

INSIDE THE VAULT

An Economic Education Newsletter from the Federal Reserve Bank of St. Louis

Employment Growth in America

LESSON PLAN



Employment Growth in America *Inside the Vault* Lesson Plan | Table of Contents

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Employment Growth in America

What Determines Good Jobs?

Employment growth is one of the most fundamental aspects of a strong economy. Yet not all jobs are created equal. Some pay generously and offer desirable working conditions, while others do not. A study by Federal Reserve Bank of St. Louis economist Christopher H. Wheeler examined the growth of high-paying (“good”) and low-paying (“bad”) jobs across a sample of 206 metropolitan areas in the United States. This study suggests that the nature of jobs held by workers influences a variety of economic and social outcomes. Cities that experience rapid growth in high-wage employment also tend to see increasing incomes throughout the entire labor market, not just among those who happen to hold high-paying jobs. In addition, the growth of high-paying employment is associated with lower rates of crime, higher property values and rising educational levels.

Does Education Matter?

One of the fundamental sources of good job growth is an educated labor force. Within the past three decades, the demand for highly educated workers has grown dramatically in the United States. In 1980, the average proportion of workers across 200 industries with some education at the college level was 32 percent. By 2000, it had risen to 51 percent. In fact, no industry saw its proportion of college-educated workers decrease over this period.



At the same time, high-paying jobs also tend to have a particularly strong demand for college-educated workers. Among the top 25 percent of jobs in the sample, the average proportion of workers with a bachelor's degree rose from 18 percent in 1980 to 36 percent in 2000. There is also a strong positive association between an industry's average hourly rate of pay and the fraction of its workers with a bachelor's degree. More than 70 percent of workers in the top quartile of jobs had completed

Continued on next page

Jobs in the U.S.: Average Hourly Pay and Total Employment

2000 Rank	Industry	Average Hourly Wage (\$)	Employment
1	Metal Mining	38.61	22,813
2	Security, Commodity Brokerage and Investment Companies	36.26	991,548
3	Business Management and Consulting Services	32.83	825,480
4	Railroads	29.73	291,944
5	Computer and Data Processing Services	29.70	1,385,009
192	Barber Shops	12.73	44,509
193	Retail Florists	12.57	152,538
194	Gasoline Service Stations	12.52	392,666
195	Eating and Drinking Places	12.06	5,151,237
196	Bowling Alleys, Billiard and Pool Parlors	12.02	49,759

Source: U.S. Census Bureau (For the complete table, go to www.stlouisfed.org/community/assets/pdf/job_growth_study.pdf)

some post-secondary schooling in the year 2000, whereas fewer than 40 percent of workers in the bottom quartile of jobs had done so.

Why is the general level of education so important? Economies with high levels of educational attainment among the work force (or, more generally, population) experience a variety of benefits that economies populated by less-educated individuals do not. Not only is education associated with higher earnings for individuals, but as the general level of education within a city rises, the average labor earnings of all workers tend to rise. An additional benefit of a more-educated work force concerns the potential for future job growth. The level of education among a city's population is strongly associated with subsequent rates of growth among high-paying sectors. Thus, there is a "virtuous cycle" aspect to the growth of good jobs: Their presence helps to ensure that such jobs will continue to grow in the future. In addition, cities with large numbers of colleges and universities and employment that is accounted for by institutions of higher education tend to exhibit a significantly faster growth rate for good jobs. Therefore, cities with more-educated populations tend to see the ratio of good to bad jobs increase over time.

Where Are Good Jobs Created?

Beyond education and skill concerns, characteristics such as labor costs and unionization rates may influence the perceived profitability of a location and, therefore, the extent to which producers create jobs there. Where workers are willing to live and, thus, where employers are likely to set up production also depend on what amenities (e.g., entertainment, warm weather, schools) people desire in a location. The number of movie theaters and the average temperatures during January and July all affect employers' selection of their business locations. Not surprisingly, employment growth in the South and West of the United States has outpaced that of the Northeast and Midwest in recent decades.

Good jobs also tend to grow faster in metropolitan areas with younger populations. Part of the explanation for this probably relates to the fact that cities with young populations also tend to be more educated. Furthermore, urban workers tend to be somewhat younger and more educated than their nonurban counterparts. In 2000, for example, 29.3 percent of urban workers between the ages of 18 and 65 held a bachelor's degree, and nearly 60 percent had some schooling at the college level. In rural areas, only 16.3 percent held a four-year college degree and only 45 percent had some

Classroom Discussion

1. What evidence from the article do you find to support the claim that education affects employment and, in particular, that it affects whether jobs created are "good" or "bad"?
2. What are some ways in which an educated labor force benefits a community?
3. Based on the table, what would you project to be the educational level (i.e. high school diploma, some college, bachelor's degree or advanced degree) of those in the top five industries compared with employees in the bottom five industries?

post-secondary education. Moreover, 55 percent of urban workers were between 25 and 44 years of age—i.e., in the first half of their careers—whereas only 51 percent of rural workers were.

Conclusion

The benefits of job creation for both workers and their communities are enormous. Because those benefits tend to be even greater as the share of good jobs in total employment increases, identifying where and why good jobs grow is an important task.

Among the potential determinants considered, the most important seem to relate to the characteristics of the local labor force: age, education and work skills. Developing a young, skilled work force is probably the most fundamental step that a region can take in the promotion of good jobs.

This article was adapted from "Employment Growth in America" which was written by Christopher H. Wheeler and was published as a Federal Reserve Bank of St. Louis study in July 2005.

Lesson Plan

Lesson Description

Employment growth is one of the most fundamental aspects of a strong economy. Yet not all jobs are created equal. Some pay generously and offer desirable working conditions, while others do not. The study by Christopher H. Wheeler, a Federal Reserve Bank of St. Louis economist, suggests that the nature of jobs held by workers influences economic and social outcomes. Cities that experience rapid growth in high-wage employment also tend to see increasing incomes throughout the entire labor market, not just among those who happen to hold high-paying jobs. In addition, the growth of high-paying employment is associated with lower rates of crime, higher property values and rising educational levels. This lesson shows that increasing human capital is important to the economy.

Content Standard

National Standards in Economics

Standard 13: Income for most people is determined by the market value of the productive resources they sell. What workers earn depends, primarily, on the market value of what they produce and how productive they are.

Benchmark Grade 8, Number 5: Consider a career choice and research the amount of education required and the median income for this career. Identify reasons why high school dropouts frequently earn low incomes.

Economic Concepts

Human capital—the quality of labor resources that can be improved through investments in education, training and health care

Wages—payments for labor service

Opportunity cost—the forgone benefit of the next best alternative when scarce resources are used for one purpose rather than another

Objectives

Students will be able to:

- explain that income is determined by the market value of the productive resources people possess, and
- explain that earnings are based on education, training and career options.

Time Required

Two to three 45-minute class periods

Materials

- Transparencies 1, 2 and 3
- Handouts 1, 2 and 3, and 3 *Answer Key*

Procedures

- Begin the lesson by explaining to the students that human capital is the skill and knowledge that can be improved through investments in education, training and health care (e.g., typing skills, computer skills, running skills or reading skills). Ask students what human capital they might possess, and have them give examples of their human capital. (*Reading and mathematics skills, ability to play an instrument, ability to play a sport, ability to work well with groups and so on*) List students' responses on Transparency 1. Ask the students how important the skills and knowledge they are developing in school are. (*Answers will vary.*)
- Explain that opportunity cost is the highest-valued alternative given up when a choice is made. Point out that if a student is choosing between going to a movie and buying a new CD and he or she chooses the CD, the opportunity cost of the decisions is the movie. Ask the students what the opportunity cost of obtaining more education is. (*time spent doing other things, income that could have been earned working, money spent on education could have been spent on other things*)
- Discuss with students the plans they have for employment after graduation from high school. On Transparency 2, list the types of jobs the students would like to have. Ask the students what types of education/training would be needed for them to perform these jobs. Explain that education is associated with higher earnings for individuals and, as the general level of education within a city rises, the average earnings of workers of all levels of educational attainment tend to rise. Discuss the following:
 - What are the benefits of advanced educational or technical training? (*higher earnings*)
 - What is the opportunity cost of choosing advanced educational or technical training? (*time spent in school that could have been spent doing other things, income that could have been earned, money spent for school that could have been spent on other things*)
- Compare the information that the students provided about their future jobs with the list of high-paying and low-paying jobs on Transparency 3. Discuss the following. Use the *Inside the Vault* article in this lesson plan for more information to help with the discussion.
 - How do the jobs you want in the future compare to the high-paying and low-paying jobs on Transparency 3? (*Answers will vary.*)
 - Does education matter? (*Yes; in general, the more education, the higher the income.*)

Closure

Assign Handouts 1 and 2 to students. Have students calculate the salaries for several high-paying and low-paying jobs. Use this activity to help students understand that education and training lead to higher-paying jobs.

Assessment

Have students conduct research on the job qualifications that are needed for the job they might want to do. Prepare a bulletin board with the title "Jobs Wanted." Have the students design fliers, pamphlets or posters with the job qualifications and possible salaries. Post these on the bulletin board.

Extension/Connection

Have students complete Handout 3.

Human Capital Skills and Knowledge

Future Jobs

Income per Week, Month and Year

Use this table to figure out the daily income (8 hours per day), weekly income (40 hours per week), monthly income (4 weeks per month) and yearly income (52 weeks per year) of at least two high-paying and two low-paying jobs that you might consider doing.

High-paying Jobs	Average Hourly Wage	Low-paying Jobs Wage	Average Hourly Wage
Metal Mining	38.61	Misc. Retail Stores	15.02
Security, Commodity Brokerage and Investment Companies	36.26	Shoe Repair Shops	14.98
Crude Petroleum and Natural Gas Extraction	29.14	Nursing and Personal Care Facilities	14.63
Radio, TV and Communication Equipment	26.04	Taxicab Services	14.17
Offices of Dentists	24.99	Meat Products	13.87
Real Estate	23.28	Hotels and Motels	13.81
Radio and Television Broadcasting	22.97	Department Stores	13.58
Colleges and Universities	22.58	Social Services	13.41
Banking	20.62	Grocery Stores	13.16
Elementary and Secondary Schools	19.93	Beauty Shops	13.09
Forestry	19.79	General Merchandise Stores	12.94
Funeral Services and Crematories	18.98	Laundry, Cleaning and Garment Services	12.90
Construction	18.55	Barber Shops	12.73
Farm Machinery and Equipment	18.32	Gasoline Service Stations	12.52
Metal Forgings	17.87	Eating and Drinking Establishments	12.06
Libraries	16.85	Bowling Alleys, Billiard and Pool Parlors	12.02

Source: U.S. Census Bureau (For the complete table, go to www.stlouisfed.org/community/assets/pdf/job_growth_study.pdf)

High-paying/Low-paying Jobs

Use this sheet to compute daily, weekly, monthly and yearly salaries of jobs found in Handout 1 that you might consider doing. Write the name of the job, then the daily, weekly, monthly and yearly amounts that you calculated.

Job:	\$
Daily pay (8 hours):	\$
Weekly pay (40 hours per week):	\$
Monthly pay (4 weeks per month):	\$
Yearly pay (52 weeks per year):	\$

Job:	\$
Daily pay (8 hours):	\$
Weekly pay (40 hours per week):	\$
Monthly pay (4 weeks per month):	\$
Yearly pay (52 weeks per year):	\$

Job:	\$
Daily pay (8 hours):	\$
Weekly pay (40 hours per week):	\$
Monthly pay (4 weeks per month):	\$
Yearly pay (52 weeks per year):	\$

Job:	\$
Daily pay (8 hours):	\$
Weekly pay (40 hours per week):	\$
Monthly pay (4 weeks per month):	\$
Yearly pay (52 weeks per year):	\$

Is It Worth a Million or Two?

In today's world, the job you choose will determine if it is worth "a million or two." Do the following and see what premiums come from the educational/training decisions you make now.

1. Using the information found in Handout 1, get an average for the 16 high-paying jobs and the 16 low-paying jobs.

Average hourly wage for high-paying jobs: _____

Average hourly wage for low-paying jobs: _____

2. Next, calculate the average daily wages for high-paying and low-paying jobs using the average hourly wages.

Average daily wage for high-paying jobs: _____

Average daily wage for low-paying jobs: _____

3. Now, calculate the average daily wages for high-paying and low-paying jobs using the average daily wages.

Average weekly wage for high-paying jobs: _____

Average weekly wage for low-paying jobs: _____

4. Calculate the average monthly wages for high-paying and low-paying jobs using the average weekly wages.

Average monthly wage for high-paying jobs: _____

Average monthly wage for low-paying jobs: _____

5. Calculate the average yearly wages for high-paying and low-paying jobs using the average monthly wages.

Average yearly wage for high-paying jobs: _____

Average yearly wage for low-paying jobs: _____

6. Calculate the average wages for high-paying and low-paying jobs that would be earned over a 40-year work period using the average yearly wages.

Average 40-year wage for high-paying jobs: _____

Average 40-year wage for low-paying jobs: _____

7. What are the benefits of more education/training for workers?

8. What are the costs of more education/training for workers?

9. What premiums do education/training bring over a lifetime?

Is It Worth a Million or Two?

In today's world, the job you choose will determine if it is worth "a million or two." Do the following and see what premiums come from the educational/training decisions you make now.

1. Using the information found in Handout 1, get an average for the 16 high-paying jobs and the 16 low-paying jobs.

Add the 16 average hourly wages in the high-paying and low-paying columns. Students then divide that number by 16.

Average hourly wage for high-paying jobs: \$23.42

Average hourly wage for low-paying jobs: \$13.43

2. Next, calculate the average daily wages for high-paying and low-paying jobs using the average hourly wages.

Average daily wage for high-paying jobs: $\$23.42 \times 8 = \187.36 per day

Average daily wage for low-paying jobs: $\$13.43 \times 8 = \107.44 per day

3. Now, calculate the average daily wages for high-paying and low-paying jobs using the average daily wages.

Average weekly wage for high-paying jobs: $\$187.36 \times 5 = 936.80$ per week

Average weekly wage for low-paying jobs: $\$107.44 \times 5 = 537.20$ per week

4. Calculate the average monthly wages for high-paying and low-paying jobs using the average weekly wages.

Average monthly wage for high-paying jobs: $\$936.80 \times 4 = \$3,747.20$ per month

Average monthly wage for low-paying jobs: $\$537.20 \times 4 = \$2,148.80$ per month

5. Calculate the average yearly wages for high-paying and low-paying jobs using the average monthly wages.

Average yearly wage for high-paying jobs: $\$3,747.20 \times 12 = \$44,966.40$

Average yearly wage for low-paying jobs: $\$2,148.80 \times 12 = \$25,785.60$

6. Calculate the average wages for high-paying and low-paying jobs that would be earned over a 40-year work period using the average yearly wages.

Average 40-year wage for high-paying jobs: $\$44,966.40 \times 40 = \$1,798,656$

Average 40-year wage for low-paying jobs: $\$25,785.60 \times 40 = \$1,031,424$

7. What are the benefits of more education/training for workers?

8. What are the costs of more education/training for workers?

9. What premiums do education/training bring workers over a lifetime?