

Wages, Labor Markets and Unemployment

News Item

Five Important Labor Market Trends

Demand for and Supply of Labor

Real Wages Grow Primarily because Workers Become More Productive

Explaining Wage Inequality

Unemployment and the Unemployment Rate

What Have We Learned?

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News

The New York Times

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November 7, 2009

U.S. Unemployment Rate Hits 10.2%, Highest in 26 Years

By PETER S. GOODMAN

As the unemployment rate surged to 10.2 percent in October, reaching double digits for the first time in 26 years, it suddenly seemed possible that the nation might yet confront the worst joblessness since [the Great Depression](#).

In the six decades since the government began compiling such data, the highest level of unemployment came at the end of 1982, when it hit 10.8 percent. Despite the widespread assumption that the [recession](#) has already ended, and even as the economy has resumed growing, the government's latest snapshot of the labor market released Friday testified to the uncomfortable truth that expansion had yet to translate into jobs.

Organizing Theme Five Labor Market Trends

Real Wages have grown over the 20th Century

Since 1970, US real wage growth has slowed.

Wage inequality in the US has increased in recent decades.

The number of US people with jobs has grown substantially over recent decades.

The unemployment rate has been high in Europe for two decades.

The Real Wage

The real wage is the ratio of the dollar wage to a relevant price level.

For the firm, the relevant price is the price of goods and services the firm produces.

For the worker, the real wage measures the amount of product the firm must produce to pay for a unit (hour, month or year) of labor.

The Real Wage

The real wage is the ratio of the dollar wage to a relevant price level.

For the worker, the relevant price is the price of goods and services the worker consumes.

For the worker, the real wage measures the amount of goods they receive by supplying a unit (hour, month or year) of labor.

The Real Wage

$$\text{Real Wage} = \frac{W/P}{\text{Goods per Hour}}$$

Firm: The goods that must be produced to pay for an hour of labor.

Worker: Goods that may be obtained by supplying an hour of labor.

Demand for Labor

The demand for labor gives the quantity of labor the firm will hire as a function of the real wage rate.

The cost benefit principle and diminishing marginal productivity of labor imply that the demand for labor is inversely related to the real wage.

Demand for Labor at Banana Computers The Price of a Computer is \$3000

Worker Years	Computers Per year	Marginal Product	Value of Marginal Product
0	0		
1	25	25	\$75,000
2	48	23	\$69,000
3	69	21	\$63,000
4	88	19	\$57,000
5	105	17	\$51,000
6	120	15	\$45,000
7	133	13	\$39,000
8	144	11	\$33,000

Demand for Labor

If a Banana Computer Worker has a wage of \$60,000 per year, how many workers will Banana find it optimal to hire?

If the wage falls, why will the optimal quantity of labor employed rise?

Use Your Clickers to Answer
The Following
Graded Question.

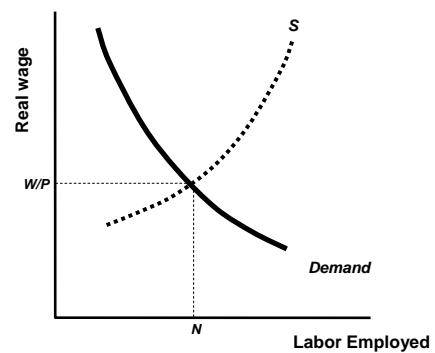
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If the price of a computer is \$3000 and the dollar wage of a worker is \$60,000 per year, it is optimal for the Banana computer company to hire ____ worker years.

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

Worker Years	Computers Per year	Marginal Product	Value of Marginal Product
0	0		
1	25	25	\$75,000
2	48	23	\$69,000
3	69	21	\$63,000
4	88	19	\$57,000
5	105	17	\$51,000
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Demand for Labor



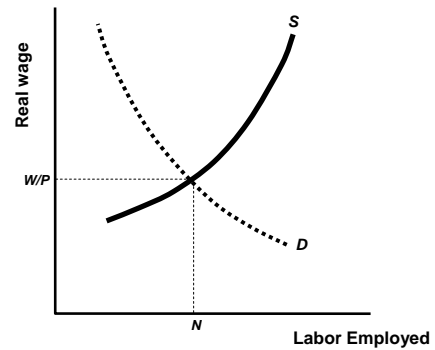
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The Supply of Labor

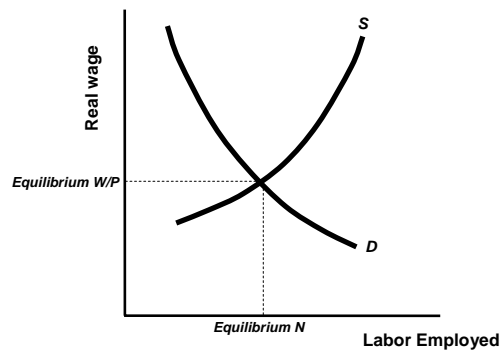
The supply of labor gives the quantity of labor that workers are willing and able to supply as a function of the real wage.

The incentive principle implies that the supply of labor is (usually) directly related to the real wage.

Supply of Labor



The Demand for and Supply of Labor Determine the Real Wage and Employment

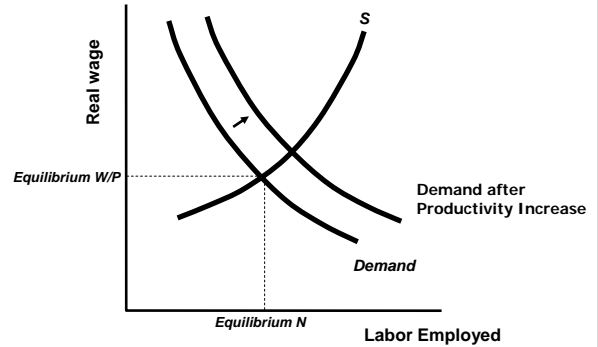


Real Wages Increase
Over Time
Because
Workers Grow More
Productive
as Time Passes

Increased Productivity Causes Increased Labor Demand (The Price of a Computer is \$3000)

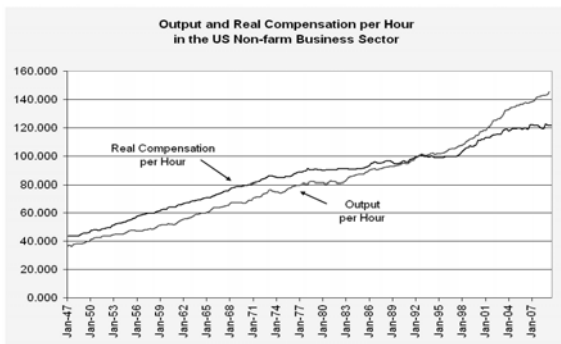
Worker Years	Marginal Product	New Marginal Product	VMP	New VMP
0				
1	25	37.5	\$75,000	\$112,500
2	23	34.5	\$69,000	\$103,500
3	21	31.5	\$63,000	\$94,500
4	19	28.5	\$57,000	\$85,500
5	17	25.5	\$51,000	\$76,500
6	15	22.5	\$45,000	\$67,500
7	13	19.5	\$39,000	\$58,500
8	11	16.5	\$33,000	\$49,500

Increased Productivity Causes Increased Labor Demand

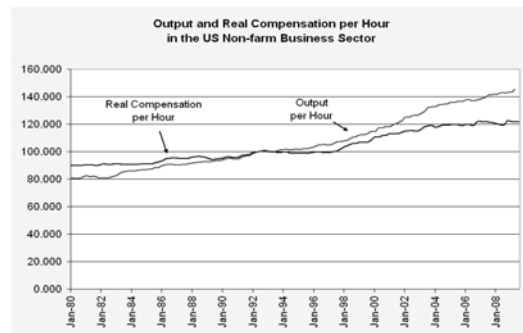


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Real Wages Have Grown Along with Productivity



But Recently Real Wage Growth Has Slowed Even Though Productivity Has Not.



Wage Inequality Has Increased

The data show that wage inequality increased between 2002 and 2008.

We will use our labor demand and supply model to provide an explanation.

The explanation is that recent technology advances have benefited high skill but not low skill workers.

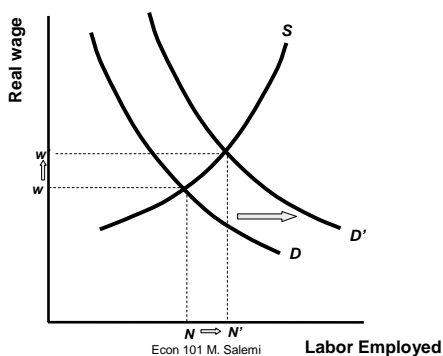
Wage Inequality Has Increased

Table 1. National percentile wage growth, 2002-08

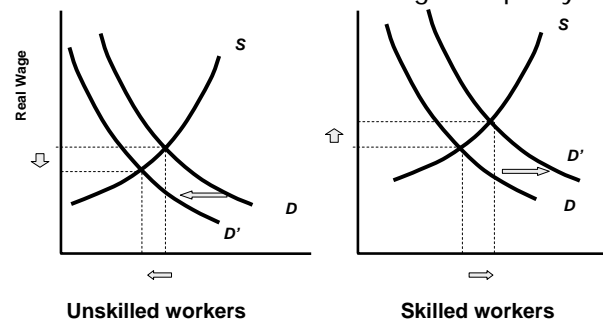
Percentile wage	Year		Percent change in wage	Adjusted for inflation ¹
	2002	2008		
10th	\$14,450	\$16,680	15.4	-3.6
25th	18,580	21,590	16.2	-2.9
50th	27,690	32,390	17.0	-2.3
75th	43,340	51,540	18.9	-7
90th	64,900	79,020	21.8	1.7

¹ The inflation rate over the 2002-08 period was 19.7 percent.

A Technology Advance that Affects All Workers Increases Labor Demand and the Real Wage

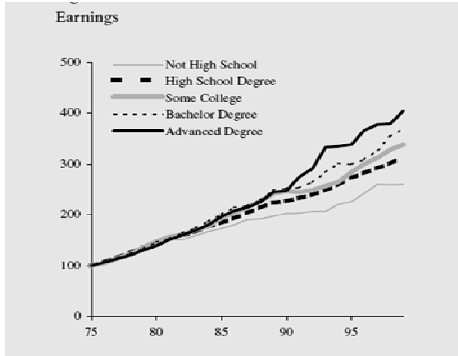


A Technology Advance that Affects Only High Skilled Workers Can Increase Wage Inequality



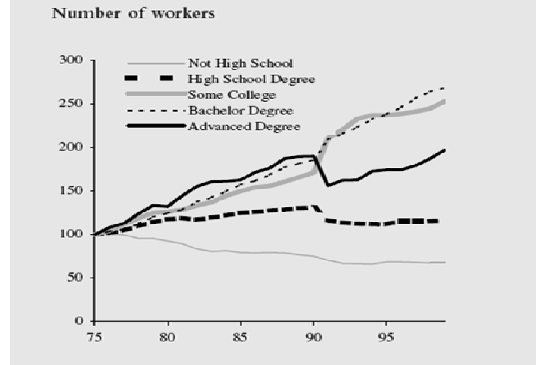
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Wage Inequality Has Increased
 Fed San Francisco *Economic Letter* (8,2002)



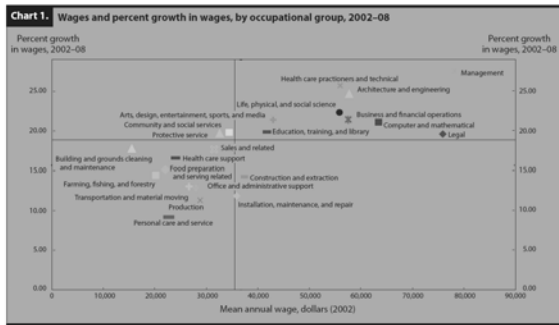
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Wage Inequality Has Increased
 Fed San Francisco *Economic Letter* (8, 2002)

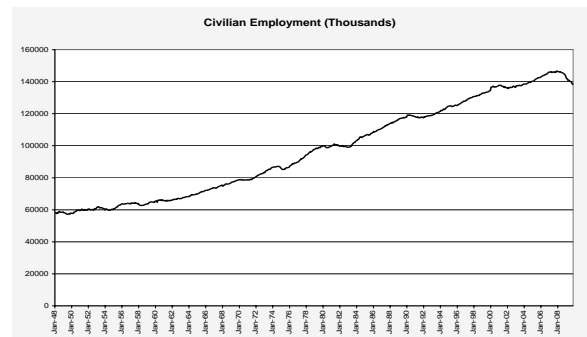


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Wage Inequality Has Increased
Monthly Labor Review, (6, 2009)



The Number Employed in the US Has Grown
 Substantially Between 1947 and 2009



Measuring Unemployment

The Bureau of Labor Statistics (BLS) surveys about 60,000 randomly selected households each month.

The BLS places each person, 16 years or older, into one of three categories:

- Employed
- Unemployed
- Out of the Labor Market

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Measuring Unemployment

The Labor Force is the total number of employed and unemployed people in the economy.

The Unemployment Rate is the number of unemployed people divided by the labor force.

The Participation Rate is the percentage of the working-age population in the labor force.

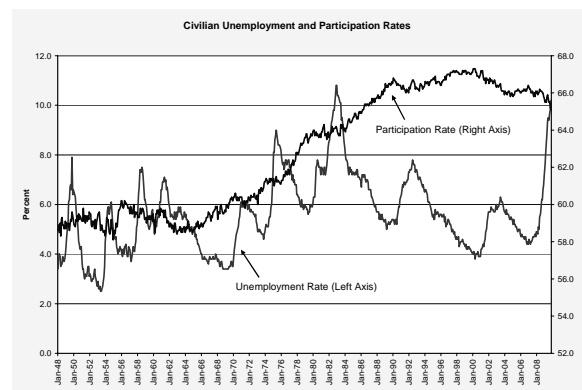
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Measuring Unemployment

$$\text{Unemployment rate} = \frac{\text{unemployed}}{\text{labor force}}$$

$$\text{Participation rate} = \frac{\text{labor force}}{\text{population 16 and over}}$$

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Use Your Clickers to Answer
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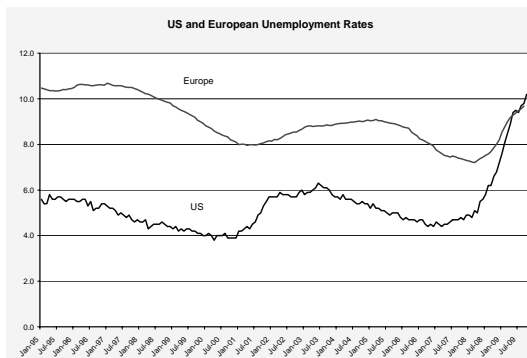
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A rising unemployment rate may
understate the impact of a recession
on the economy because ...

- A. The unemployment rate does not typically rise in a recession.
- B. Inflation typically increases during a recession.
- C. Some workers may leave the labor force and not be reflected in the unemployment rate.
- D. The unemployment rate does not include unemployment among female workers.

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European Employment Has Been High



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What Have We Learned?

Wages, Labor Markets and Unemployment

Economists use Demand for and Supply of Labor to predict real wages and employment.

Real Wages Grow Primarily because Workers Become More Productive

Rising Wage Inequality can be explained by technological advances that benefit high skill but not low skill workers.

The unemployment rate rose and the participation rate fell during the recession.

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