

Part I

Please answer in the provided space only

Short questions (True/False + a brief explanation; explanation determines the grade; 30 minutes):

1. Romer and Romer (AER 2010) document that fiscal shocks have no significant effect on output which is consistent with the predictions of the basic real business cycle model. (3 minutes)
2. Ed Prescott recently said that the available evidence is inconsistent with monetary policy capable to influence output. Is this statement true/false/uncertain? (3 minutes)
3. Real business cycle models require inelastic labor supply to match the data. (3 minutes)
4. In the basic New Keynesian model, the central bank can stabilize prices by stabilizing output in response to demand side shocks. (3 minutes).

5. In the basic New Keynesian model, the main cost of business cycles stems from the volatility of inflation rather than the volatility of output (3 minutes).

6. A sufficient condition for the optimal monetary policy in the basic New Keynesian model is that the real interest rate should increase in response to inflationary shocks. (3 minutes)

7. Milton Friedman said that inflation is always and everywhere a monetary phenomenon. Is this statement true/false/uncertain? (3 minutes)

8. Empirical macroeconomists use VARs to construct monetary policy shocks. The most common identifying restriction is to put fed funds rate (the main policy instrument of the Fed) first in the Cholesky ordering to make sure that the shock is not correlated with other shocks contemporaneously. (3 minutes)

9. Estimated DSGE and VAR models routinely impose stationarity to ensure invertibility of shocks. (3 minutes)

10. Housing starts is a lagging business cycle indicator. (3 minutes).

Longer question: Rational Expectations and Econometrics (30 minutes)

Suppose you wish to test the null hypothesis that, over some sample period, all fluctuations in the nominal interest rate are attributable to fluctuations in expected inflation. In other words, you wish to test whether the ex ante real interest rate is constant. Mathematically, your hypothesis is

$$i_t = r + E_t \pi_{t+1}$$

where

i_t is the one-period nominal interest rate in period t (that is, the return between t and $t+1$)

π_{t+1} is the rate of inflation in period $t+1$ (that is, inflation between t and $t+1$)

r is the constant and known real interest rate.

(Note that i_t is known at time t , but π_{t+1} is not known until time $t+1$.)

Unfortunately, you observe actual inflation, not expected inflation. You ask your RA how she thinks you should proceed. She suggests four regressions that she might run to examine the relationship between the nominal interest rate and inflation:

1. Regress i_t on π_{t+1}
2. Regress i_t on π_t
3. Regress π_{t+1} on i_t
4. Regress π_t on i_t

Hint: You may find it useful to consider the special case in which inflation is generated by an AR(1) process: $\pi_t = \rho\pi_{t-1} + e_t$ with $\rho \in [0,1)$.

A. Under what hypothesis, what would you predict for each of these four regressions?

- B. Suppose you can run only one regression. Which one do you prefer for testing your hypothesis?
Why?

- C. Does the regression that you choose have power against alternative hypothesis that nominal interest rates are uncorrelated with expected inflation? That is, if your null hypothesis is wrong and instead i_t and $E_t\pi_{t+1}$ are uncorrelated, what would your regression find?

Part II

Answer in a separate blue book

There is a long-standing debate between proponents of fixed versus flexible exchange rates.

(a) Discuss the important elements in the choice between a fixed and a more flexible exchange rate regime, being sure to include any considerations relating to pricing practices in international trade.

(b) Use a model of your choice to illustrate the responses of a small open economy with sticky prices to "monetary shocks" (such as changes in home money demand) versus "real" shocks (such as a shift in the export demand schedule). How would you classify a change in the foreign rate of interest (which could play a role in the economy's IS curve)?

(c) What about "dollarization"? Comment briefly on how the fixed/flexible choice would be viewed by policymakers in a developing country with substantial dollarization. Be sure to consider that dollarization is not necessarily exogenous.

(d) Developing countries seem to complain about US monetary policy whether it is expansionary or the reverse. In light of your responses above, should they just shut up and let their exchange rates adjust?

Part III

Answer in a separate blue book

Question 1

Assume that there are two types of capital, public (K_g – g for government) and private, K_p , and assume that the production function is $Y = AK^\alpha L^{1-\alpha}$, with $K = (K_p^\rho + K_g^\rho)^{1/\rho}$. To simplify, we are assuming no human capital, and no growth in A or L . Assume further that

$$\dot{K}_p = I_p - \delta K_p$$

and

$$\dot{K}_g = \gamma I_g - \delta K_g$$

with $0 \leq \gamma \leq 1$. Here $\gamma < 1$ reflects inefficiencies in the accumulation of public capital. Of course, we have $Y = C + I_g + I_p$, and $I_g = s_g Y$ and $I_p = s_p Y$, with $s_g, s_p \geq 0$ and $s_g + s_p < 1$.

a) Given s_g and s_p , derive the steady state capital output ratio, steady state output per capita, and the steady state consumption per capita.

b) What are the levels of s_p and s_g that maximize steady state consumption? How does this depend on ρ ?

c) Consider a collection of closed economies with all the assumptions above. Assume here that $\rho = 1$. Assume all economies have access to the same technology A , are all in steady state, and are identical in all respects except that there is cross-country variation in s_g , s_p and γ . What would be the result of a standard development accounting exercise in this world? (Note: a standard development accounting exercise would not take into account that γ is possibly lower than one in some countries.)

Question 2

The Penn World Table shows that the capital-output ratio is lower in poor countries than in rich ones. (i) According to Caselli and Feyrer's "The Marginal Product of Capital" (QJE, 2007), why doesn't capital flow from rich to poor countries? (ii) According to Hsieh and Klenow's "Relative Prices and Relative Prosperity," what is the basic explanation for this finding?