

MACROECONOMICS QUALIFYING EXAM
2007-Kiefer & Vernengo 7008

I. Required Questions

Answer both.

Question 1.

Explain the main differences between the Solow and Ramsey neoclassical growth models and the classical-Keynesian growth models. Describe in your reply:

- (a) The Ramsey and Solow models
- (b) The Kaleckian model (Rowthorn)
- (c) The Kaldorian model (Thirlwall)
- (d) The policy implications of both approaches

Question 2.

Consider a simple economy of N identical worker-investor-consumers. Each is endowed with 1 unit of labor power and nominal money m_o . Workers offer their labor to a single firm independently of the wage rate. The single firm produces a consumption good Y according to the production function

$$Y = \sqrt{(1-u)N},$$

where u is the unemployment rate. Taking the wage rate and price as given, the firm maximizes profit.

In their role as investors, all workers receive equal shares of the firm's profits,

$$\Pi = pY - wN,$$

where p is the price of the consumption good produced and w is the nominal wage.

In their role as consumers, everybody allocates their budgets between consumption c_i and real money balances according to the utility function

$$U_i = \sqrt{\left(c_i\right)\left(\frac{m_i}{p}\right)},$$

where m_i is the nominal money balances held by the i^{th} consumer. Consumers face the budget constraint

$$(1-\lambda)\left(w + \frac{\Pi}{N}\right) + m_o = pc_i + m_i,$$

where λ is the income tax rate. The consumption decision is made according to competitive assumptions; that is, consumers take w , p , λ and Π as given.

According to the constitution of this society, there is no government spending, although income taxation is permitted. Equilibrium in the goods market is described by

$$Y = C = \sum_{i=1}^N c_i.$$

The government controls the supply of nominal money so that equilibrium in the money market is given by

$$M = \sum_{i=1}^N m_i.$$

For parts (a) through (d), assume that p , w , Y , C and M are endogenous, while $u=0$ and λ , m_o and N are exogenous.

- Discuss whether this model is classical or Keynesian.
- Derive the aggregate consumption function for this microeconomic description. Compare your result to the Quantity Theory of Money. What is the implied *marginal propensity to consume*, the *velocity of money*?
- Show that this specification implies a particular budget constraint for the government. Explain why this constraint implies that, if the tax rate λ is exogenous, then the money supply M must be endogenous.
- Given that $\lambda=0$, $u=0$, $m_o=1/10$, and $N=100$, find the equilibrium values for Y and p . Illustrate your answer.

For parts (e) through (g), now assume that p , u , Y , C and λ are endogenous, while w , M , m_o and N are exogenous.

- Discuss whether this model is classical or Keynesian.
- Find the aggregate supply curve $Y = S(p)$. Show that this equation can be reinterpreted as a Phillips curve. Illustrate your answer.
- Explain why fiscal and monetary policies are not independent in this economy, but are effective.

II. Optional Questions.

Answer one out of three.

Question 1.

We economists proudly distinguish ourselves from the lower social sciences by pointing to our illustrious theoretical heritage. In the economist's world, rational and self-interested people optimize subject to constraints. The resulting decision rules equating "marginal this" to "marginal that" lead to supplies and demands, which interact in markets to determine prices. These prices, in turn, guide the allocation of resources and the distribution of income. If not interfered with, markets tend to be highly competitive and have a strong tendency to clear by price.

Alan Blinder, "The fall and rise of Keynesian economics," **Economic Record**, 1988

Use this quote as a basis, criticize any of the macroeconomic models that you have studied this year. Be specific, give examples.

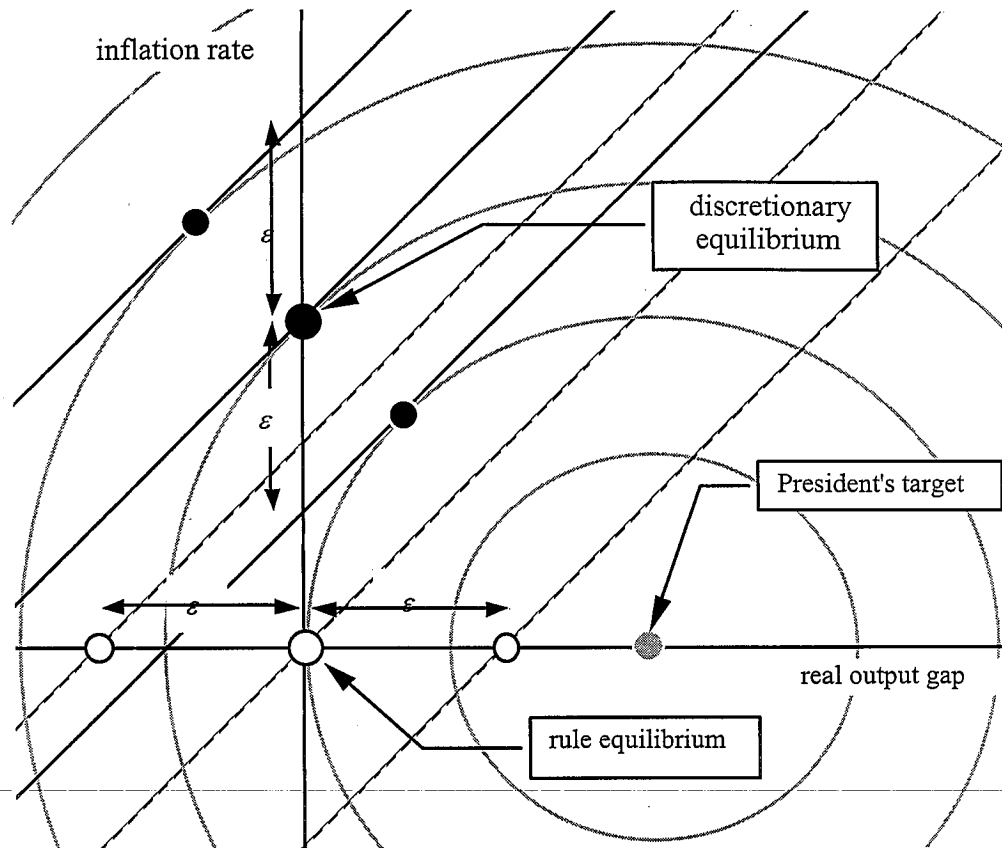
Question 2. Consider the demand side of a simple macro model:

$$\begin{array}{ll} \text{IS curve} & Y = I(r, G, T, \pi), \quad I_r < 0, \quad I_G > 0, \quad I_T < 0, \quad I_\pi > 0, \\ \text{LM curve} & Y = L(r, p, M), \quad L_r > 0, \quad L_p < 0, \quad L_M > 0. \end{array}$$

All these variables are labeled as in Sargent. Aggregate income Y and the nominal interest rate r are endogenous and the price of goods p , the expected inflation rate π , tax collections T , government spending G and the nominal money stock M are exogenous.

- Discuss whether this is a classical or Keynesian model.
- Obtain the total differential of these equations. Write this linearized system as a matrix equation, $Jdy = dx$, where J is the Jacobian matrix, dy a vector of endogenous partials and dx a vector of exogenous effects. What condition is necessary to insure that equilibrium exists? Is it satisfied?
- Use the implicit function theorem to evaluate the signs of $\frac{\partial r}{\partial G}$ and $\frac{\partial Y}{\partial M}$. Interpret your results. Illustrate the effect of an increase in the nominal money stock diagrammatically.

Question 3. The diagram below depicts the theories associated with a debate between two schools of thought: one advocates activist discretionary policy, while the other advocates nondiscretionary policy rules. It is partially labeled; you should add additional explanation and include it with your answer.



- Explain the model that underlies each of the two equilibria labeled on the diagram. Which variables are endogenous in each model, which are exogenous?
- What assumption does each model make about the formation of expectations?
- According to this diagram, which school of thought is more effective with respect to macrostabilization? How could the model assumptions be changed to give the opposite conclusion?

III. Optional Questions.

Answer one out of three.

Question 1.

Explain the significance of the Equifinality theorem and the capital controversies. What are the implications for growth theory?

Question 2.

What is the main difference between New Growth Theory (Romer/Lucas) and the old (Solow) neoclassical analysis? Explain.

Question 3.

Explain what types of shocks are relevant to explain variance in cross-country growth performance and why. Also, discuss the relative relevance of policy measures and exogenous shocks in explaining growth differentials among countries.