Unemployment and Inflation

1. Each month, usually on the first Friday of the month, the Bureau of Labor Statistics releases the Employment Situation Summary for the previous month. Go to www.bls.gov and find the latest report. (On the Bureau of Labor Statistics home page, at the top of the page, select the “Subject Areas” tab, on the left side of the page. “Unemployment” and select “National Unemployment Rate.” You will find the Employment Situation under “News Releases”) How does the unemployment rate compare to the rate one month earlier? How does the unemployment rate compare to the rate one year earlier?

1. Answers will vary with the latest data. For December 2011, the unemployment rate was 8.5%, down 0.2 percentage points from November 2011, when it was 8.7%. Since December 2010, the unemployment rate has fallen by 0.9 percentage points.

2. In general, how do changes in the unemployment rate vary with changes in real GDP? After several quarters of a severe recession, explain why we might observe a decrease in the official unemployment rate. Explain why we could see an increase in the official unemployment rate after several quarters of a strong expansion.

2. In general, the change in the unemployment rate varies inversely with the rate of growth in real GDP: when the rate of real GDP growth is above average, we expect the unemployment rate to fall rapidly. However, after several quarters of a severe recession, unemployed workers may become discouraged and stop looking for work. Since the definition of unemployed persons requires that they be looking for work, officially measured unemployment falls as workers become discouraged and stop looking. We could see an increase in the official unemployment rate after several quarters of a strong expansion as existing workers, encouraged by an increase in wages, leave existing jobs to search for new ones and discouraged workers begin to search for jobs again.

3. In each of the following situations, what type of unemployment is Melanie facing?
   a. After completing a complex programming project, Melanie is laid off. Her prospects for a new job requiring similar skills are good, and she has signed up with a programmer placement service. She has passed up offers for low-paying jobs.
   b. When Melanie and her co-workers refused to accept pay cuts, her employer outsourced their programming tasks to workers in another country. This phenomenon is occurring throughout the programming industry.
   c. Due to the current slump, Melanie has been laid off from her programming job. Her employer promises to rehire her when business picks up.

3. a. Melanie is frictionally unemployed because she is refusing offers for low-paying jobs in favor of engaging in job search for a higher-paying job.
   b. Melanie is structurally unemployed because she is demanding a higher wage than the current equilibrium wage in her industry. In this case, the equilibrium wage has been lowered by the outsourcing of work to other countries.
   c. Melanie is cyclically unemployed because her bout of unemployment is tied to the business cycle. It is likely she will be reemployed once the economy picks up.
4. Part of the information released in the Employment Situation Summary concerns how long individuals have been unemployed. Go to www.bls.gov to find the latest report. Use the same technique as in Problem 1 to find the Employment Situation Summary. Near the end of the Employment Situation, click on table A-12, titled “Unemployed persons by duration of unemployment.” Use the seasonally adjusted numbers to answer the following questions.

a. How many workers were unemployed less than 5 weeks? What percentage of all unemployed workers do these workers represent? How do these numbers compare to the previous month’s data?

b. How many workers were unemployed for 27 or more weeks? What percentage of all unemployed workers do these workers represent? How do these numbers compare to the previous month’s data?

c. How long has the average worker been unemployed (average duration, in weeks)? How does this compare to the average for the previous month’s data?

d. Comparing the latest month for which there are data with the previous month, has the problem of long-term unemployment improved or deteriorated?

Solution

4. Answers will vary depending on when you look up the information.

a. In December 2011, 2,669,000 workers had been unemployed less than 5 weeks, representing 20.3% of all unemployed workers. This was an increase from November 2011, when 2,510,000 workers had been unemployed less than 5 weeks, representing 19.1% of the unemployed.

b. In December 2011, 5,588,000 workers had been unemployed for 27 or more weeks, representing 42.5% of all unemployed workers. This was down from November 2011, when 5,680,000 workers had been unemployed for 27 or more weeks, representing 43.1% of the unemployed.

c. In December 2011, the average worker was unemployed for 40.8 weeks, down from 40.9 weeks in November 2011.

d. The problem of long-term unemployment seems to be slowly improving; the numbers for December 2011 were slightly better than for November 2011.

5. There is only one labor market in Profunctia. All workers have the same skills, and all firms hire workers with these skills. Use the accompanying diagram, which shows the supply of and demand for labor, to answer the following questions. Illustrate each answer with a diagram.
a. What is the equilibrium wage rate in Profunctia? At this wage rate, what are the level of employment, the size of the labor force, and the unemployment rate?

b. If the government of Profunctia sets a minimum wage equal to $12, what will be the level of employment, the size of the labor force, and the unemployment rate?

c. If unions bargain with the firms in Profunctia and set a wage rate equal to $14, what will be the level of employment, the size of the labor force, and the unemployment rate?

d. If the concern for retaining workers and encouraging high-quality work leads firms to set a wage rate equal to $16, what will be the level of employment, the size of the labor force, and the unemployment rate?

5. a. The equilibrium wage rate is $10. At this wage rate, there will be 50,000 employed workers, no unemployed workers, a labor force of 50,000, and an unemployment rate of 0%.

b. If the government of Profunctia sets a minimum wage equal to $12, then 60,000 workers (the size of the labor force) will be looking for work but only 40,000 will find jobs. There will be 20,000 unemployed workers, and the unemployment rate will be 33.3% \((\frac{20,000}{60,000}) \times 100\).
c. If unions bargain with the firms in Profunctia and set a wage rate equal to $14, then 70,000 workers (the size of the labor force) will be looking for work but only 30,000 will find jobs. There will be 40,000 unemployed workers, and the unemployment rate will be 57.1% \((40,000/70,000) \times 100\).

![Graph showing labor market equilibrium with Union-negotiated wage and Efficiency wage.]

\[
\text{Unemployment rate} = \left( \frac{\text{Unemployed workers}}{\text{Labor force}} \right) \times 100
\]

\[
\text{Unemployment rate} = \left( \frac{40,000}{70,000} \right) \times 100 = 57.1\%
\]

d. If the concern for retaining workers and encouraging high-quality work leads firms to set a wage rate of $16, then 80,000 workers (the size of the labor force) will be looking for work but only 20,000 will find jobs. There will be 60,000 unemployed workers, and the unemployment rate will be 75% \((60,000/80,000) \times 100\).

![Graph showing labor market equilibrium with Efficiency wage and Union-negotiated wage.]

\[
\text{Unemployment rate} = \left( \frac{\text{Unemployed workers}}{\text{Labor force}} \right) \times 100
\]

\[
\text{Unemployment rate} = \left( \frac{60,000}{80,000} \right) \times 100 = 75\%
\]

6. A country’s labor force is the sum of the number of employed and unemployed workers. The accompanying table provides data on the size of the labor force and the number of unemployed workers for different regions of the United States.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>28,303.7</td>
<td>28,201.9</td>
<td>2,482.7</td>
<td>2,254.1</td>
</tr>
<tr>
<td>South</td>
<td>55,223.5</td>
<td>55,544.1</td>
<td>5,126.3</td>
<td>4,896.6</td>
</tr>
<tr>
<td>Midwest</td>
<td>34,520.2</td>
<td>34,430.0</td>
<td>3,305.7</td>
<td>2,803.7</td>
</tr>
<tr>
<td>West</td>
<td>35,827.2</td>
<td>35,613.0</td>
<td>3,954.0</td>
<td>3,664.4</td>
</tr>
</tbody>
</table>

### Solution

6. a. The number of employed people equals the size of the labor force minus the number of unemployed people, as shown in the accompanying table.

<table>
<thead>
<tr>
<th>Region</th>
<th>Employed (thousands)</th>
<th>May 2010</th>
<th>May 2011</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td></td>
<td>25,821.0</td>
<td>25,947.8</td>
<td>126.8</td>
</tr>
<tr>
<td>South</td>
<td></td>
<td>50,097.2</td>
<td>50,647.5</td>
<td>550.3</td>
</tr>
<tr>
<td>Midwest</td>
<td></td>
<td>31,214.5</td>
<td>31,626.3</td>
<td>411.8</td>
</tr>
<tr>
<td>West</td>
<td></td>
<td>31,873.2</td>
<td>31,948.6</td>
<td>75.4</td>
</tr>
</tbody>
</table>

b. The accompanying table shows the change in the size of the labor force during the period May 2010 to May 2011.

<table>
<thead>
<tr>
<th>Region</th>
<th>Growth in the labor force (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>−101.8</td>
</tr>
<tr>
<td>South</td>
<td>320.6</td>
</tr>
<tr>
<td>Midwest</td>
<td>−90.2</td>
</tr>
<tr>
<td>West</td>
<td>−214.2</td>
</tr>
</tbody>
</table>

c. The unemployment rate is calculated as (Number of unemployed workers/labor force) × 100, as shown in the accompanying table.

<table>
<thead>
<tr>
<th>Region</th>
<th>Unemployment rate</th>
<th>May 2010</th>
<th>May 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td></td>
<td>8.8%</td>
<td>8.0%</td>
</tr>
<tr>
<td>South</td>
<td></td>
<td>9.3%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Midwest</td>
<td></td>
<td>9.6%</td>
<td>8.1%</td>
</tr>
<tr>
<td>West</td>
<td></td>
<td>11.0%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

d. In the northeast, midwest, and west, the fall in the unemployment rate was caused by both a net rise in the number of jobs and a fall in the number of people seeking jobs. While there was also a net rise in the number of jobs in the South, more people were seeking jobs in the South. But, the number of jobs increased more than the labor force, causing a fall in the unemployment rate.
7. In which of the following cases is it more likely for efficiency wages to exist? Why?
   a. Jane and her boss work as a team selling ice cream.
   b. Jane sells ice cream without any direct supervision by her boss.
   c. Jane speaks Korean and sells ice cream in a neighborhood in which Korean is the primary language. It is difficult to find another worker who speaks Korean.

   **Solution**
   a. If Jane and her boss work as a team selling ice cream, Jane will want her boss to see her doing a good job. The boss knows that the quality of her work will be high without an efficiency wage because he is there to observe her.
   b. If Jane sells ice cream without any direct supervision, the boss is not certain that Jane will try her best to sell as much ice cream as she can. The boss may want to pay her an efficiency wage to encourage her to work harder.
   c. Jane’s boss will offer her an efficiency wage because he doesn’t want to lose an employee who cannot be easily replaced because of her skill (speaking Korean).

8. How will the following changes affect the natural rate of unemployment?
   a. The government reduces the time during which an unemployed worker can receive unemployment benefits.
   b. More teenagers focus on their studies and do not look for jobs until after college.
   c. Greater access to the Internet leads both potential employers and potential employees to use the Internet to list and find jobs.
   d. Union membership declines.

   **Solution**
   a. If the government reduces the time during which an unemployed worker can obtain benefits, workers will be less willing to spend time searching for a job. This will reduce the amount of frictional unemployment and lower the natural rate of unemployment.
   b. Since teenagers have a higher rate of frictional unemployment, this will lower the overall amount of frictional unemployment and lower the natural rate of unemployment.
   c. Greater access to the Internet would facilitate job searches, reducing frictional unemployment and lowering the natural rate of unemployment.
   d. Since strong unions negotiate wages above the equilibrium level, they are a source of structural unemployment. A decline in union membership will reduce structural unemployment and, with it, the natural rate of unemployment.

9. With its tradition of a job for life for most citizens, Japan once had a much lower unemployment rate than that of the United States; from 1960 to 1995, the unemployment rate in Japan exceeded 3% only once. However, since the crash of its stock market in 1989 and slow economic growth in the 1990s, the job-for-life system has broken down and unemployment rose to more than 5% in 2003.

   a. Explain the likely effect of the breakdown of the job-for-life system in Japan on the Japanese natural rate of unemployment.
b. As the accompanying diagram shows, the rate of growth of real GDP has picked up in Japan after 2001 and before the global economic crisis of 2007–2009. Explain the likely effect of this increase in real GDP growth on the unemployment rate. Is the likely cause of the change in the unemployment rate during this period a change in the natural rate of unemployment or a change in the cyclical unemployment rate?

![Real GDP growth rate chart]

Source: OECD.

9. a. The job-for-life system of employment in Japan led to a very low level of frictional unemployment. The only search for jobs occurred when workers first joined the labor force. The low level of frictional unemployment led to a low natural rate of unemployment. Since the stock market crash of 1989 and the slow economic growth of the 1990s, Japan has moved away from the job-for-life system. As some Japanese firms laid off workers who believed they had their jobs for life, it was difficult for many to find new jobs. Consequently, frictional unemployment has risen in Japan, leading to a higher natural rate of unemployment.

b. The increase in real GDP growth should result in a decrease in the unemployment rate in Japan. Indeed, the unemployment rate has dropped from 5.3% in 2003 to 3.9% in 2007. The likely cause of this is a decrease in the cyclical unemployment rate. The increase in real GDP growth indicates that the Japanese economy has expanded during this period.

10. In the following examples, is inflation creating winners and losers at no net cost to the economy or is inflation imposing a net cost on the economy? If a net cost is being imposed, which type of cost is involved?

a. When inflation is expected to be high, workers get paid more frequently and make more trips to the bank.

b. Lanwei is reimbursed by her company for her work-related travel expenses. Sometimes, however, the company takes a long time to reimburse her. So when inflation is high, she is less willing to travel for her job.

c. Hector Homeowner has a mortgage with a fixed nominal 6% interest rate that he took out five years ago. Over the years, the inflation rate has crept up unexpectedly to its present level of 7%.

d. In response to unexpectedly high inflation, the manager of Cozy Cottages of Cape Cod must reprint and resend expensive color brochures correcting the price of rentals this season.
10. a. This is an example of the effect of shoe-leather costs, a net cost of inflation to the economy. Workers spend valuable resources going to the bank more frequently, firms spend valuable resources (such as bookkeepers’ time) in paying workers more frequently, and banks spend more resources in processing the greater volume of transactions.

b. This is an example of unit-of-account costs. A dollar when Lanwei spends it on a work-related expense is worth more than a dollar she receives much later in reimbursement from her company. Because she is less willing to travel for her job, there is a net cost to the economy of her forgone output.

c. This is an example of inflation creating winners and losers. As the inflation rate creeps up unexpectedly, the real value of the funds that Hector pays to the mortgage company falls. So Hector is better off as inflation increases, and the lender of his mortgage is worse off. At present, the real interest rate on his mortgage is negative: 6% − 7% = −1%. So he is now financing his house virtually cost-free.

d. This is an example of menu costs, a net cost of inflation to the economy. The manager of Cozy Cottages of Cape Cod must reprint and resend an expensive brochure because it is necessary to raise the price of rentals due to unexpectedly high inflation.

11. The accompanying diagram shows the interest rate on one-year loans and inflation during 1995–2010 in the economy of Albernia. When would one-year loans have been especially attractive and why?

![Diagram showing interest rate vs. year with labels: Inflation rate, Interest rate on one-year loans, Year 1995 to 2010]

11. One-year loans in Albernia would have been especially attractive from about 1998 to 2003. During this time, inflation was higher than interest rates on one-year loans, making real interest rates negative. Whenever nominal interest rates are lower than inflation, borrowers are better off and lenders are worse off.
12. The accompanying table provides the inflation rate in the year 2000 and the average inflation rate over the period 2001–2010 for seven different countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Inflation rate in 2000</th>
<th>Average inflation rate in 2001–2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>7.06%</td>
<td>6.70%</td>
</tr>
<tr>
<td>China</td>
<td>0.4</td>
<td>2.16</td>
</tr>
<tr>
<td>France</td>
<td>1.83</td>
<td>1.86</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.77</td>
<td>8.55</td>
</tr>
<tr>
<td>Japan</td>
<td>−0.78</td>
<td>−0.25</td>
</tr>
<tr>
<td>Turkey</td>
<td>55.03</td>
<td>18.51</td>
</tr>
<tr>
<td>United States</td>
<td>3.37</td>
<td>2.40</td>
</tr>
</tbody>
</table>

Source: IMF.

a. Given the expected relationship between average inflation and menu costs, rank the countries in descending order of menu costs using average inflation over the period 2001–2010.

b. Rank the countries in order of inflation rates that most favored borrowers with ten-year loans that were taken out in 2000. Assume that the loans were agreed upon with the expectation that the inflation rate for 2001 to 2010 would be the same as the inflation rate in 2000.

c. Did borrowers who took out ten-year loans in Japan gain or lose overall versus lenders? Explain.

Solution

12. a. The countries with the highest average inflation rates should have the highest menu costs. Order: Turkey, Indonesia, Brazil, United States, China, France, Japan.

b. The countries with an average inflation rate higher than the inflation rate in 2000 should favor borrowers with ten-year loans payable in 2010. The higher the difference between the average inflation rate during 2001–2010 and the inflation rate in 2000, the lower the real value of the loan. Order: Indonesia, China, Japan, France, Brazil, United States, Turkey.

c. During this period, borrowers would have gained at the expense of lenders in Japan since −0.25% is greater than −0.78%. Average inflation in Japan was greater between 2000 and 2010 than it was in 2000.

13. The accompanying diagram shows the inflation rate in the United Kingdom from 1980 to 2010.
Between 1980 and 1985, policy makers in the United Kingdom worked to lower the inflation rate. What would you predict happened to unemployment between 1980 and 1985?

Policy makers in the United Kingdom react forcefully when the inflation rate rises above a target rate of 2%. Why would it be harmful if inflation rose from 3.4% (the level in 2010) to, say, a level of 5%?

Because of the disinflation that occurred between 1980 and 1985, one would predict that the unemployment rate rose during this period. Indeed, the unemployment rate rose from 6.5% in 1980 to a high of 11.4% in 1985.

There is not much evidence that 5% inflation would do a great deal of harm to the economy. However, policy makers in the United Kingdom usually move forcefully to bring inflation back to 2% whenever it rises above this level because experience has shown that disinflation is very difficult and costly once a higher rate of inflation has become well established in the economy.