Chapter 4
Labor and Financial Markets

Baby Boomers Come of Age

According to the 2020 Census, 22% of the U.S. population was 60 years old or older, which means that more than 74 million people have reached an age when they will need increased medical care.

The baby boomer population, the group born between 1946 and 1964, is comprised of more than 71 million people who have already reached retirement age or will soon reach retirement. As this population grows older, they will be faced with common healthcare issues such as heart conditions, arthritis, and Alzheimer's that may require hospitalization, long-term, or at-home nursing care. Aging baby boomers and advances in life-saving and life extending technologies will increase the demand for healthcare and nursing. Additionally, the Affordable Care Act, which expands access to healthcare for millions of Americans, has further increased the demand.

These data tell us, as economists, that the market for healthcare professionals, and nurses in particular, will face several challenges. Our study of supply and demand will help us to analyze what might happen in the labor market for nursing and other healthcare professionals, as we will discuss in the second half of this case at the end of the chapter.

The theories of supply and demand do not apply just to markets for goods. They apply to any market, even markets for things we may not think of as goods and services like labor and financial services. Labor markets are markets for employees or jobs. Financial services markets are markets for saving or borrowing.

When we think about demand and supply curves in goods and services markets, it is easy to picture the demanders and suppliers: businesses produce the products and households buy them. Who are the demanders and suppliers in labor and financial service markets? In labor markets job seekers (individuals) are the suppliers of labor, while firms and other employers who hire labor are the demanders for labor. In financial markets, any individual or firm who saves contributes to the supply of money, and any entity that borrows (person, firm, or government) contributes to the demand for money.

As a college student, you most likely participate in both labor and financial markets. Employment is a fact of life for most college students: According to the National Center for Educational Statistics, in 2018 43% of full time college students and 81% of part-time college students were employed. Most college students are also heavily involved in financial markets, primarily as borrowers. As of the 2018-19 school year, 43% of full-time undergraduate students were receiving loan aid to help finance their education, and those loans averaged
$7,300 per year. Many students also borrow for other expenses, like purchasing a car. As this chapter will illustrate, we can analyze labor markets and financial markets with the same tools we use to analyze demand and supply in the goods markets.

4.1 Demand and Supply at Work in Labor Markets

Markets for labor have demand and supply curves, just like markets for goods. The law of demand applies in labor markets this way: A higher **salary** or **wage**-that is, a higher price in the labor market-leads to a decrease in the quantity of labor demanded by employers, while a lower salary or wage leads to an increase in the quantity of labor demanded. The law of supply functions in labor markets, too: A higher price for labor leads to a higher quantity of labor supplied; a lower price leads to a lower quantity supplied.

Shifts in Labor Demand

The demand curve for labor shows the quantity of labor employers wish to hire at any given salary or wage rate, under the ceteris paribus assumption. A change in the wage or salary will result in a change in the quantity demanded of labor. If the wage rate increases, employers will want to hire fewer employees. The quantity of labor demanded will decrease, and there will be a movement upward along the demand curve. If the wages and salaries decrease, employers are more likely to hire a greater number of workers. The quantity of labor demanded will increase, resulting in a downward movement along the demand curve.

Shifts in the demand curve for labor occur for many reasons. One key reason is that the demand for labor is based on the demand for the good or service that is produced. For example, the more new automobiles consumers demand, the greater the number of workers automakers will need to hire. Therefore the demand for labor is called a "derived demand." Here are some examples of derived demand for labor:

- The demand for chefs is dependent on the demand for restaurant meals.
- The demand for pharmacists is dependent on the demand for prescription drugs.
- The demand for attorneys is dependent on the demand for legal services.

As the demand for the goods and services increases, the demand for labor will increase, or shift to the right, to meet employers' production requirements. As the demand for the goods and services decreases, the demand for labor will decrease, or shift to the left.

Shifts in Labor Supply

The supply of labor is upward-sloping and adheres to the law of supply: The higher the price, the greater the quantity supplied and the lower the price, the less quantity supplied. The supply curve models the tradeoff between supplying labor into the market or using time in leisure activities at every given price level. The higher the wage, the more labor is willing to work and forego leisure activities.

A change in salary will lead to a movement along labor demand or labor supply curves, but it will not shift those curves. However, other events like those we have outlined here will cause either the demand or the supply ofl abor to shift, and thus will move the labor market to a new equilibrium salary and quantity.

Price Floors in the Labor Market: Living Wages and Minimum Wages

In contrast to goods and services markets, price ceilings are rare in labor markets, because rules that prevent people from earning income are not politically popular. There is one exception: boards of trustees or stockholders, as an example, propose limits on the high incomes of top business executives.

The labor market, however, presents some prominent examples of price floors, which are an attempt to increase the wages of low-paid workers. The U.S. government sets a **minimum wage**, a price floor that makes it illegal for an employer to pay employees less than a certain hourly rate. In mid-2009, the U.S. minimum wage was raised to $7.25 per hour. Local political movements in a number of U.S. cities have pushed for a higher minimum wage, which they call a **living wage**. Promoters of living wage laws maintain that the minimum wage is too low to ensure a reasonable standard of living. They base this conclusion on the calculation that, if you work 40 hours a week at a minimum wage of $7.25 per hour for 50 weeks a year, your annual income is

$14,500, which is less than the official U.S. government definition of what it means for a family to be in poverty. (A family with two adults earning minimum wage and two young children will find it more cost efficient for one parent to provide childcare while the other works for income. Thus the family income would be $14,500, which is significantly lower than the federal poverty line for a family of four, which was $26,500 in 2021.)

Supporters of the living wage argue that full-time workers should be assured a high enough wage so that they can afford the essentials of life: food, clothing, shelter, and healthcare. Since Baltimore passed the first living wage law in 1994, several dozen cities enacted similar laws in the late 1990s and the 2000s. The living wage ordinances do not apply to all employers, but they have specified that all employees of the city or employees of firms that the city hires be paid at least a certain wage that is usually a few dollars per hour above the U.S. minimum wage.

The Minimum Wage as an Example of a Price Floor

The U.S. minimum wage is a price floor that is set either very close to the equilibrium wage or even slightly below it. About 1.5% of hourly workers in the U.S. are paid the minimum wage. In other words, the vast majority of the U.S. labor force has its wages determined in the labor market, not as a result of the government price floor. However, for workers with low skills and little experience, like those without a high school diploma or teenagers, the minimum wage is quite important. In many cities, the federal minimum wage is apparently below the market price for unskilled labor, because employers offer more than the minimum wage to checkout clerks and other low-skill workers without any government prodding.

Economists have attempted to estimate how much the minimum wage reduces the quantity demanded of low skill labor. A typical result of such studies is that a 10% increase in the minimum wage would decrease the hiring of unskilled workers by 1 to 2%, which seems a relatively small reduction. In fact, some studies have even found no effect of a higher minimum wage on employment at certain times and places-although these studies are controversial. Well-known economists Walter Williams and Thomas Sowell, who both focus on the intersections of race and economics, argue that minimum wages increase discrimination and limit economic mobility. Williams, for example, indicates that higher minimum wages would increase employment barriers for lower-skilled workers, reducing the opportunity for them to learn on the job and gain experience that would give them more choice in employment.

Let's suppose that the minimum wage lies just slightly below the equilibrium wage level. Wages could fluctuate according to market forces above this price floor, but they would not be allowed to move beneath the floor. In this situation, the price floor minimum wage is nonbinding-that is, the price floor is not determining the market outcome. Even if the minimum wage moves just a little higher, it will still have no effect on the quantity of employment in the economy, as long as it remains below the equilibrium wage. Even if the government increases the minimum wage by enough so that it rises slightly above the equilibrium wage and becomes binding, there will be only a small excess supply gap between the quantity demanded and quantity supplied.

These insights help to explain why U.S. minimum wage laws have historically had only a small impact on employment. Since the minimum wage has typically been set close to the equilibrium wage for low-skill labor and sometimes even below it, it has not had a large effect in creating an excess supply of labor. However, if the minimum wage increased dramatically-say, if it doubled to match the living wages that some U.S. cities have considered-then its impact on reducing the quantity demanded of employment would be far greater.

4.2 Demand and Supply in Financial Markets

United States' households, institutions, and domestic businesses saved almost $1.3 trillion in 2015. Where did that savings go and how was it used? Some of the savings ended up in banks, which in turn loaned the money to individuals or businesses that wanted to borrow money. Some was invested in private companies or loaned to government agencies that wanted to borrow money to raise funds for purposes like building roads or mass transit. Some firms reinvested their savings in their own businesses.

In this section, we will determine how the demand and supply model links those who wish to supply **financial capital** (i.e., savings) with those who demand financial capital (i.e., borrowing). Those who save money (or make financial investments, which is the same thing), whether individuals or businesses, are on the supply side of the financial market. Those who borrow money are on the demand side of the financial market. For a more detailed treatment of the different kinds of financial investments like bank accounts, stocks and bonds,
see the Financial Markets chapter.

Who Demands and Who Supplies in Financial Markets?

In any market, the price is what suppliers receive and what demanders pay. In financial markets, those who supply financial capital through saving expect to receive a rate of return, while those who demand financial capital by receiving funds expect to pay a rate of return. This rate of return can come in a variety of forms, depending on the type of investment.

The simplest example of a rate of return is the **interest rate**. For example, when you supply money into a savings account at a bank, you receive interest on your deposit. The interest the bank pays you as a percent of your deposits is the interest rate. Similarly, if you demand a loan to buy a car or a computer, you will need to pay interest on the money you borrow.

Let's consider the market for borrowing money with credit cards. In 2021, almost 200 million Americans were cardholders. Credit cards allow you to borrow money from the card's issuer, and pay back the borrowed amount plus interest, although most allow you a period of time in which you can repay the loan without paying interest. A typical credit card interest rate ranges from 12% to 18% per year. In May 2021, Americans had about $807 billion outstanding in credit card debts. As of 2021, just over 45% of American families carried some credit card debt. Let's say that, on average, the annual interest rate for credit card borrowing is 15% per year. Thus, Americans pay tens of billions of dollars every year in interest on their credit cards-plus basic fees for the credit card or fees for late payments.

The laws of demand and supply continue to apply in the financial markets. According to the **law of demand**, a higher rate of return (that is, a higher price) will decrease the quantity demanded. As the interest rate rises, consumers will reduce the quantity that they borrow. According to the law of supply, a higher price increases the quantity supplied. Consequently, as the interest rate paid on credit card borrowing rises, more firms will be eager to issue credit cards and to encourage customers to use them. Conversely, if the interest rate on credit cards falls, the quantity of financial capital supplied in the credit card market will decrease and the quantity demanded will increase.

Shifts in Demand and Supply in Financial Markets

Those who supply financial capital face two broad decisions: how much to save, and how to divide up their savings among different forms of financial investments. We will discuss each of these in turn.

Participants in financial markets must decide when they prefer to consume goods: now or in the future. Economists call this **intertemporal decision** making because it involves decisions across time. Unlike a decision about what to buy from the grocery store, people make investment or savings decisions across a period of time, sometimes a long period.

Most workers save for retirement because their income in the present is greater than their needs, while the opposite will be true once they retire. Thus, they save today and supply financial markets. If their income increases, they save more. If their perceived situation in the future changes, they change the amount of their saving. For example, there is some evidence that Social Security, the program that workers pay into in order to qualify for government checks after retirement, has tended to reduce the quantity of financial capital that workers save. If this is true, Social Security has shifted the supply of financial capital at any interest rate to the left.

By contrast, many college students need money today when their income is low (or nonexistent) to pay their college expenses. As a result, they borrow today and demand from financial markets. Once they graduate and become employed, they will pay back the loans. Individuals borrow money to purchase homes or cars. A business seeks financial investment so that it has the funds to build a factory or invest in a research and development project that will not pay off for five years, ten years, or even more. Thus, when consumers and businesses have greater confidence that they will be able to repay in the future, the quantity demanded of financial capital at any given interest rate will shift to the right.

For example, in the technology boom of the late 1990s, many businesses became extremely confident that investments in new technology would have a high rate of return, and their demand for financial capital shifted to the right. Conversely, during the 2008 and 2009 Great Recession, their demand for financial capital at any given interest rate shifted to the left.
To this point, we have been looking at saving in total. Now let us consider what affects saving in different types of financial investments. In deciding between different forms of financial investments, suppliers of financial capital will have to consider the rates of return and the risks involved. Rate of return is a positive attribute of investments, but risk is a negative. If Investment A becomes more risky, or the return diminishes, then savers will shift their funds to Investment B-and the supply curve of financial capital for Investment A will shift back to the left while the supply curve of capital for Investment B shifts to the right.

The United States as a Global Borrower

In the global economy, trillions of dollars of financial investment cross national borders every year. In the early 2000s, financial investors from foreign countries were investing several hundred billion dollars per year more in the U.S. economy than U.S. financial investors were investing abroad. The following Work It Out deals with one of the macroeconomic concerns for the U.S. economy in recent years.
The economy has experienced an enormous inflow of foreign capital. According to the U.S. Bureau of Economic Analysis, by the third quarter of 2021, U.S. investors had accumulated $34.45 trillion of foreign assets, but foreign investors owned a total of $50.53 trillion of U.S. assets. If foreign investors were to pull their money out of the U.S. economy and invest elsewhere in the world, the result could be a significantly lower quantity of financial investment in the United States, available only at a higher interest rate. This reduced inflow of foreign financial investment could impose hardship on U.S. consumers and firms interested in borrowing.
In a modern, developed economy, financial capital often moves invisibly through electronic transfers between one bank account and another. Yet we can analyze these flows of funds with the same tools of demand and supply as markets for goods or labor.

Price Ceilings in Financial Markets: Usury Laws

As we noted earlier, about 200 million Americans own credit cards, and their interest payments and fees total tens of billions of dollars each year. It is little wonder that political pressures sometimes arise for setting limits on the interest rates or fees that credit card companies charge. The firms that issue credit cards, including banks, oil companies, phone companies, and retail stores, respond that the higher interest rates are necessary to cover the losses created by those who borrow on their credit cards and who do not repay on time or at all. These companies also point out that cardholders can avoid paying interest if they pay their bills on time.
Many states do have usury laws, which impose an upper limit on the interest rate that lenders can charge. However, in many cases these upper limits are well above the market interest rate. For example, if the interest rate is not allowed to rise above 30% per year, it can still fluctuate below that level according to market forces. A price ceiling that is set at a relatively high level is nonbinding, and it will have no practical effect unless the equilibrium price soars high enough to exceed the price ceiling.

4.3 The Market System as an Efficient Mechanism for Information

Prices exist in markets for goods and services, for labor, and for financial ca pita!. In all of these markets, prices serve as a remarkable social mechanism for collecting, combining, and transmitting information that is relevant to the market-namely, the relationship between demand and supply-and then serving as messengers to convey that information to buyers and sellers. In a market-oriented economy, no government agency or guiding intelligence oversees the set of responses and interconnections that result from a change in price. Instead, each consumer reacts according to that person's preferences and budget set, and each profit seeking producer reacts to the impact on its expected profits. The following Clear It Up feature examines the demand and supply models.
Why are demand and supply curves important?
The demand and supply model is the second fundamental diagram for this course. (The opportunity set model that we introduced in the Choice in a World of Scarcity chapter was the first.) Just as it would be foolish to try to learn the arithmetic of long division by memorizing every possible combination of numbers that can be divided by each other, it would be foolish to try to memorize every specific example of demand and supply in this chapter, this textbook, or this course. Demand and supply is not primarily a list of examples. It is a model to analyze prices and quantities.
Even though demand and supply diagrams have many labels, they are fundamentally the same in their logic. Your goal should be to understand the underlying model so you can use it to analyze any market.
The demand and supply model can explain the existing levels of prices, wages, and rates of return. To carry out such an analysis, think about the quantity that will be demanded at each price and the quantity that will be supplied at each price-

that is, think about the shape of the demand and supply curves-and how these forces will combine to produce equilibrium. We can also use demand and supply to explain how economic events will cause changes in prices, wages, and rates of return. There are only four possibilities: the change in any single event may cause the demand curve to shift right or to shift left, or it may cause the supply curve to shift right or to shift left. The key to analyzing the effect of an economic event on equilibrium prices and quantities is to determine which of these four possibilities occurred. The way to do this correctly is to think back to the list of factors that shift the demand and supply curves. Note that if more than one variable is changing at the same time, the overall impact will depend on the degree of the shifts. When there are multiple variables, economists isolate each change and analyze it independently.

An increase in the price of some product signals consumers that there is a shortage; therefore, they may want to economize on buying this product. For example, if you are thinking about taking a plane trip to Hawaii, but the ticket turns out to be expensive during the week you intend to go, you might consider other weeks when the ticket might be cheaper. The price could be high because you were planning to travel during a holiday when demand for traveling is high. Maybe the cost of an input like jet fuel increased or the airline has raised the price temporarily to see how many people are willing to pay it. Perhaps all of these factors are present at the same time. You do not need to analyze the market and break down the price change into its underlying factors. You just have to look at the ticket price and decide whether and when to fly.

In the same way, price changes provide useful information to producers. Imagine the situation of a farmer who grows oats and learns that the price of oats has risen. The higher price could be due to an increase in demand caused by a new scientific study proclaiming that eating oats is especially healthful. Perhaps the price of a substitute grain, like corn, has risen, and people have responded by buying more oats. The oat farmer does not need to know the details. The farmer only needs to know that the price of oats has risen and that it will be profitable to expand production as a result.

The actions of individual consumers and producers as they react to prices overlap and interlock in markets for goods, labor, and financial capital. A change in any single market is transmitted through these multiple interconnections to other markets. The vision of the role of flexible prices helping markets to reach equilibrium and linking different markets together helps to explain why price controls can be so counterproductive. Price controls are government laws that serve to regulate prices rather than allow the various markets to determine prices. There is an old proverb: "Don't kill the messenger." In ancient times, messengers carried information between distant cities and kingdoms. When they brought bad news, there was an emotional impulse to kill the messenger. However, killing the messenger did not kill the bad news.

Moreover, killing the messenger had an undesirable side effect: Other messengers would refuse to bring news to that city or kingdom, depriving its citizens of vital information.

Those who seek price controls are trying to kill the messenger-or at least to stifle an unwelcome message that prices are bringing about the equilibrium level of price and quantity. However, price controls do nothing to affect the underlying forces of demand and supply, and this can have serious repercussions. During China's "Great Leap Forward" in the late 1950s, the government kept food prices artificially low, with the result that 30 to 40 million people died of starvation because the low prices depressed farm production. This was communist party leader Mao Zedong's social and economic campaign to rapidly transform the country from an agrarian economy to a socialist society through rapid industrialization and collectivization. Changes in demand and supply will continue to reveal themselves through consumers' and producers' behavior. Immobilizing the price messenger through price controls will deprive everyone in the economy of critical information. Without this information, it becomes difficult for everyone-buyers and sellers alike-to react in a flexible and appropriate manner as changes occur throughout the economy.