

**Final Exam: 14.02
Fall 1998**

**Full Name:
TA Name:
Section Time:**

STOP! Failure to follow these instructions could be detrimental to your grade.

Please answer all of the following questions completely. You have three hours to complete the exam, which should be more than enough time. Please use six blue books for the exam, one for each set of questions. Be sure to LEGIBLY write your full name, section (which should consist of your TA's name and section time), and question number on the front of each blue book. When finished with the exam, you must return all four blue books and this signed exam sheet to a proctor. There are six sections, each worth 20 points, for a total of 120 points.

BLUE BOOK #1 (20 points)

Part A: True, false, uncertain (Explain your answer)

1. Monetary policy is ineffective when a country has a floating exchange rate.
2. If people expect the government to reduce spending in the future, it will have an expansionary effect on the economy.
3. Expected inflation increases interest rates, and therefore discourages investment.
4. A currency depreciation reduces domestic purchasing power, and therefore contracts the economy.
5. International investors can easily make a profit by investing in countries with high interest rates.

BLUE BOOK #2 (20 points)

Part B: True, false, uncertain (Explain your answer)

6. Economic theory says you cannot have inflation and recession at the same time.
7. There is nothing the government can do to affect the natural rate of unemployment - that's why we call it "natural".
8. Technological progress is fundamentally impossible to measure.
9. A strong stock market means a strong economy.
10. Most international capital flows go to countries that also run current account surpluses.

Part C: Essay questions

BLUE BOOK #3 (20 points)

1. Imagine an economy characterized by the following equations:

Demand for goods: $Y = A(Y-T, i) + G$

Money market: $M/P = L(Y, i)$

Employment: $N = Y$

Unemployment rate: $u = (N^* - N)/N^*$

Wages: $W = P^e F(u)$

Prices: $P = (1+\mu)W$

Price expectations: $P^e_t = P_{t-1}$

- (a) Explain how to derive the short-run aggregate supply and aggregate demand curves for this model.
- (b) Explain how to derive the natural rate of unemployment and the natural level of output.
- (c) Suppose that the economy is initially at the natural rate of unemployment, and that the government suddenly increases spending G . Trace out the paths over time of output, unemployment, the interest rate, and the price level.

BLUE BOOK #4 (20 points)

2. Suppose that an economy is characterized by the Phillips curve

$\pi_t = \pi^e + a(u - u_n)$ where u_n is the natural rate of unemployment. Also, people base their expectations of inflation on the recent past, so that this year's expected inflation equals last year's actual inflation.

- (a) Suppose that a government tries to keep the unemployment rate persistently below the natural rate. What would happen?
- (b) Suppose that a government "inherits" ongoing inflation of, say, 10% per year from its predecessor. What would it take to get that inflation back down to, say, 2%?
- (c) Explain the concept of the "sacrifice ratio".
- (d) How do the answers to (a) and (b) explain the characteristic "clockwise spirals" you see when inflation is graphed against the unemployment rate?
- (e) You are in charge of economic policy for a government, that faces an election every 5 years. Studies show that voters have short memories: they tend to reelect the government if unemployment and inflation are low in the year preceding the election, no matter what happened before that. Devise a cynical policy that maximizes your party's election chances.

BLUE BOOK #5 (20 points)

3. An economy is characterized by a constant-returns production function,

$$Y = F(K, N)$$

The economy saves a constant fraction of its output, s ; all savings are invested in new capital; old capital depreciates at a rate δ (that is, at the end of a year only a fraction $1-\delta$ of the initial capital survives).

- (a) Explain how the long-run level of capital and output per worker are determined.
- (b) What are the short-run and long-run effects on the *rate of growth* of an increase in the savings rate? What is the effect on the level of output?
- (c) Suppose that for some reason there is a large, one-time immigration into this country, which suddenly doubles the labor force. Trace out the effects over time on output, growth, and the capital stock.
- (d) Suppose that new technology doubles the output from a given quantity of capital and labor. Trace out the effects over time. Can you say how much output increases in the long run?

BLUE BOOK #6 (20 points)

4. Both the Czech Republic and East Germany were once prosperous industrial areas, which came under Communist rule after World War II and rejoined the market economy only in 1989. Since then, however, their experiences have been quite different. Unemployment in the Czech Republic is fairly low; but in the former East Germany it is around 20 percent. On the other hand, wages are much higher in East Germany for those who do have jobs.

People offer two quite different explanations for this divergence, although both rely on the fact that the Czechs became an independent nation while East Germany was unified with West Germany. According to one explanation, the problem was monetary: East and West Germany were unified with one East German mark set equal in value to one West German mark, which was far too much, and this led to high unemployment. According to the other story, East Germany has high unemployment because East German workers now receive West German levels of unemployment benefits, reducing their incentive to seek work.

- (a) Relate the “monetary” story to our discussion of devaluation. What does it say should be happening to East German employment over time?
- (b) Relate the “benefits” story to our discussion of labor markets. What does this alternative story say about East Germany’s future?
- (c) Some experts say that the answer to East German unemployment is higher productivity. How would this help, in either story?