



LESSON 13

Who Decides Wage Rates?

LESSON 13

Who Decides Wage Rates?

LESSON DESCRIPTION

In this lesson, students play the role of either buyers or sellers of labor to examine the interconnectedness of individuals and companies in labor markets. Students learn that the demand and supply for labor determine market wage rates and that wages depend, in part, on individual productivity.

INTRODUCTION

Labor markets depend on the exchange of information between individuals who are looking for work and potential employers who have a demand for the skills and abilities that can be supplied by workers. Labor markets can be local, national, or international and comprise individuals with varying qualifications, skill sets, and education levels.

In a market economy, the demand for labor is a derived demand. If the demand for goods and services that labor can produce is low, then the demand for labor will also be low. In a labor market, workers are the suppliers, supplying the productive resource known as labor. Employers play the role of demanders, demanding labor from workers willing to work for a given wage.

Individuals entering the labor force bring with them certain skills, experience, and levels of education that allow them to sell their labor at various wages. Employers looking to produce goods and services will hire workers when they can do so at a cost that makes sense economically.

Wages of workers are affected by individual productivity and the value of what is being produced. Wages generally increase as the value of the good or service produced increases. Workers who are more productive are more valuable to employers and will

earn higher wages than their less-productive counterparts.

COMPELLING QUESTION

How do workers and business owners interact within labor markets to determine wage rates?

CONCEPTS

Labor
Labor market
Demand
Derived demand
Supply
Wages
Salary
Income
Human capital

OBJECTIVES

Students will be able to:

- Explain how sellers and buyers of labor interact to determine wage rates for labor.
- Explain how productivity of workers can impact the ability of workers to earn higher wages.

CONTENT STANDARDS

Voluntary National Content Standards in Economics

- Standard 13: Income for most people is determined by the market value of the

productive resources they sell. What workers earn primarily depends on the market value of what they produce.

Common Core State Standards

- CCSS.ELA-Literacy.RH.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

TIME REQUIRED

60 minutes

MATERIALS

- Slide 13.1
- Activity 13.1, one copy
- Activity 13.2, one copy
- Activity 13.3, enough copies for entire class, minus six students
- Activity 13.4, enough copies for entire class, minus six students
- Activity 13.4 (KEY), six copies
- Activity 13.5, one copy
- Activity 13.6, four copies
- Activity 13.7, one copy
- Six plastic or paper cups (16 oz. or larger)
- 60 or more navy beans
- Stopwatch
- Optional: Online worksheet for Activities 13.3–13.5 at <http://hseconomics.councilforeconed.org>



PROCEDURES

1. Tell students they will participate in a simulation in which some students will be sellers of labor and some buyers of labor. The simulation demonstrates how buyers and sellers of labor interact to establish wage rates for workers in a labor market.
2. Inform students that during this simulation two businesses are looking to hire

workers: an accounting firm and a construction company. Each requires unique skill sets and production capabilities from its workers.

3. Explain the following to students:

- **Wages** are payments for labor services that are directly tied to time worked or to the number of units of output produced.
- **Salaries** are regular payments, often at monthly or biweekly intervals, made by an employer to an employee.
- **Income** is payment earned by households for selling or renting their productive resources.

4. Show Slide 13.1 and discuss:

- a. Why do the average salaries of workers in different industries vary so much?

Answers may vary. Different occupations require different skill sets, different occupations require varying levels of education, different occupations are more in demand than others.

- b. How are the average salaries of various working professionals in the United States ultimately determined?

The interaction of buyers and sellers of labor in a labor market.

5. Explain to students that they will now be assigned the role of a worker or an employer in a hypothetical labor market. Define **labor market** as a market in which workers seek jobs, and employers seek workers.
6. Ask students what productive resource workers sell to employers in order to earn a wage or salary.

Workers sell their labor or human resources.

7. Define **labor** as the quantity and quality of human effort available to produce goods and services and **human capital** as the set of skills that an employee acquires through training and experience, and which increases that employee's value in the marketplace.

8. Ask students why employers are willing to pay wages and/or salaries to acquire workers.

Employers would expect to sell outputs produced by workers at a price higher than the cost of production. If employers cannot sell output produced by workers at a price higher than the cost of production, they will not hire workers.

9. Inform students that in a labor market, workers represent the **supply** of labor while employers represent the **demand** for labor. Demand for labor is a **derived demand**. Consumer demand for a product creates derived demand for the resources, such as labor, required to make the product.

10. Select six students to represent employers in the simulation. Three students represent an accounting firm, and three students represent a construction company. Instruct these six employers that they will work together during two testing rounds but will then split into two separate entities, an accounting firm and a construction company, upon completion of testing.

11. Give the accounting firm one copy of Activity 13.1 and the construction company one copy of Activity 13.2. Tell both entities to read the scenarios and rules and answer any questions they may have.

12. Tell the remainder of the students that they are all potential workers and that they will take two tests that will give them the opportunity to showcase their unique talents. The first test will be a timed math test given to see how fast and accurate each student is at solving math problems. The second test is a

hand/eye coordination test given to see how accurately students can throw a small object into a plastic or paper cup.

13. Give each worker a copy of Activity 13.3 and answer questions about the handout. (Note: As an alternative to the manual process, an online worksheet for Activities 13.3–13.5 can be found at <http://hseconomics.councilforeconed.org>.)

14. Distribute a copy of Activity 13.4 to all workers, and tell them not to begin the math problems until instructed to do so. When all workers have a copy, read the instructions and answer any questions prior to the start of testing. It is important that all workers start the testing process at exactly the same time.

15. While the workers are taking the test, give each employer a copy of Activity 13.4 (KEY) to be used for grading.

16. Tell students to begin the test. Have the six employers monitor the workers. As soon as the fourth worker says, "Done," instruct the workers to put down their pencils. Ask the six employers to grade the worker tests and write the test scores on the worker résumés as the tests are being graded.

17. Tell the workers that they will now take the second test. Give each employer one plastic or paper cup and 10 beans. Split the workers evenly so each employer has roughly the same number of workers to test. When all workers are assigned to an employer, read Activity 13.5 to the class. Instruct the employers and workers that you will be keeping time and remind them that each worker will have 30 seconds to toss the beans into the cup.

18. Upon completion of each worker's test, have employers write the final score on the worker's résumé.

19. Remind the employers that from this point on, they will be working in two separate groups: an accounting firm and

a construction company, and that all hiring decisions should be based on the information found in Activity 13.1 and Activity 13.2. Tell the accounting employers that they will work together to represent one accounting firm. Tell the construction employers that they are to work together to represent one construction company. Give each employer group a copy of Activity 13.6. Tell each employer group that it will complete the profit calculations at the end of the hiring process.

20. Tell the workers that the labor market is open. Workers are free to talk to the employers of either business about possible job openings. Workers should bring their completed résumés to the employers in order to provide valuable information about their production potential. Tell workers they can negotiate with either business.
21. Give the employers and workers five to ten minutes to discuss jobs and to come to hiring agreements. Tell the class that when a worker and employer agree on a wage, they should shake hands. The worker should record the employer and the wage on his or her résumé sheet; the employer should record the first name of the employee, the employee's wage, and the employee's skill point total. As agreements are reached between employers and workers, the workers who have been hired should return to their seats.
22. After the labor market is closed, employers should ensure that all names, wages, and skill points of hired workers have been recorded (adding lines to the Employment List if needed) and calculate their total profits.
23. At the completion of Activity 13.6, ask the accountants and construction workers who were hired the following questions:
 - a. What wage did you agree on with your new employer?

Answers will vary.

- b. Did anybody have a job offer from both companies?

Answers will vary.

- c. Why did you agree to this specific wage?

Answers will vary but may include that they needed the job, they were nervous that someone else would get the job, or the wage rate was the only amount offered by the employer.

- d. Why didn't you hold out for higher wages?

Students may say that the employer was not willing to pay higher wages.

24. Ask the employers who did the hiring the following questions:

- a. Why did you agree to these specific wage rates?

Answers will vary. May include the fact that their directions were clear about what they could afford, the relationship between lower wages paid and additional company profits.

- b. What variety of wages did you agree to pay? Why didn't everyone get paid the same amount?

Answers may include the fact that some workers were willing to work for lower wages, worker qualifications and productivity differed.

- c. Why didn't you agree on lower wages?

Answer may include that the workers were not willing to work for lower wages and the directions stated that they could not go below an hourly wage of \$8.

- d. What were your total profits at the end of round one?

Answers will vary.

25. Ask the workers who were not hired: Why didn't you get hired?

Answers may include the fact that they ran out of time to find a job, the wages were too low, or their skills were inadequate.

26. Inform students that they will now participate in Round 2 of the simulation. Announce to the class that the construction company has seen an increase in the demand for housing and that more workers are needed in the construction industry.

27. Give the employers in the construction company a copy of Activity 13.7 and tell them to read the scenario and rules and answer any questions. Inform the employers in the accounting firm that they should follow the same scenario and rules, as explained in Activity 13.1.

28. Explain to the workers that during Round 2 they are all back to being jobless and they are now free to explore job openings in either job market.

29. Inform workers that they will use the same résumé scores from initial testing when they talk to potential employers.

30. Give each employer group another copy of Activity 13.6 and answer any questions. Tell each employer group to complete their profit calculations at the end of the hiring process.

31. Tell the workers that the market is open and that they are now free to talk to employers about job openings. Workers should bring their completed résumés to provide valuable information about their production potential to employers.

32. Give employers and workers five to ten minutes to discuss job openings and to come to hiring agreements. As before, when a worker and employer agree on a wage, they should shake hands. The worker should record the employer and the wage on their résumé sheet; the employer should record the first names of the employees, their wage, and the number for the skill for which they are being hired. As agreements are reached between employers and workers, the workers who have been hired should return to their seats.

33. At the completion of the hiring process, tell the employer groups to calculate their profits on Activity 13.6.

34. At the completion of the hiring process, ask how many workers decided to change professions.

Check to see how many moved from accounting to construction and how many moved from construction to accounting. It is likely that more moved from accounting to construction.

Ask: Why is this the case?

The chance to earn a higher wage (most likely) as a construction worker

35. Ask the accountants and construction workers who were hired the following questions:

- a. Did anyone earn a higher wage in Round 2?

Answer will vary but some construction workers may have seen their wages increase, although maybe not by much if labor moved from accounting to construction or if the workers did not bargain hard.

- b. What wage did you agree on with your new employer?

Answers will vary.

- c. Why did you agree to this wage rate?

Answers will vary; may include that they needed the job, they were nervous that someone else would get the job, and it was the only amount offered by the employer.

- d. Why was a variety of wages accepted by workers? Why didn't everyone get paid the same amount?

Answers may include the fact that some workers were willing to work for lower wages, worker qualifications differed.

- e. Why didn't you agree on higher wages?

Answer may include the fact that the employer was not willing to pay higher wages.

36. Ask the employers who did the hiring the following questions:

- a. Did anyone pay higher wages in Round 2? If so, why?

Answers will vary, but the chances are good that the construction employers paid higher wages because the workers were earning them higher profits.

- b. Why did you agree to these wage rates?

Answers will vary; may include that their directions were clear about what they could afford or the relationship between lower wages paid and additional company profits.

- c. What variety of wages did you agree to pay?

Answers will vary.

- d. Why didn't everyone get paid the same amount?

Answers may include that some workers were willing to work for lower wages and worker qualifications differed.

- e. Why didn't you agree on lower wages?

Answer may include that the workers were not willing to work for lower wages and they were instructed not go below an hourly wage of \$8.

- f. What were your total profits at the end of round two compared to the end of round one?

Answers will vary.

37. Ask those who were not hired: Why didn't you get hired?

Answers may include that they ran out of time to find a job, the wages were too low, and their skills were inadequate.

CLOSURE

Conclude the lesson by reviewing the following key points.

38. What is a labor market?

A market in which workers seek jobs and employers seek workers.

39. Who represents supply and who represents demand in a labor market?

Workers represent supply and employers represent demand.

40. What is derived demand?

Demand for a resource resulting in the demand for a good or service produced using the resource

41. How are wages paid to workers and rising prices paid for the goods and services produced by those workers linked?

When consumers are willing and able to pay more for goods and services, the workers who produce the goods and services may see their wages increase.

42. How is worker productivity linked to wage rates?

Productive workers are more attractive to employers and can command higher wages.

43. Why do anesthesiologists earn higher salaries than retail salespeople?

Anesthesiologists have skills that are in short supply in today's labor market and employers are willing to pay them high salaries. Retail salespeople may be skilled but they are not in short supply and have not been able to convince their employers to pay them nearly as much as anesthesiologists.

ASSESSMENT

Multiple Choice

- Demand for a product, driven by consumers, creates demand for resources, such as labor that is required to make the product. This is called
 - applied demand.
 - derived demand.**
 - situational demand.
 - determinant demand.
- The set of skills that an employee acquires through training and experience, which increases that employee's value in the marketplace, is known as
 - labor productivity.
 - derived demand.
 - human capital.**
 - income capital.
- If the demand for healthcare increases in a city, the wages of nurses in that city will likely _____ and _____ nurses will be hired.
 - increase, more**
 - increase, fewer
 - decrease, more
 - decrease, fewer

Constructed Response

Compare and contrast the ability of employers and workers to set wage rates in a labor market in terms of both groups' economic freedom, mobility, and value.

Employers and workers each have a certain amount of control over wage rates in a labor market because both can say no and will only say yes if the wage rate being offered makes sense economically. Employers will not hire a worker at a certain wage if that worker will not bring in more revenue than what it costs in wages to hire that worker. At the same time, workers will not agree to work for a wage that is less than what they believe they are worth. If the opportunity cost of taking a job—the wage that could be earned in another job—is too high, the worker will decline the job.

ACTIVITY 13.1

Accounting Firm

You run a top accounting firm that is in need of additional workers. Tax season is rapidly approaching and your staff simply cannot handle the volume of work that your company has taken on in the last three months. Any workers you hire must be highly proficient at solving basic mathematical problems. You are looking for workers who can solve problems quickly and accurately. The more problems they can solve, the more money they can potentially earn for your firm.

Each worker will be required to take your Basic Math Skills Test as a prerequisite to being hired. The three of you, along with the three employer representatives from the construction company, will conduct, monitor, and score the tests of each worker. All tests will be conducted simultaneously. The teacher will read test instructions (Activity 13.4) to the workers prior to beginning the testing process.

Upon completion, you will grade each test and write the score on the worker's résumé (Activity 13.3).

Each worker will bring a résumé for your review as part of his or her job search.

You are free to hire as many workers as you want, at any wage you dictate, as long as that wage is not below \$8. All wages must be in \$1 increments.

Workers who have good math skills are more productive. *Based on experience, you know your firm earns \$2 for each point on the Basic Math Skills Test found on worker résumés.*

Example: If a potential worker has a score of 7 on her resume, she would earn your company \$14 ($7 \text{ [points]} \times \$2 = \$14$). If you were to pay this worker a wage of \$8, your firm would make a profit of \$6 ($\$14 \text{ [earnings]} - \$8 \text{ [wage]} = \$6 \text{ [profit]}$). If you were to pay that same worker \$12, your firm would make only \$2 ($\$14 \text{ [earnings]} - \$12 \text{ [wage]} = \$2 \text{ [profit]}$).

(Note: The workers and other companies DO NOT know how much your firm earns. This information does not need to be shared with anyone outside of your group.)

ACTIVITY 13.2

Construction Company Round I

You run a construction company that needs additional workers. Any workers you hire must have good hand/eye coordination in order to do the job effectively. You are looking for workers who can quickly move materials from Point A to Point B. The more materials a worker can move, the higher profit he or she earns for your company.

Each worker will be required to take your Hand/Eye Coordination Test as a prerequisite to being hired. The three of you, along with the three employer representatives from the accounting firm, will conduct, monitor, and score the tests of each worker. Testing will be conducted by the six employer representatives simultaneously. The teacher will read test instructions (Activity 13.5) to the workers prior to beginning the testing process.

Upon completion of the tests, you will grade them and write the scores on the worker résumés (Activity 13.3).

Each worker will bring a résumé for your review as part of his or her job search.

You are free to hire as many workers as you want, at any wage you dictate, as long as that wage is not below \$8. All wages must be in \$1 increments.

Workers who have good hand/eye skills are more productive. *Based on experience, you know your company earns \$2 for each point on the Hand/Eye Coordination Test found on worker résumés.*

Example: If a potential worker has a score of 7 on his resume, he would earn your company \$14 ($7 \text{ [points]} \times \$2 = \$14$). If you pay this worker \$8, your company will make \$6 profit ($\$14 \text{ [earning]} - \$8 \text{ [wage]} = \6 [profit]). If you pay that worker \$12, your company will make only \$2 profit ($\$14 \text{ [earnings]} - \$12 \text{ [wage]} = \$2 \text{ [profit]}$).

(Note: The workers and other companies DO NOT know how much your firm earns. This information does not need to be shared with anyone outside of your group.)

ACTIVITY 13.3

Résumé Score Sheet

You are a recent college graduate with a double major in accounting and construction technology. Your goal is to find work at a reputable firm that will pay you a wage that will allow you to earn a living.

Rules

1. You must complete the Basic Math Skills Test and a Hand/Eye Coordination Test to be considered for a job. The higher you score on these tests, the more attractive you will be to potential employers.
2. You must also complete a “Worker Résumé” before speaking with potential employers.
3. If you decide to sell your labor it must be in \$1 increments (\$8, \$9, \$10 \$11, \$12, etc.)
4. A wage rate lower than \$8 per hour is below the minimum wage rate in your state.

Worker Résumé

Name: _____

Basic Math Skills Test Score _____

Hand/Eye Coordination Test Score _____

Employment Record

Round 1: Employer: _____ **Wage:** _____

Round 2: Employer: _____ **Wage:** _____

ACTIVITY 13.4**Basic Math Skills Test****Instructions**

Answer all questions as quickly and accurately as possible. As soon as you are done, raise your hand and say, “Done.” As soon as the first four people say, “Done,” testing will end for all test takers. Tests will be graded by the employers. You will earn one point for each correct answer.

No calculators allowed. Testing will be limited to four minutes.

Basic Math Skills Test

$$\begin{array}{r} 1. \quad 75 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 91 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 987 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 83 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 867 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5,688 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 4,545 \\ - 222 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 77 \\ - 66 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 8,209 \\ - 77 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 3,400 \\ \times 4 \\ \hline \end{array}$$

ACTIVITY 13.4**Basic Math Skills Test (KEY)**

$$\begin{array}{r} 1. \quad 75 \\ \times 23 \\ \hline 1,725 \end{array}$$

$$\begin{array}{r} 2. \quad 987 \\ \times 5 \\ \hline 4,935 \end{array}$$

$$\begin{array}{r} 3. \quad 867 \\ + 32 \\ \hline 899 \end{array}$$

$$\begin{array}{r} 4. \quad 4,545 \\ - 222 \\ \hline 4,323 \end{array}$$

$$\begin{array}{r} 5. \quad 8,209 \\ - 77 \\ \hline 8,132 \end{array}$$

$$\begin{array}{r} 6. \quad 91 \\ \times 5 \\ \hline 455 \end{array}$$

$$\begin{array}{r} 7. \quad 83 \\ \times 6 \\ \hline 498 \end{array}$$

$$\begin{array}{r} 8. \quad 5,688 \\ + 9 \\ \hline 5,697 \end{array}$$

$$\begin{array}{r} 9. \quad 77 \\ - 66 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 10. \quad 3,400 \\ \times 4 \\ \hline 13,600 \end{array}$$

ACTIVITY 13.5

Hand/Eye Coordination Test

Instructions

You will be given 10 beans to throw in a cup, one at a time. You will have 30 seconds in which to attempt all 10 throws. Each bean that lands in the cup earns one point. Each bean can be thrown one time only.

(Note: All throws must be from behind a line that is 3 feet (36 inches) from the cup.)

All potential workers will line up in one of six lines. Each line will work with one employer. Workers should remain quiet while awaiting their turn to throw the beans. Not following this rule could disqualify you.

ACTIVITY 13.6**Employment List**

Round # _____

First Name	Skill Points	Wage
TOTALS		

Calculate your profits by multiplying the total of skill points by workers hired by the dollar amount given in your instructions. This number represents total sales generated by your workers. Subtract the total wages paid to your workers from this to find your profit.

$$\begin{array}{ccccccc}
 \underline{\hspace{2cm}} & \times & \underline{\hspace{2cm}} & - & \underline{\hspace{2cm}} & = & \underline{\hspace{2cm}} \\
 \text{(Total skill} & & \text{(Dollar amount} & & \text{(Total wages)} & & \text{(Profit)} \\
 \text{points)} & & \text{per point)} & & & &
 \end{array}$$

ACTIVITY 13.7

Construction Company Round 2

You run a construction company that needs more workers. Any workers you hire must have good hand/eye coordination in order to do the job effectively. You are looking for workers who can quickly move materials from Point A to Point B. The more materials a worker can move, the higher the profit they will earn for your company.

Each worker will be required to take your Hand/Eye Coordination Test as a prerequisite for hiring.

You are free to hire as many workers as you want at any wage you dictate, as long as that wage is not below **\$8**. All wages must be in \$1 increments.

Because of an increase in the demand for housing, your company earns more for the homes it constructs. *Because of this, your firm now earns **\$4 for each point** on the Hand/Eye Coordination Test found on worker résumés.*

Example: If a potential worker has a score of 7 on his résumé, he would earn your company \$28. ($7 \text{ [points]} \times \$4 = \$28.00$). If you pay this worker \$8, your company will make a profit of \$20 ($\$28 \text{ [earnings]} - \$8 \text{ [wage]} = \$20 \text{ [profit]}$). If you paid that same worker \$12, your company would make \$16 profit ($\$28 \text{ [earnings]} - \$12 \text{ [wage]} = \$16 \text{ [profit]}$).

(Note: The workers and other companies DO NOT know exactly how much your company earns. This information does not need to be shared with anyone outside of your group.)