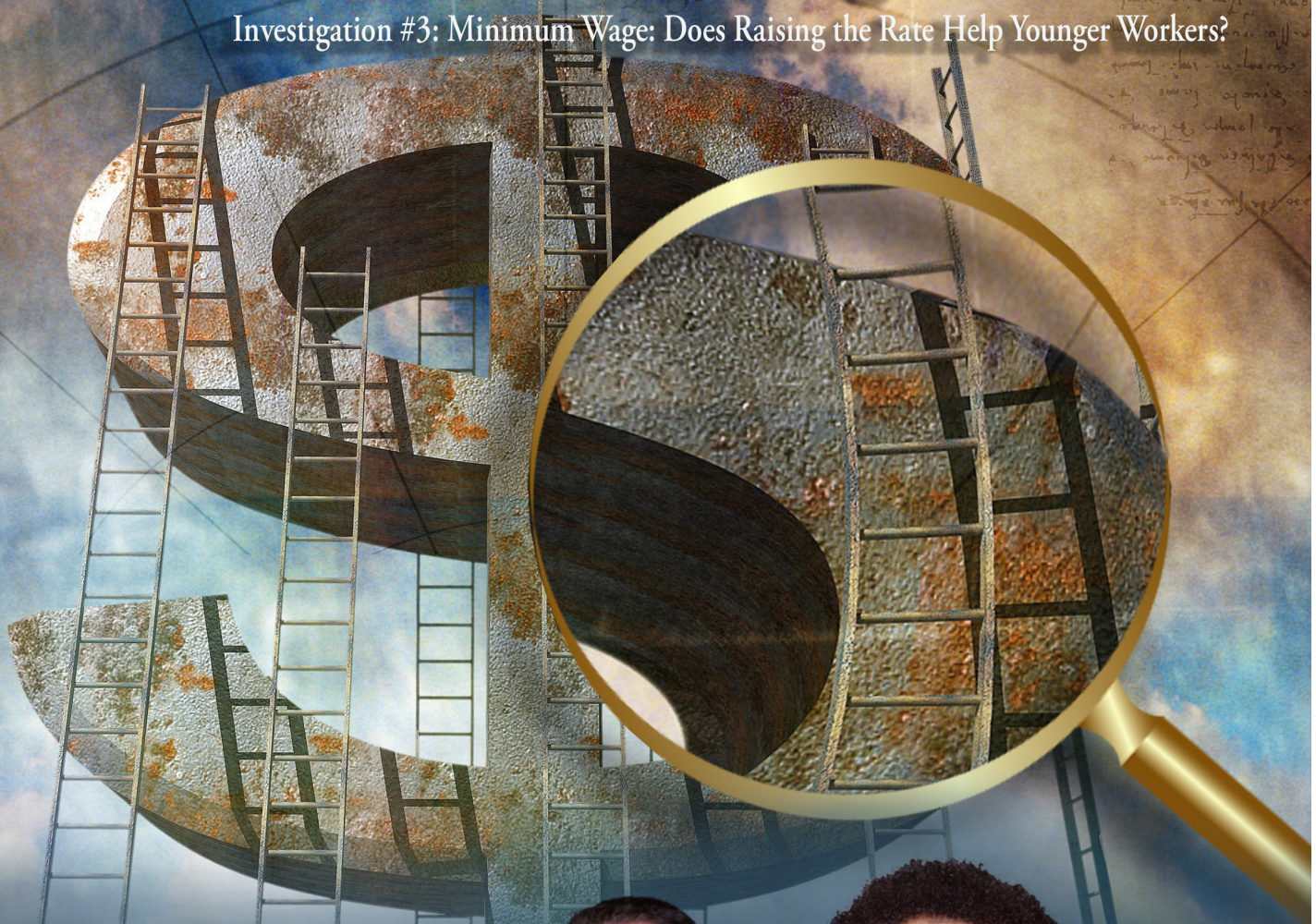


Economic Investigations

Investigation #3: Minimum Wage: Does Raising the Rate Help Younger Workers?



There Is More to the Story



Junior Achievement®



Economic Investigations: There Is More to the Story

“Economic Investigations: There Is More to the Story” was a National Science Foundation funded project, which began in September 2003. The Social Science Education Consortium (SSEC) of Boulder, Colorado, was the grantee agency. James Davis, Executive Director of the SSEC, was the project director, and Donald Wentworth, Professor Emeritus of Pacific Lutheran University, was project co-director.

The overall project goal was to help students achieve a deeper understanding of puzzling economics questions so they could explain and provide thorough, supported, and justifiable accounts of economic phenomena, facts, and data. Three objectives guided project development:

- Create a classroom laboratory orientation for the investigations similar to those students would encounter in a laboratory science course.
- Develop quantitative skills in students—more so than they would acquire in a standard high school economics course.
- Focus the investigations on intriguing economics questions to spark student and teacher interest.

The Investigations

Twelve investigations were created by teams of economics curriculum materials developers and high school economics teachers. The titles of each investigation identify its content area followed by the main question addressed in the investigation. The investigation titles are:

Microeconomic Investigations

1. Women’s Wages: Do Women Earn Less Money Than Men?
2. Organ Transplants: Where Are the Missing Kidneys?
3. Minimum Wage: Does Raising the Rate Help Younger Workers?
4. Poverty: How Can a Family Be in Poverty and Not Be Poor?
5. Health Care: Who Should Pay the Cost?

Macroeconomic Investigations

6. Performance of the National Economy: How Do We Measure the Economy’s Health?
7. Inflation: Are Higher Prices the Only Problem?
8. Employment and Unemployment: How Can Both Rates Rise at the Same Time?
9. Fiscal Policy: Can Congress Diagnose and Treat an Ailing Economy?
10. Monetary Policy: Can the Federal Reserve Diagnose and Treat an Ailing Economy?

International Investigations

11. African-U.S. Trade: What’s in It for Africa?
12. Imports: Does American Employment Decline Because of International Trade?



Investigation and Field Test Results

The investigations were field-tested by high school teachers in the spring semesters of 2004 and 2006. Field test locations included Jefferson County Colorado; Milwaukee, Wisconsin; Sioux Falls, South Dakota; Scottsdale/Mesa, Arizona; and Plano, Texas. Based on this field test, the investigations were found to promote deeper student understanding of economic issues through the use of effective instructional methods. Students acknowledged that they learned a great deal from the investigations and teachers stated they would recommend the investigations to other teachers.

Cooperative Publishing Agreement

The Social Science Education Consortium has transferred the copyright of these investigations to JA Worldwide. JA Worldwide is making them available to teachers by posting them on the JA Worldwide website (www.ja.org) and distributing them in CD-ROM format. The investigations also will be posted on the SSEC website (www.socialscience-ed.org). Ultimately, the investigations will support the revised Junior Achievement high school program, *JA Economics*.

Authorship and Consultants

The project was fortunate to have an excellent group of authors and consultants. These individuals are listed below.

Colorado Development Team

Laura Burrow, Jefferson County Public Schools
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Lewis Karstenson, University of Nevada, Las Vegas

Washington Development Team

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The economics consultant to the project was Norris Peterson, Professor of Economics, Pacific Lutheran University, Tacoma, Washington.

The project evaluator was William Walstad, Professor of Economics, University of Nebraska, Lincoln.

Nancy Baldrice, Excelsior, Minnesota, served in an editorial and desktop-publishing capacity on the project.



Field-Test Teachers

Below are the teachers who completed field tests during the second year of the project.

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Investigation #3:

Minimum Wage: Does Raising the Rate Help Younger Workers?

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Junior Achievement®

Investigation #3: Minimum Wage: Does Raising the Rate Help Younger Workers?

Introduction

Changing the minimum wage is a controversial political issue. At first glance, it seems quite obvious what to do. If workers are not making enough money to care for their families, employers should be required to pay them higher wages. But there is more to the story. Opponents argue that a minimum-wage raise hurts employers and consumers, and increases the rate of unemployment among inexperienced and low-skilled workers.

Economic analysis suggests that a minimum-wage raise may contribute to negative results, such as higher levels of unemployment among poor, inexperienced, and low-skilled workers. However, economic research cannot clearly substantiate this conclusion, nor can it substantiate that positive results may occur from raising the minimum wage. This issue is a situation where it is hard to conduct economic research that tests only the impact of one change – raising the minimum wage. Too many other changes in the economy occur at the same time that a minimum wage is raised. Therefore, unemployment results can be attributed to multiple causes.

Student Comprehension

This investigation will help students investigate the important issues related to the minimum wage, including the following:

- What does economic theory suggest will result in minimum-wage earnings and employment if the minimum wage is increased?
- Does an increase in the minimum wage increase the income of young workers?
- Does an increase in the minimum wage decrease the employment opportunities for young workers?

Concepts

Incentives and Disincentives
Supply of Low-Skilled Labor
Demand for Low-Skilled Labor
Minimum Wage
Shifts in Demand for Low-Skilled Labor



Objectives

After completing this investigation, students will be able to:

1. Use supply/demand analysis to evaluate the impact of raising the minimum wage.
2. Define the concept of minimum wage.
3. Explain why it is difficult to produce conclusive evidence about the impact of raising the minimum wage.

Economic Principles

The labor market for minimum-wage workers operates much like the market for other valuable resources in the economy. There is a supply of workers and a demand for workers. Wages provide incentives, and influence the behavior of both employers and employees. Wages are a cost to employers, a **disincentive**. As wages rise, employers attempt to employ fewer workers and/or search for alternatives, such as labor-saving machines. This relationship is demonstrated in a demand curve for workers.

Wages serve as an **incentive** for workers. At higher wages, more workers are willing to provide more work time; at lower wages, workers provide less work time. This relationship is demonstrated in the supply curve for workers. A wage imposed on a market that is above the equilibrium wage should result in a shortage of jobs (or a surplus of workers) for inexperienced, low-skilled workers. The rate of unemployment should rise. However, it is hard to verify this outcome conclusively. Adjustments in the minimum wage usually occur when other major changes are occurring in the economy. One cannot ask the economy to “hold still” and let researchers observe the impact of just one variable – the minimum wage. Researchers report that when the minimum wage increases, unemployment could decline or increase. The outcome varies.

Investigation

Description

Students are introduced to the minimum-wage issue and presented with historical information about the law. They also learn how to identify which groups of people tend to earn the minimum wage. Next, they are asked to use supply-and-demand analysis to develop a hypothesis about the impact of minimum wage increases. This activity is followed by an analysis comparing years with minimum wage increases to data on unemployment. Finally, they check to see if minimum wage increases help reduce the number of families in poverty.

Time Required: 60 minutes

Technology: The investigation includes an optional computer-search activity.

Materials

Visual #1	Basic Information about the Minimum Wage Program
Activity #1	The Market for Low-Skilled Workers
Activity #2	Changes in the Minimum Wage Rate and the Worker Unemployment Rate, Ages 16-19



Procedure

1. Ask students if they are working for the minimum wage, or if they know someone who is working for the minimum wage. Also ask them to explain the minimum wage.
2. Ask students if they know what the minimum wage rate is in their state. Explain that state rates vary, but the Federal Minimum Wage was \$5.15 at the time this investigation was written.
3. Find out, with a show of hands, how many students think the minimum wage should be raised, lowered, or left the same. Let them explain their reasons. Put some comments on the board for future reference.
4. Explain that the minimum wage is a very important political issue. At face value, it seems to provide additional income to people working in low-paying jobs. Logically, no one should oppose the issue. Explain that many political leaders and economists disagree on its usefulness. Tell students that there is more to the story, and, for that reason, they will investigate the issue.
5. Display **Visual #1 – Basic Information about the Minimum Wage Program**. Ask student to consider the following questions:

Question #1

Why do we have a minimum wage rate?

Answer: Lawmakers must have considered the market rate to be too low. They chose to require employers to pay more than the equilibrium market price.

Question #2

Why did lawmakers raise the minimum wage during the last 65 years?

Answer: To try to keep pace with inflation. If the rate was still \$.25 per hour, it would be below the market equilibrium price, and have no effect on hiring decisions.

Question #3

Why are employers willing to pay experienced, skilled workers more money per hour than inexperienced, low-skilled workers?

Answer: Experienced, skilled workers tend to be scarcer and more productive. The output they create generates enough revenue to pay their higher wages.

6. Explain that economists approach this program with supply-and-demand models to anticipate the consequences of increasing the minimum wage. Give each student a copy of **Activity #1 – The Market for Low-Skilled Workers**, and ask them to use the graphs to answer the questions.

Episode 1: Impact of Minimum Wage Laws

Question #1

Why does the supply line of workers slope upward?

Answer: The wage serves as an incentive. At higher wages, more people are willing to work, or to work longer hours.

Question #2

Why does the demand line for workers slope downward?

Answer: The wage is a cost—a disincentive—for employers. At lower wages, they are willing to hire more workers than they would at higher prices.

Question #3

Four dollars an hour appears to be the market clearing price.

How many people will be hired at that wage?

Answer: 50,000

Question #4

What would happen to the number hired if a minimum wage of \$5.15 was imposed on this market?

Answer: 40,000 would be hired, 10,000 would lose their jobs

Question #5

How many people want to work at \$5.15 per hour?

Answer: 60,000

Question #6

Is there a shortage or a surplus of workers at \$5.15 per hour wage rate?

Answer: Surplus—60,000 want to work at that rate and only 40,000 will be hired.

Question #7

In this model, how many low-skilled workers gain increased income from the minimum wage increase?

Answer: 40,000

Question #8

In this model, how many low-skilled workers lose income as a result of this minimum wage increase?

Answer: 10,000



Episode 2: What Happens if the Economy Grows?

Question #1

What happened to the market clearing wage for low-skilled workers?

Answer: It rose from \$4 to \$5.15, the same as the new minimum wage.

Question #2

What happened to the number of workers employed at the minimum wage rate?

Answer: They increased to 60,000.

Question #3

Did the increased minimum wage rate increase unemployment?

Answer: It does not appear that any unemployment has occurred. Remember, evidence does not come in supply/demand graph form. It only shows the final result. In this case, it is hard to determine for your boss that the minimum wage and unemployment have any connection.

Question #4

Would you be right to conclude, from this evidence that the minimum wage increase led to improved incomes for low-skilled workers?

Answer: Yes, it does appear that way.

Episode 3: What Happens if There is a Recession?

Question #1

What happened to the market clearing wage for low-skilled workers?

Answer: It declined from \$4 to \$2.85, well below the new minimum wage.

Question #2

What happened to the number of workers employed at the minimum wage rate?

Answer: They decreased to 20,000.

Question #3

Did the increased minimum wage rate increase unemployment?

Answer: It appears that unemployment increased dramatically as a result of increasing the minimum wage. Remember, your evidence does not show a shifting supply/demand graph. It only shows the final result in numbers. In this case, it is easy to see a connection between the minimum wage increase and unemployment.

Question #4

Would you consider this evidence that the minimum wage increase led to less income for low-skilled workers?

Answer: Yes, it does appear that way.



Conclusions

Question #1

According to economic reasoning, should minimum wage increases increase or decrease unemployment among inexperienced and low-skilled workers?

Answer: Increase.

Question #2

Does the fact that many changes happen at the same time in the economy make it easier or more difficult to explain the impact of a minimum wage increase?

Answer: More difficult.

Question #3

What happens when economists cannot find the complete answer to an important question, such as what happens to employment as a result of an increase in the minimum wage?

Answer: Economists just keep looking, trying to find new approaches to the problem, such as cross-state comparisons or cross-country analysis. There are many questions that cannot be answered with definitive evidence.

- Optional Internet Investigation:** Explain to students that this is a good opportunity to investigate the relationship between changes in the minimum wage and the unemployment of young workers, ages 16-19. Provide **Activity #2 – Changes in the Minimum Wage Rate and the Worker Unemployment Rate, Ages 16-19**, and ask them to find the required information in the Economic Report of the President, www.access.gpo.gov/eop/, and the Bureau of Labor Statistics Minimum Wage History page, www.dol.gov/esa/minwage/chart.htm.
- If the Internet investigation is not conducted, present students with the information below and ask them to answer the questions associated with the exercise.

Answers to Activity #2, Changes in the Minimum Wage Rate and the Worker Unemployment Rate, Ages 16-19

Years	Minimum Wage	Unemployment	
		Male 16-19	Female 16-19
1988	\$3.35	16.0%	14.4%
1989	\$3.35	15.9%	14.0%
1990	\$3.80	16.3%	14.7%
1991	\$4.25	19.8%	17.5%
1992	\$4.25	21.5%	18.6%
1993	\$4.25	20.4%	17.5%
1994	\$4.25	19.0%	16.2%
1995	\$4.25	18.4%	16.1%
1996	\$4.75	18.1%	15.2%
1997	\$5.15	16.9%	15.0%
1998	\$5.15	16.2%	12.9%



Question #1

Does the unemployment among young people rise or fall when the minimum wage rises from \$3.80 to \$4.25?

Answer: Unemployment rises.

Question #2

Does the unemployment among young people rise or fall when the minimum wage rises from \$4.25 to \$5.15?

Answer: Unemployment falls.

Question #3

What conclusions can you draw about increases in the minimum wage and changes in young worker unemployment?

Answer: No clear relationship is apparent. There must be other, more powerful, factors that have more influence on the unemployment of young workers, such as recessions or periods of economic growth. Most economists would probably speculate that young worker unemployment would be lower in both periods of recession and growth if the minimum wage was not raised. Again, it is difficult to find strong supporting evidence for that speculation, which does not make the speculation incorrect, just hard to support with conclusive evidence.

Closure

Ask students to consider each of the following statements and decide if they are consistent or inconsistent with what was learned in this investigation.

- The minimum wage is a rate paid only to young (16-19 years of age), low-skilled workers.
Answer: Inconsistent. Minimum-wage earners range in age from young to old.
- Economic theory suggests that a rise in the minimum wage will increase the unemployment level of low-skilled, inexperienced workers.
Answer: Consistent. As the cost of low-skilled, inexperienced workers rises, employers will hire fewer of them.
- Historical evidence confirms that increased minimum wages increase unemployment in low-skilled, inexperienced workers.
Answer: Inconsistent. Historical evidence is unclear about what happens to unemployment when the minimum wage is changed.
- Young workers are impacted strongly by minimum wage increases.
Answer: Consistent. They make up a large percentage of minimum-wage workers, and they suffer from the highest levels of unemployment. They also gain from the minimum wage increases if they maintain their employment.

ANSWER KEY

Multiple Choice (3)

(Answers are shown in bold.)

1. The minimum wage of \$.25 per hour was passed by Congress in 1938 to accomplish what purpose?
 - a. Reduce unemployment.
 - b. Increase unemployment.
 - c. Reduce worker incomes.
 - d. Increase worker incomes.**

2. What happened to the rate of unemployment among young people when the minimum wage was increased during the 1990s?
 - a. Unemployment declined.
 - b. Female unemployment declined.
 - c. Male unemployment declined.
 - d. During this time, unemployment declined and rose in different years.**

3. An increase in the demand for house painting leads more teachers to start summer house-painting businesses. They also hire high-school students to paint for them, and they pay them the minimum wage. How would this adjustment in house painting and employment be depicted in a supply-and-demand model of the market for minimum-wage workers?
 - a. An increase in the demand for labor.**
 - b. An increase in the supply of labor.
 - c. A decrease in the supply of labor.
 - d. No change in either the supply or demand for labor.



ANSWER KEY

Essay (2)

1. A recent study indicates that a 10 percent increase in the minimum wage reduces employment of low-skilled workers by 1-3 percent. If you are a low-skilled worker and you accept the study as accurate, would you tend to favor or oppose an increase in the minimum wage? Be sure to consider the incentives involved here.

Answer: It's likely you would favor the increase. An average low-skilled worker is almost certain to retain his or her job, which would result in an automatic pay raise. On the other hand, if you thought you would be one of the few to lose your job, you would oppose the increase.

2. How would you correct the following statement? Explain your answer.
“I don't know why we make such a fuss over the minimum wage rate. Only kids are paid the minimum wage. All adults have good jobs and get paid more than the minimum wage. Just let the kids grow up! When they get older they will earn more.”

Answer: Yes, a large portion of minimum-wage earners are ages 16-19, and most adults do make more than the minimum wage. However, not all adults get paid more than the minimum wage. Minimum-wage workers are of all ages. Experience, training, and increased job skills lead to better employment, not just getting older.

ANSWER KEY

Open-Ended Assessment (1)

Most economists would suggest that such a sharp increase would impose such a high cost on businesses that they would lay off many workers. These layoffs would reduce worker incomes, not increase them. Small increases in the minimum wage do not have as great an impact. For example, \$50 per hour would be a “cost shock” for employers, which would reduce their willingness to hire workers or to retain many workers.

Ask students to provide an answer to the following statement. What might be the most likely outcome if the minimum wage was changed as suggested?

In the last 15 years, the Federal Minimum Wage has increased at a minimal amount. It has had no real impact on the income level of minimum-wage earners. If we are serious about helping minimum-wage workers, the Federal Minimum Wage should be raised to \$50 per hour. That change would help both minimum-wage earners and low-wage earners finally join the mainstream of this economy. They could then afford more of the good things of life. A wage of \$5.15 is criminally insufficient. It’s time to make an important increase in the Federal Minimum Wage.



Investigation #3: Minimum Wage: Does Raising the Rate Help Younger Workers?

Investigation #3 – Assessment #1

Multiple Choice (3)

1. The minimum wage of \$.25 per hour was passed by Congress in 1938 to accomplish what purpose?
 - a. Reduce unemployment.
 - b. Increase unemployment.
 - c. Reduce worker incomes.
 - d. Increase worker incomes.

2. What happened to the rate of unemployment among young people when the minimum wage was increased during the 1990s?
 - a. Unemployment declined.
 - b. Female unemployment declined.
 - c. Male unemployment declined.
 - d. During this time, unemployment declined and rose in different years.

3. An increase in the demand for house painting leads more teachers to start summer house-painting businesses. They also hire high-school students to paint for them, and they pay them the minimum wage. How would this change in house painting and employment be depicted in a supply and demand model of the market for minimum-wage workers?
 - a. An increase in the demand for labor.
 - b. An increase in the supply of labor.
 - c. A decrease in the supply of labor.
 - d. No change in either the supply or demand for labor.

Investigation #3 – Assessment #2

Essay (2)

1. A recent study indicates that a 10% increase in the minimum wage reduces employment of low-skilled workers by 1-3%. If you are a low-skilled worker and you accept the study as accurate, would you tend to favor or oppose an increase in the minimum wage? Be sure to consider the incentives involved here.

(Lined writing area for the essay response)

Investigation #3 – Assessment #2 (page 2)

2. How would you correct the following statement? Explain your answer.

“I don’t know why we make such a fuss over the minimum wage rate. Only kids are paid the minimum wage. All adults have good jobs and get paid more than the minimum wage. Just let the kids grow up! When they get older, they will earn more.”

Investigation #3 – Assessment #3

Open-Ended Assessment (1)

Directions: Ask students to provide an answer to the following statement. What might be the most likely outcome if the minimum wage was changed as suggested?

In the last 15 years, the Federal Minimum Wage has increased at a minimal amount. It has had no important impact on the income level of minimum-wage earners. If we are serious about helping minimum-wage workers, the Federal Minimum Wage should be raised to \$50 per hour. That change would help both minimum-wage earners and low-wage earners finally join the mainstream of this economy. They could then afford more of the good things of life. A wage of \$5.15 is criminally insufficient. It's time to make an important increase in the Federal Minimum Wage.

Basic Information about the Minimum-Wage Program

Minimum Wage—A wage rate set by law that requires workers to be paid at least the lawfully stated hourly wage rate.

History—In 1938, Congress passed the Fair Labor Standards Act, which provided for a national minimum wage of \$.25 per hour. The minimum wage has been changed by Congress many times in the last 65 years. The current Federal Minimum Wage is \$5.15 per hour.

State Minimum-Wage Rates—States may set minimum-wage rates higher than the Federal Minimum-Wage Rate. They cannot set the State Minimum-Wage Rate lower than the Federal Minimum-Wage Rate.

Most workers earn much more than the minimum wage, so they are not personally affected by the changes in the minimum-wage rate. Inexperienced and low-skilled workers tend to be affected by changes in the rate.

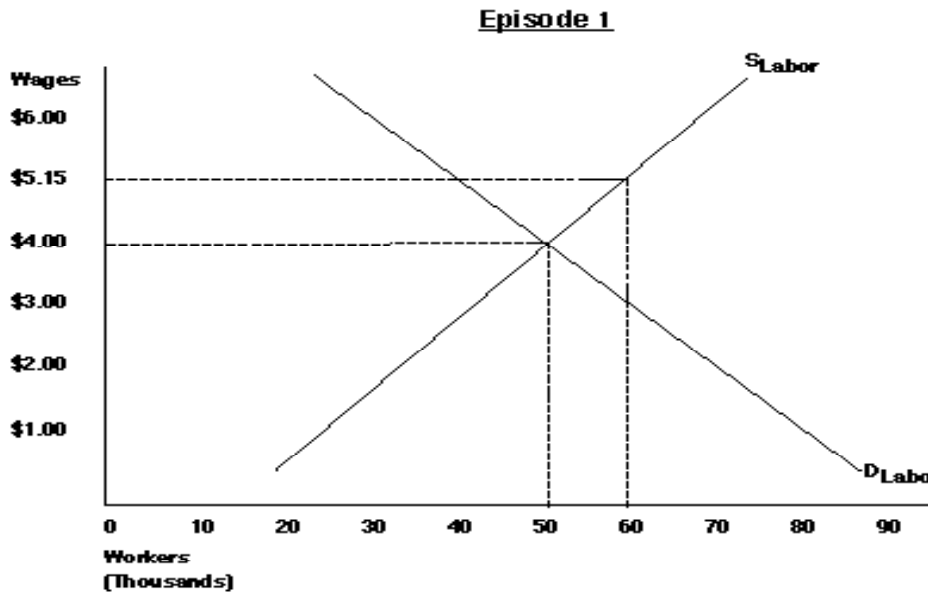
The Market for Low-Skilled Workers

Directions: Read each graph carefully and answer the questions according to information on the graph. Remember, this model assumes the following:

- The market for low-skilled workers is very competitive.
- There are many workers who can easily move from job to job.
- There are many employers.
- All employers can implement substitutes for labor if wages get too high.

Episode 1: Impact of Minimum Wage Laws

Imagine you are a reporter researching an article on the impact of the minimum wage law on the labor market. You visit a labor economics professor who creates a supply and demand graph to explain the issue. Read the questions below and answer them using the graph.



1. Why does the supply line of workers slope upward?

Investigation #3 – Activity #1, (page 3)

2. Why does the demand line for workers slope downward?

3. Four dollars an hour appears to be the market-clearing price.
How many people will be hired at that wage?

4. What would happen to the number hired if a minimum wage of \$5.15 per hour was imposed on this market?

5. How many people want to work for \$5.15 per hour?

Investigation #3 – Activity #1 (page 4)

6. Is there a shortage or a surplus of workers at the \$5.15 per hour wage rate?

7. In this model, how many low-skilled workers gain income from the minimum wage increase?

8. In this model, how many low-skilled workers lose income as a result of this minimum wage increase?

Episode 2: What Happens if the Economy Grows?

Imagine you are a researcher for a U.S. Senator. You have been asked to find out if a minimum wage increase creates unemployment or improves income for low-skilled workers. Read the results from the graph to determine what you can report. This graph demonstrates a situation where the economy is growing rapidly during the time that the minimum wage is increased. Employers are increasing their demand for workers to help meet the increased demand for the company's products.



1. What happened to the market-clearing wage for low-skilled workers?

Investigation #3 – Activity #1 (page 6)

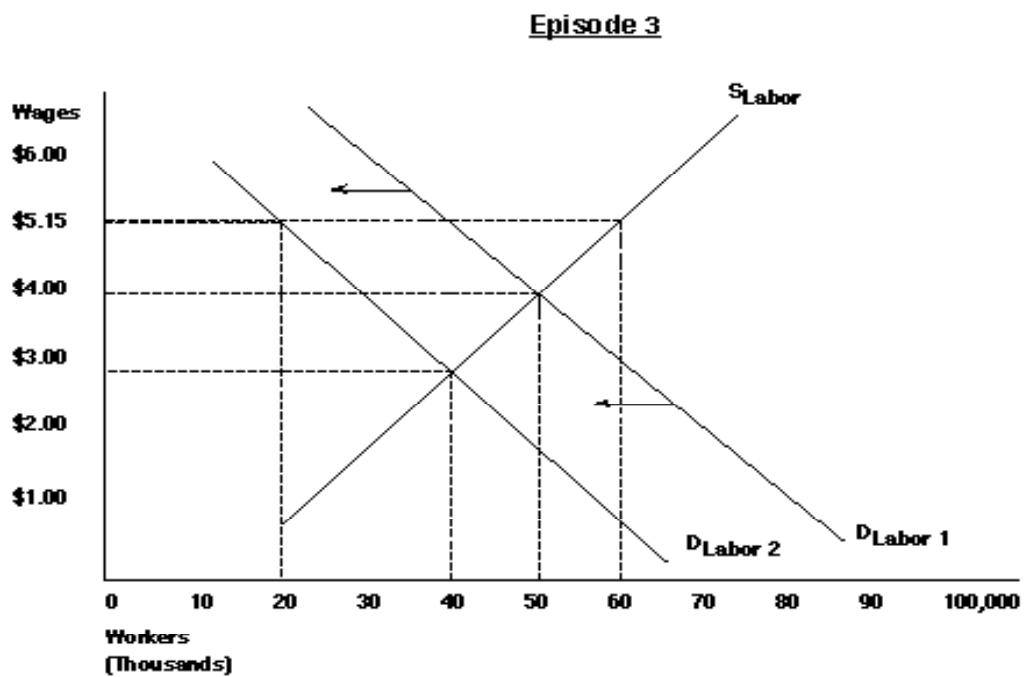
2. What happened to the number of workers employed at the minimum-wage rate?

3. Did the increased minimum-wage rate increase unemployment?

4. Would the senator be correct in choosing to decide, from this evidence that the minimum-wage increase led to increased income for low-skilled workers?

Episode 3: What Happens if There Is a Recession?

Imagine that you have changed jobs. You now work for a U.S. senator, who is quite certain that increases in the minimum-wage rate results in unemployment increases among low-skilled workers and reduces their overall income. He asks you to observe the changes in the unemployment levels after the minimum wage was increased. This time, the economy falls into a recession. Businesses are not selling as many products, so they lay off workers, and their demand for low-skilled workers decline.



1. What happened to the market-clearing wage for low-skilled workers?

Investigation #3 – Activity #1 (page 8)

2. What happened to the number of workers employed at the minimum-wage rate?

3. Did the increased minimum-wage rate increase unemployment?

4. Would the senator consider this evidence that the minimum wage increase led to less income for low-skilled workers?

Conclusions

1. According to economic reasoning, should increases in minimum-wage rates increase or decrease unemployment among inexperienced and low-skilled workers?

2. Does the fact that many changes happen at the same time in the economy make it easier or more difficult to explain the impact of a minimum-wage increase?

3. What happens when economists cannot find the complete answer to an important question, such as what happens to employment as a result of an increase in the minimum wage?

Changes in the Minimum Wage Rate and the Worker Unemployment Rate, Ages 16-19

Young workers are considered a group critically affected by changes in minimum-wage rates. During the years 1988 through 1998, the Minimum-Wage Rate was changed several times. Unemployment rates also changed.

Directions: The information on the unemployment rates are provided for you. You can check these figures in the Economic Report of the President at www.access.gpo.gov/eop/. Then examine the historical changes in the minimum wage law from the Department of Labor at www.dol.gov/esa/minwage/chart.htm. Find these websites yourself, or ask your teacher for assistance. After you find the yearly data on these two variables, answer the questions at the end of the activity.

Years	Minimum Wage	Unemployment	
		Male 16-19	Female 16-19
1988	\$3.35	16%	14.4%
1989		15.9%	14.0%
1990		16.3%	14.7%
1991		19.8%	17.5%
1992		21.5%	18.6%
1993		20.4%	17.5%
1994		19.0%	16.2%
1995		18.4%	16.1%
1996		18.1%	15.2%
1997		16.9%	15.0%
1998		16.2%	12.9%

1. Does unemployment among young people rise or fall when the minimum wage is increased from \$3.80 to \$4.25?

Investigation #3 – Activity #2 (page 2)

2. Does unemployment among young people rise or fall when the minimum wage is increased from \$4.25 to \$5.15?

3. What conclusions can you draw about increases in the minimum wage rate and changes in young-worker unemployment?
