

Unemployment and Inflation

1. Each month, usually on the first Friday of the month, Statistics Canada releases the Labour Force Survey for the previous month. Go to StatCan's home page at www.statcan.gc.ca. Pick English or French. Click on the "Unemployment rate" link under the "Latest Indicators" heading. This will open the latest unemployment rate update in StatCan's "The Daily." Go to the bottom of the page and click Table 1 for the "Labour force characteristics by age and sex—Seasonally adjusted" figures. How does the unemployment rate compare to the rate one month earlier? How does the unemployment rate compare to the rate one year earlier? Is the labour market improving or worsening?

Solution

1. The answer will vary depending on when you check the data. For example, in January 2015, the data for December 2014 was available. The unemployment rate was 6.6%, unchanged from the previous month. It was down 0.6% points from a year earlier, which might indicate an improvement in the labour market. (However, the unemployment rate is not the only indicator of interest. The employment rate had actually declined slightly over that period as well, for example.)
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.

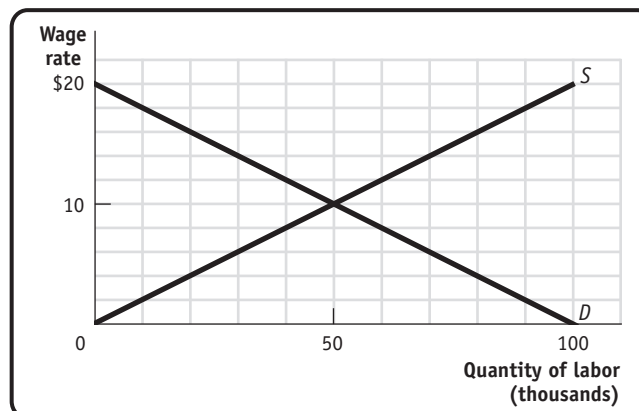
Solution

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 collected in the Labour Force Survey concerns how long individuals have been unemployed. Go to www.statcan.gc.ca to find the latest report. Using the same technique as in Problem 1 to find the Labour Force Survey, go to the bottom of the page and click CANSIM tables 282-0047 to 282-0063. This will direct you to another page that contains links to these tables of labour market data. Then click on Table 282-0047 for the “duration of unemployment by sex and age group, unadjusted for seasonality, monthly (Persons)” figures.
- 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?
 - 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?
 - 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?
 - Comparing the latest month for which there are data with the previous month, has the problem of longterm unemployment improved or deteriorated?

Solution

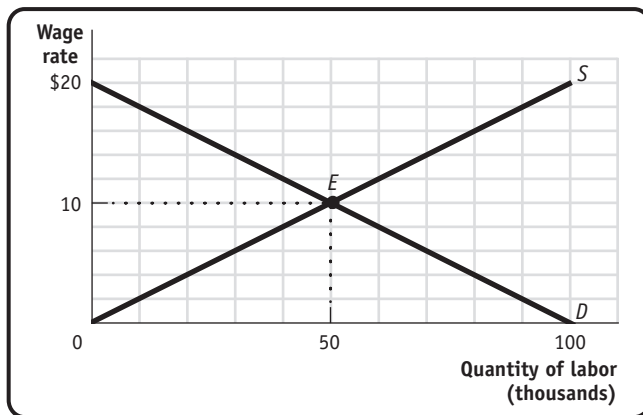
4. The answers here will naturally depend on when you look at the data. The following is an example as of January 2015.
- 380,600 workers had been unemployed less than 5 weeks in December 2014. This was 32.7% of the 1,162,700 persons estimated to be unemployed. This was down from 410,200 the previous month.
 - 231,700 people had been unemployed 27 weeks or more, down from 237,900 the previous month. This was 19.9% of the number of persons unemployed.
 - The average duration of unemployment in December 2014 was 20.4 weeks. This is down from 21.4 weeks in November.
 - There has been a small improvement in the amount of long-term unemployment. The number unemployed 53 weeks or more decreased 97,900 to 88,700, although this might reflect them leaving the labour force as opposed to getting a job.
5. There is only one labour 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 labour, to answer the following questions. Illustrate each answer with a diagram.



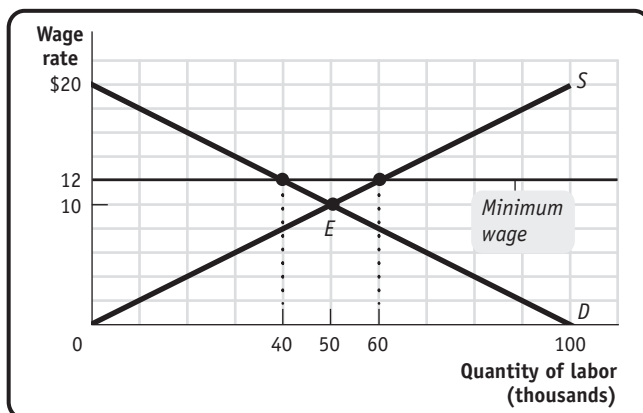
- a. What is the equilibrium wage rate in Profunctia? At this wage rate, what are the level of employment, the size of the labour force, and the unemployment rate?
- b. If the government of Profunctia sets a minimum wage equal to \$12, what will be the level of employment, the size of the labour force, 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 labour 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 labour force, and the unemployment rate?

Solution

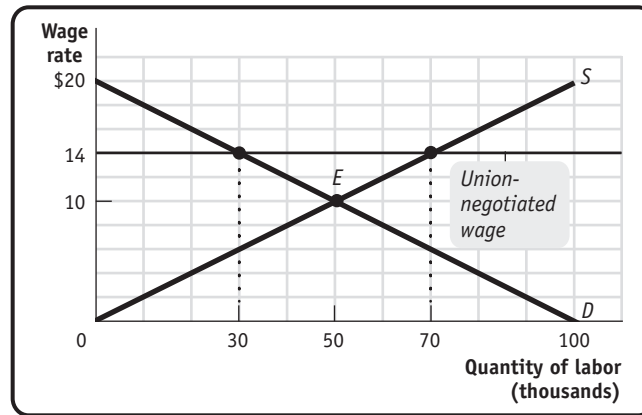
5. a. The equilibrium wage rate is \$10. At this wage rate, there will be 50,000 employed workers, no unemployed workers, a labour force of 50,000, and an unemployment rate of 0%.



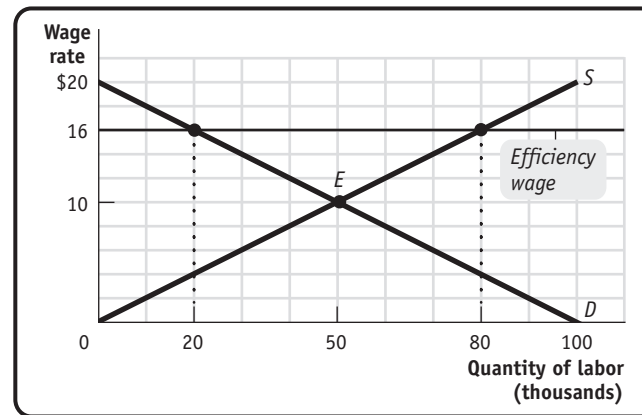
- b. If the government of Profunctia sets a minimum wage equal to \$12, then 60,000 workers (the size of the labour force) will be looking for work but only 40,000 will find jobs. There will be 20,000 unemployed workers, and the unemployment rate will be 33.3% $((20,000/60,000) \times 100)$.



- 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 labour 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% $((40,000/70,000) \times 100)$.



- 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 labour 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% $((60,000/80,000) \times 100)$.



6. The accompanying table provides data on the size of the labour force and the number of unemployed workers for the provinces and territories of Canada.

Province/Territory	Labour force (thousands)		Unemployed (thousands)	
	May 2011	May 2012	May 2011	May 2012
Alberta	2185.6	2255.0	117.3	102.2
British Columbia	2460.6	2503.6	185.4	185.0
Manitoba	659.0	664.5	35.7	33.9
New Brunswick	388.4	393.4	37.2	36.8
Newfoundland and Labrador	258.8	261.8	31.3	31.5
Northwest Territories	24.5	24.3	2.0	2.1
Nova Scotia	493.3	499.5	44.3	46.0
Nunavut	14.1	14.0	2.3	2.0
Ontario	7300.7	7331.9	571.7	570.2
Prince Edward Island	81.2	81.2	9.6	9.2
Quebec	4293.0	4328.5	315.4	338.4
Saskatchewan	554.0	561.7	27.7	25.5
Yukon	20.4	20.4	1.5	2.0

Source: Statistics Canada.

- a. Calculate the number of workers employed in each province and territory in May 2011 and in May 2012. Use your answer to calculate the change in the total number of workers employed between May 2011 and May 2012.
- b. For each province and territory, calculate the growth in the labour force from May 2011 to May 2012.
- c. Compute the unemployment rate in each province and territory in May 2011 and May 2012.
- d. From May 2011 to May 2012, which provinces or territories experienced a fall in their unemployment rates? Do you think this fall was caused by a net gain in the number of jobs or by a large fall in the number of people seeking jobs? Explain.
- e. The following table shows the population (aged 15 and over) in each province and territory. Calculate the labour force participation for each province in May 2012 and for Canada as a whole in May 2011.

Province/Territory	Population (thousands)	
	May 2011	May 2012
Alberta	3 000.1	3 058.4
British Columbia	3 774.9	3 810.3
Manitoba	951.8	962.2
New Brunswick	619.1	620.3
Newfoundland and Labrador	429.0	427.4
Northwest Territories	32.1	32.1
Nova Scotia	778.8	780.1
Nunavut	21.2	21.0
Ontario	10 909.3	11 054.3
Prince Edward Island	119.1	120.6
Quebec	6 568.5	6 629.1
Saskatchewan	798.5	808.9
Yukon	26.3	26.9

Source: Statistics Canada.

- f. The labour force participation rate for Canada as a whole was 66.8% in May 2012. Based on your answer in part (e), which provinces had labour force participation rates that were higher than the national average? Did Canada's labour force rate rise or fall from 2011 to 2012.

Solution

6. a.

Province/territory	Employed (thousands) May 2011	Employed (thousands) May 2012	Change in Employed (thousands)
Alberta	2068.3	2152.8	84.5
British Columbia	2275.2	2318.6	43.4
Manitoba	623.3	630.6	7.3
New Brunswick	351.2	356.6	5.4
Newfoundland and Labrador	227.5	230.3	2.8
Northwest Territories	22.5	22.2	-0.3
Nova Scotia	449.0	453.5	4.5
Nunavut	11.8	11.8	0.0
Ontario	6729.0	6761.7	32.7
Prince Edward Island	71.6	72.0	0.4
Quebec	3977.6	339.1	12.5
Saskatchewan	526.3	536.2	9.9
Yukon	18.9	18.4	-0.5

b. The following table shows how the labour force changed in each jurisdiction.

Province/territory	Growth in the labour force
Alberta	69.4
British Columbia	43.0
Manitoba	5.5
New Brunswick	5.0
Newfoundland and Labrador	3.0
Northwest Territories	-0.2
Nova Scotia	6.2
Nunavut	-0.1
Ontario	31.2
Prince Edward Island	0.0
Quebec	35.5
Saskatchewan	7.7
Yukon	0.0

- c. The following table shows the unemployment rate for each province and territory in May 2011 and May 2012.

Province/territory	Unemployment Rate, May 2011	Unemployment Rate, May 2012
Alberta	5.4	4.5
British Columbia	7.5	7.4
Manitoba	5.4	5.1
New Brunswick	9.6	9.4
Newfoundland and Labrador	12.1	12.0
Northwest Territories	8.2	8.6
Nova Scotia	9.0	9.2
Nunavut	16.3	15.7
Ontario	7.8	7.8
Prince Edward Island	11.8	11.3
Quebec	7.3	7.8
Saskatchewan	5.0	4.5
Yukon	7.4	9.8

- d. All places except for the Northwest Territories, Nova Scotia, Quebec and Yukon had a decrease in the unemployment rate. Where the unemployment rate declined, the number of employed persons typically increased and the labour force also increased, but not by as much. This suggests that the decline in unemployment was not from people giving up looking for work and leaving the labour force.
- e. The participation rates by province and territory are shown in the following table. Alberta, Manitoba, Northwest Territories, Prince Edward Island, Saskatchewan and Yukon had participation rates above the national average participation rate, which was unchanged between the two years. The participation rate for 2011 is calculated by adding up the labour force across all jurisdictions and dividing by total population.

Province/territory	Participation Rate, May 2011	Participation Rate, May 2012
Alberta	72.9	73.7
British Columbia	65.2	65.7
Manitoba	69.2	69.1
New Brunswick	62.7	63.4
Newfoundland and Labrador	60.3	61.3
Northwest Territories	76.3	75.7
Nova Scotia	63.3	64.0
Nunavut	66.5	66.7
Ontario	66.9	66.3
Prince Edward Island	68.2	67.3
Quebec	65.4	65.3
Saskatchewan	69.4	69.4
Yukon	77.6	75.8
Canada	66.8	66.8

- f. Alberta, Manitoba, Northwest Territories, Saskatchewan, and Yukon had labour participation rates that were higher than the May 2012 national average. Canada's labour force rate stayed the same from 2011 to 2012.
7. In which of the following cases is it more likely for efficiency wages to exist? Why?
- Jane and her boss work as a team selling ice cream.
 - Jane sells ice cream without any direct supervision by her boss.
 - 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.

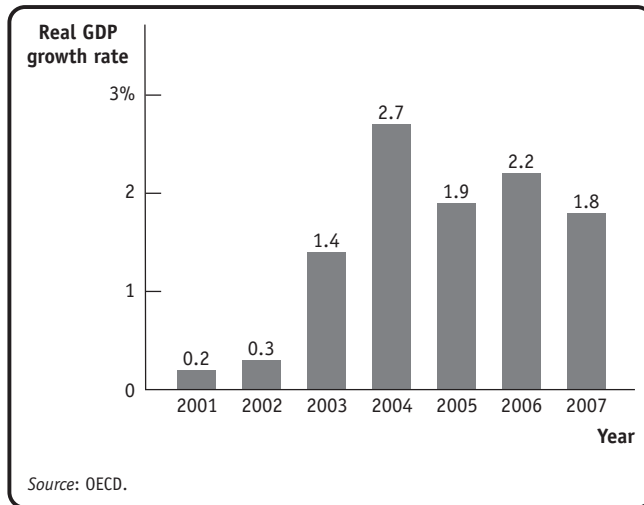
Solution

7. 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?
- The government reduces the time during which a worker can receive employment insurance.
 - More teenagers focus on their studies and do not look for jobs until after college or university.
 - Greater access to the Internet leads both potential employers and potential employees to use the Internet to list and find jobs.
 - Union membership declines.

Solution

8. 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.
- 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?

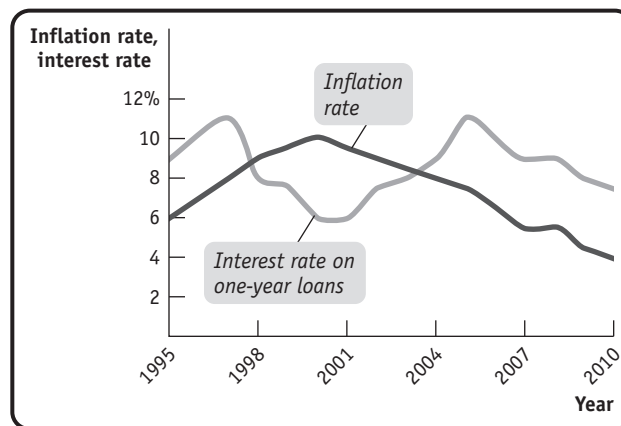


Solution

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 labour 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?
- When inflation is expected to be high, workers get paid more frequently and make more trips to the bank.
 - 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.
 - 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%.
 - In response to unexpectedly high inflation, the manager of Cozy Cottages of Cape Spear must reprint and resend expensive color brochures correcting the price of rentals this season.

Solution

- 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 Spear 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?



Solution

- 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.

Country	Inflation rate in 2000	Average inflation rate in 2001–2010
Brazil	7.06%	6.70%
China	0.4	2.16
Canada	2.8	2.02
Indonesia	3.77	8.55
Japan	−0.78	−0.25
Turkey	55.03	18.51
United States	3.37	2.40

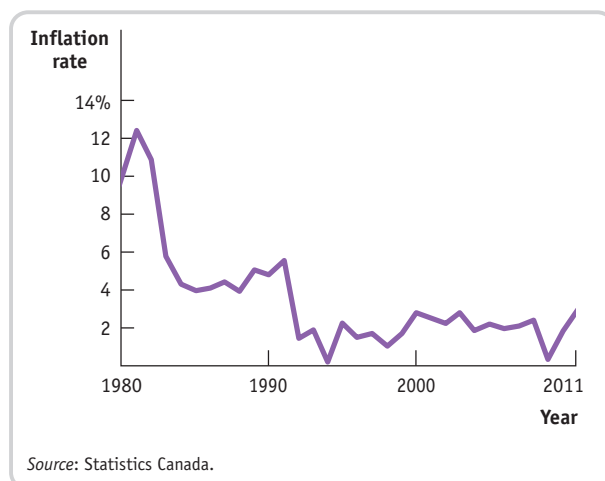
Source: IMF.

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

Solution

- 12.**
- The countries with the highest average inflation rates should have the highest menu costs. Order: Turkey, Indonesia, Brazil, United States, China, Canada, Japan.
 - 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, Canada, Brazil, United States, Turkey.
 - 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 Canada from 1980 to 2011.



- a. From 1980 to 2011, Canada experienced two periods of disinflation—the first between 1980 and 1985 and the second between 1991 and 1994. How would you have expected the unemployment rate to behave during these two periods?
- b. Nowadays, policy-makers react forcefully when the inflation rate rises above a target rate of 2%. Why would it be harmful if inflation rose from 1.8% (the level in 2010) to, say, a level of 5%?

- 13.** **a.** We should expect that the unemployment rate would rise during a period of disinflation. (This is what happened and it can be seen in Figure 8-11 in the text.)
- b.** The Bank of Canada would move forcefully to bring inflation back to 2% whenever it rises above this level because it has committed itself to an inflation target of 2%. So if inflation rose to 5%, it would not leave it at that level, even though there is not much evidence that 5% inflation would do a great deal of harm to the economy. Instead, it would initiate a disinflation, which would be very difficult and costly once a higher rate of inflation had become well established in the economy.
- 14.** In 1991, the Bank of Canada adopted an inflation control target. The current target rate of inflation is 2%, with a target range of 1 to 3%. Many Canadians welcome the adoption of the inflation-control target as it allows them to make better economic decisions. Explain how both creditors and debtors can benefit from having an inflation-control target.

- 14.** Unexpected changes in inflation can redistribute income between borrowers and lenders in ways they did not anticipate. As well, when the inflation rate is high, it also tends to be more variable, which increases the risk from unexpected changes in inflation. Both borrowers and lenders may prefer to reduce risk and a low and more predictable inflation rate will do that.