ECON 110, Prof. Hogendorn

Problem Set 8

1. *AGUnemployed.* Since his screw-up at the pharmaceutical consultancy, Amherst Guy has not been able to find another job. Is he frictionally unemployed, cyclically unemployed, or a discouraged worker?

2. *SimpleKeynes.* Suppose that the ADI curve for a simple economy with one good is given by $\pi = 0.04 - (Y - 1)$ where π is inflation, Y is the GDP, and 1 is the full employment level of GDP.

   (a) Graph the ADI curve and the full employment level of output. If inflation is stuck at 4.5% ($\pi = 0.045$), what is the short-run equilibrium output?

   (b) Suppose that firms in this economy become very excited by a new technology and decide to increase desired investment by 0.02 units of GDP. (I.e. the ADI shifts 0.02 units to the right.) Inflation remains stuck at 4.5%. Graph and find the new equilibrium output.

   (c) In the long run, inflation can adjust. What will happen?

3. *AverageJoe.* A few years ago, inflation was 1.8%, which was slightly above expected inflation of only 1.7%.

   (a) Draw the ADI and SRIA curves, showing the situation described above. Is the economy above or below full employment output?

   (b) Now suppose inflation expectations rise to 3.2%, though at first actual inflation does not. Show the new SRIA curve, and

the corresponding new ADI curve. Now is the economy above or below full employment?

(c) After part (b), actual inflation really does rise to 3.2%. What happens to ADI? What happens to cyclical unemployment?

(d) Suppose that President Bush grew concerned about the higher inflation, but he was not able to convince the Fed to make any monetary policy changes. Could he bring inflation down himself by raising taxes? Explain how this would/would not work.

Review Problem only, not to turn in:

4. *EuroZone.* In the Euro Zone, all the countries share the monetary policy set by the European Central Bank (ECB). They are also supposed to constrain their fiscal policies in a "stability and growth pact" that limits the size of the government budget deficit to 3% of GDP. But still, each country has its own unemployment rate and its own full employment level of output. Also, each country has its own inflation rate, because even though they all use the Euro, in the short term prices for non-traded goods like haircuts or electricity can change differently in different places. (By the way, different areas of the US also have different inflation rates, which are calculated by the government.)

Currently inflation is 2.2% in Ireland and 1.9% in Germany. Unemployment is 4.2% in Ireland and 8.7% in Germany. Let's assume that the natural rate of unemployment is 4.2% in both countries.

(a) Recall that Okun's Law says that

$$2(U - U^n) = \frac{Y^p - Y}{Y^p}$$

What is the GDP gap in Ireland and Germany?

(b) Suppose that both Ireland and Germany are contemplating an expansionary fiscal policy. Assume that this will be entirely based on deficit spending and that the countries start with balanced budgets. Both countries can do a maximum fiscal stimulus of 3% of *current* output under the stability and growth pact, so which country can do a larger fiscal stimulus as a percent of *full employment* output? Does this make sense for avoiding recessions?

(c) Now draw SRIA and ADI curves for both countries, showing current inflation, unemployment, and the natural rate of unemployment. Let the expected rate of inflation be 2.2%, and assume this is the actual rate of inflation in both countries when there is full employment. Explain what is happening in Germany.

(d) If the ECB secretly raised its inflation rate to 3.2%, and expected inflation remained at 2.2%, show the effects in both Ireland and in Germany. Show what would happen in the long run once Europeans realized that inflation had gone up.

Answer to Review Problem:

4. *EuroZone_a.*

(a) In Ireland, unemployment is equal to the natural rate, so the unemployment side of the Okun's Law equation equals zero. Thus, the Irish GDP gap must also be zero.

For Germany, we substitute into Okun's Law as follows:

$$2(8.7\% - 4.2\%) = 9\% = \frac{Y^p - Y}{Y^p}$$

Thus, the German GDP gap is 9%.

(b) In Ireland, current GDP *is* full-employment GDP, so Ireland can do a 3% stimulus relative to Y^p. In Germany, the GDP gap from (a) means that current GDP is $(1 - 0.09)Y^p$, so the maximum stimulus is 3% of that, or

$$0.03(1 - 0.09)Y^p = 0.0273$$

Thus, Germany can do a stimulus of at most 2.73% of Y^p, which is less than what Ireland can do. But this doesn't make much sense, because countries in recession need the stimulus more than countries at full employment. This is why many people have criticized the stability and growth pact. Some have jokingly called it the "instability and depression pact!"

(c) Ireland is in long run equilibrium, while Germany is in recession, with lower-than-expected inflation and as a result, low aggregate demand:

Ireland / Germany
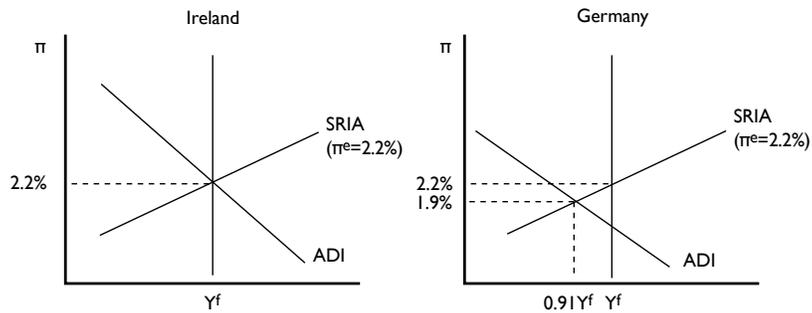
(d) In the short run, both the Irish and the Germans would be fooled into expanding their aggregate demand, pushing both economies into a boom (points 2) and correcting the recession in Germany. But in the long run, people would realize that inflation was running at 3.2%, which would shift up SRIA and shift back ADI (points 3). Ireland is worse off, since it has the same output but higher inflation. Germany also has higher inflation, but the recession was ended so that may be a worthwhile tradeoff.