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Macroeconomics – Chapter 7

Unemployment, Inflation and Growth

Problem 1. Recession and Unemployment.

Most economists think that the recession that began in December 2007 ended in the middle of 2009. The unemployment rate was 5.0 percent in December 2007 (less than it had been in most of 2005, and only half a percent more than the rate for most of the 2000s) and 9.5 percent in June of 2009. For the rest of 2009, the unemployment rate continued to rise, peaking at 10.1 percent in October of 2009, and remaining at 9.7 percent in February of 2010.

The unemployment rate usually lags behind the rest of the business cycle. It takes firms some time to realize a recession is underway, and they are reluctant to lay off workers only to rehire them shortly after. If there were not really a recession, the workers might find other jobs, and the firms would have to pay the training costs of new workers. Likewise, it is difficult to know when recessions are coming to an end, and it usually takes some time to decide to hire new workers. One of the indicators that the economy was picking up in late 2009 was the hiring of temporary workers by firms still reluctant to commit to full-time hires.

The NBER Business Cycle dating committee (NBER.com) looks at the employment rate (not the unemployment rate), but places most emphasis on real GDP, real income, and real sales. It also looks at the Index of Industrial Production and other measures of economic activity.

Problem 2. Natural Rate

The question implies that the “natural rate” need not concern policymakers. While seasonal and frictional unemployment are not important concerns, the natural process of economic growth does lead to some **structural unemployment** due to industry-specific factors (if the recent FCC plan to bring 100 MB per second broadband to most of the country goes through, your local cable company will go under; the steel industry suffered from automakers shifting to aluminum and plastic; auto companies from import competition). Those workers who are structurally unemployed are every bit as involuntarily unemployed as the victims of cyclical unemployment.

We cannot effectively address structural unemployment with macroeconomic policies such as a tax cut or expansion of the money supply – the recipients of a tax cut or of a loan from their bank may buy a car – but if the car is imported, it will not help the auto industry, and if the car is made with very little steel, it will not help the steel industry. The macroeconomic policy would only generate inflation. Because of this, the **natural rate** is better called the non-inflationary rate of unemployment and a bit more technically, the **non-accelerating inflation rate of unemployment** or the **NAIRU**. If we kept trying to cure structural unemployment with macro policies, we would get not just inflation but accelerating inflation.

Problem 5. State unemployment rates.

Check <http://www.bls.gov/lau/news.htm> for the Bureau of Labor Statistics “Local Area Unemployment Statistics. In January 2010, with the national unemployment rate at 9.7 percent, Michigan unemployment was 14.3 percent, Pennsylvania at 8.8 percent, and Wyoming at 7.6 percent. Clearly, structural factors explain much of the difference of these rates – the auto industry of Detroit was hit harder by a recession than the cattle industry of Wyoming.

Even within states, unemployment rates vary widely: the December 2009 unemployment rate in State College was 6.0 percent, in Philadelphia 8.7, in Pittsburgh 7.8, and in Johnstown 9.4 percent. The data are given in <http://www.bls.gov/news.release/pdf/metro.pdf>

Problem 4. Wage indexation

Indexation of wages would not prevent inflation from still being a problem for those whose pattern of spending did not match the CPI – not all prices go up at the CPI average, and recently both medical and educational costs have risen by much more than the CPI average.

Existing bank accounts would still lose value, and previous loan agreements would be equally subject to the distributional effects of inflation.

Problem 6. Many price indexes.

The question focuses on the Producer Price Index and the CPI. Obviously they focus on different goods: few households will buy structural steel beams, or mainframe computers, or a lot of sulfuric acid, but companies will.

You should also note that there are several versions of the CPI – the most important variant is the so-called **core CPI**, whose official name is CPILFE or CPI less food and energy. Since energy and food prices are very volatile, the core CPI gives a better indication on long run trends in inflation, and is the version usually looked at by the Federal Reserve policymakers.

Problem 7. CPI computation.

The CPI tracks a consumption basket fixed in the base year, and compares the price of that basket in any year with the price of the basket in the base year. Thus, a CPI of 123 would mean that the price of the base year consumption basket is 23 percent more than the price of the basket in the base year.

Apply this to the following data, assuming that 2010 is the base year

GOOD	Quantity in 2010	Price in 2010	Price in 2011	Price in 2012
Food	200 shopping bags	\$ 30	\$ 35	\$ 40
Clothing	50 outfits	\$ 100	\$ 90	\$ 80
Movies	100 movies	\$ 10	\$ 20	\$ 50

Price of basket in 2010 = \$ 12,000 ($\$ 30 * 200 + \$ 100 * 50 + 10 * 100 = \$ 6000 + \$ 5000 + \$ 1000$)

Price of basket in 2011 = \$ 13,500

Price of basket in 2012 = \$ 17,000

CPI in 2010 = 100 (in 2010, the base year, the CPI tells you the price of the basket in 2010 was 100 percent of the price of the basket in the base year)

CPI in 2011 = $(13,500 / 12,500) * 100 = 112.5$ (in 2011, the price of the basket was 112.5 percent of the price of the basket in the base year)

CPI in 2012 = $(17,000 / 12,500) * 100 = 141.7$ (in 2012, the price of the basket was 141.7 percent of the price of the price of the basket in the base year)

Inflation computation:

Inflation for 2011 = Percent change in CPI over the last year = $112.5 - 100 / 100 = .1125 = 11.25$ percent.

Inflation for 2012 = Percent change in CPI over the last year = $141.7 - 112.5 / 112.5 = .2593$ or 25.93 percent

Note that inflation for 2012 is **NOT** 41.7 percent; always look at the change from the previous year, not the base year.

[Note: with the text numbers, you should find the prices of the baskets given are 400, 531.25 and 550
the CPI values are 100, 132.8 and 137.5
the inflation rates for the 2007 and 2008 are 32.8 percent and 3.54 percent]

Problem 8. Employment and Unemployment. Employment is higher now than in 1960, (54 million in Jan. 1960 and 130 million in Jan. 2010 for non-farm workers) not only as a result of population growth but as a result of higher labor force participation (59 percent of the adult population in 1960, 65 percent in 2010); yet the unemployment rate is also higher. Total unemployment in 1960 was 3.6 million, and in 2010 was 14.8 million, so the unemployment rates were $3.6 / 133.6 = 2.7$ percent in 1960 and $14.8 / 144.8 = 10.2$ percent in 2010. (Be sure you know why the divisors are **NOT** 54 and 130 in the final calculations).