. Another might be that workers should not be allowed to place themselves at risk of significant physical or financial harm. Such principles may drive government mandates on the minimum wage, welfare programs, and health and

safety regulations. Government mandates based on distributional considerations can be problematic, however, because they often require that adjustments be undertaken that move the participants away from a Pareto efficient outcome.

### Example

Consider a labor market where there are 10 firms and 10 workers. Each firm can hire only one of these workers. Each firm has a maximum wage it would be willing to pay the worker. It would like to hire its worker for as far below this maximum as possible, but if no other options exist, it will hire a worker at a wage equal to the firm's maximum willingness to pay. The maximum wage each firm is willing to pay is shown in Table 1-1.

Also suppose that each worker in this market can work for only one firm. Each worker has a minimum wage that will just be acceptable. Any offer below this minimum will be rejected and the worker will not participate in the market. Each worker would like to be hired at a wage as much above their minimum acceptable wage as possible, but if no other options exists, will work at a wage just equal to this minimum. The minimum wage acceptable to each worker is also shown in Table 1-1.

**Table 1-1**

<b>Firm #</b>	<b>Maximum Acceptable Wage (\$)</b>	<b>Person #</b>	<b>Minimum Acceptable Wage (\$)</b>
1	95	1	45
2	90	2	50
3	85	3	55
4	80	4	60
5	75	5	65
6	70	6	70
7	65	7	75
8	60	8	80
9	55	9	85
10	50	10	90

What is the Pareto efficient outcome in this market? In answering this question, note that at any given wage  $W^*$ , all those firms with maximum willingness to pay values greater than or equal to  $W^*$  will be willing to hire a worker. On the other hand, all those workers with a minimum acceptable wage less than or equal to  $W^*$  will be willing to work.

For purposes of discussion, suppose that  $W^*$  is initially set at \$80. Could this be a Pareto efficient outcome? At a wage of \$80, only firms 1, 2, 3, and 4 will be willing to hire a worker. On the other hand, workers 1 through 8 would be willing to work. For simplicity, suppose workers 1 through 4 are actually hired. Notice that each firm and each worker benefit from this voluntary exchange of labor services. For example, if worker 1 were hired at firm 1, firm 1 gains \$15, the difference between what it was willing to pay and what it actually had to pay the worker. Similarly, worker 1 gains \$35 from the transaction. He would have been willing to work for \$45 but actually is paid \$80.

This is not a Pareto efficient outcome, however, because opportunities exist for the parties to strike additional deals that are mutually beneficial. For example, if worker 5 offered to work for \$74, firm 5 would be willing to hire her (thus gaining \$1), and worker 5 would gain \$9 by being hired.

At what point are there no mutually beneficial deals left to be struck? This occurs when all the firms pay a wage of \$70 and workers 1 through 6 have been hired by firms 1 through 6. At a wage of \$70, the first 6 firms all gain by hiring, and the first 6 workers gain by being hired. The firms and workers that are left not

transacting have willingness to pay or accept values that preclude them from striking mutually beneficial deals. For example, at a wage of \$64, firm 7 would now clearly be interested in hiring a worker, but none of the workers that are left would be willing to work at a wage below \$75.

It is important to realize, however, that this Pareto efficient outcome is not unique. To see another set of transactions that could satisfy the criterion, suppose that the maximum willingness to pay values in Table 1-1 represents values for a single firm that is the only buyer of labor. Also suppose that this firm is aware of each worker's minimum acceptable wage. In this situation, the firm could offer the first worker a wage of \$45, and since the only other option would be not to work at all, the worker would accept. Similarly, the second worker could be offered a wage of \$50 (the first would still earn \$45) and he would accept. Such a firm is called a wage-discriminating monopsony.

How many workers would be hired under this pay scheme? Notice that when the firm reaches the sixth worker, the maximum the firm is willing to pay just equals the minimum the worker is willing to accept. If the firm tried to go beyond the sixth worker to the seventh, it would find itself in a situation where it was paying the worker \$75, but the worker was only worth a maximum of \$65, so a "rational" firm would not do so.

Notice that the employment level in this situation of 6 is the same as when there were many firms. An employment level of 6 where each worker is paid his minimum acceptable wage is also a Pareto efficient situation since there is no way to make any worker better off without hurting the firm. The difference between this Pareto efficient situation and the one described initially is that the firm has reaped all of the benefits of the transactions—all workers received only the minimal acceptable wage, but the firm hired all but the last worker for considerably less than they would have been willing to pay. Since many people would find such an outcome unfair, this example illustrates that Pareto efficient outcomes are not necessarily "fair" outcomes. An attempt by the government to move from this second outcome back to the first can be viewed as a choice between two Pareto efficient outcomes.

While the voluntary transactions that take place in the labor market are usually consistent with the concept of Pareto efficiency, the market does not always assure that all Pareto efficient transactions are made. In such cases, government may be able to play a role in facilitating such transactions. Why might the market fail to bring about all Pareto efficient adjustments?

**Market failure** can occur due to **ignorance** or lack of information about alternatives. Other times there are legal barriers or distortions in incentives created by taxes or subsidies, **transaction barriers**. The cost of completing a Pareto efficient transaction can also be an inhibiting factor, particularly where there are **price distortions** due to taxes or subsidies. **Externalities** occur when costs or benefits are imposed on people who were not a part of the original transaction, since their costs or benefits are not considered. A specific case of externalities is the **free rider problem** created by **public goods**, goods that can be consumed by many people at the same time, including those who do not pay.

What can the government do when these kinds of problems arise? The government may provide or subsidize the cost of public goods, which will otherwise be underprovided by the market. In other instances the government may be able to disseminate information that will help parties see that a mutually beneficial transaction exists. The government may also be able to step in and remove some transaction barriers, as in the case of **capital market imperfections**. The government may be in a position to provide financial support that enables parties to undertake mutually beneficial but costly transactions. The government may also act to overcome other types of transactions barriers by creating regulations that act in the place of missing markets. Often the government must simply realize that its own policies are the source of the problem and get out of the way, as is the case when price distortions are due to taxes or subsidies. In deciding whether government should get involved in such a situation, however, it is important to realize that government intervention itself is costly, and so it is important to weigh the potential gains against these costs.

Normative economics is also concerned with issues of economic efficiency versus equity or fairness. There may be any number of transactions that are equally efficient but not similarly equitable. Also, increasing equity may involve moving away from efficiency.

The appendix to Chapter 1 is an introduction to the empirical methodology of modern labor economics. To put this methodology in perspective, the authors focus on the specific problem of testing the hypothesis that, holding all else constant, a firm's quit rate is inversely related to the wage it pays. Hypothetical data on wages and quit rates for 10 firms are used to generate numeric examples. One of the first lessons of the appendix is that when there are a small amount of data and just two variables, it can be very useful to plot the data with the dependent variable (quit rates) on the vertical axis and the independent variable (wages) on the horizontal axis.

To measure the relationship that exists, on average, between the two variables, a linear relationship can be fitted to the data using **least squares regression** analysis. This is a technique where the parameters of the linear relationship (the vertical intercept and the slope) are chosen so that they minimize the squared difference between the actual and estimated values of the dependent variable. (The actual and estimated values of the dependent variable are presumably different because of the existence of random factors.) Most statistical computer programs, as well as most spreadsheet programs, contain commands that will compute **parameter estimates** using the least squares approach.

Along with the parameter estimates, most programs also generate a standard error for each estimate. The smaller the standard error, the greater the chance that the estimated parameters lie close to the true value. A useful rule of thumb is that if the ratio of the estimated parameter to its **standard error** is 2 or more, we can be statistically confident in ruling out the possibility that the true value of the parameter equals zero. This is a valuable piece of information, since if one can rule out the possibility that the slope of a linear relationship is zero, then one has established that a relationship exists between the independent and dependent variable.

Most economic relationships, however, involve more than a dependent variable and a single independent variable. For example, in the quit rate/wage relationship, it is very possible that for a given wage, older workers are less likely to quit than younger workers. The relationship between the dependent variable and two or more independent variables can be estimated using **multiple least squares regression** analysis.

Problems can occur in a regression analysis when independent variables that should be included are not, and these **omitted variables** are correlated with one or more of the independent variables that are included. In such cases, the differences between the actual and estimated values of the dependent variable will not reflect simple random errors, but will vary in a systematic pattern. Since these systematic differences are correlated with other independent variables, these differences will be attributed to the variables that are included, thus giving a misleading picture of the true relationship.

For example, in the quit rate/wage regression, a worker's age is likely to be correlated with the wage. If age is omitted from the regression, some of the negative effect on quits due to a worker's age will be attributed to the wage level instead, making it seem as if high wage rates exert stronger negative effects on quit rates than is actually the case. To avoid such biases, it is important to try to uncover through economic theory as much as possible about the nature of the relationship before making any attempt at empirical measurement.