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MACRO COMPREHENSIVE EXAMINATION

Econ 210-211-212

Please use only your identification number, not your name. Be sure your number is on each blue book.

Please start each question in a separate blue book. This is a closed-book exam.

Answer THREE questions, ONE from EACH part.

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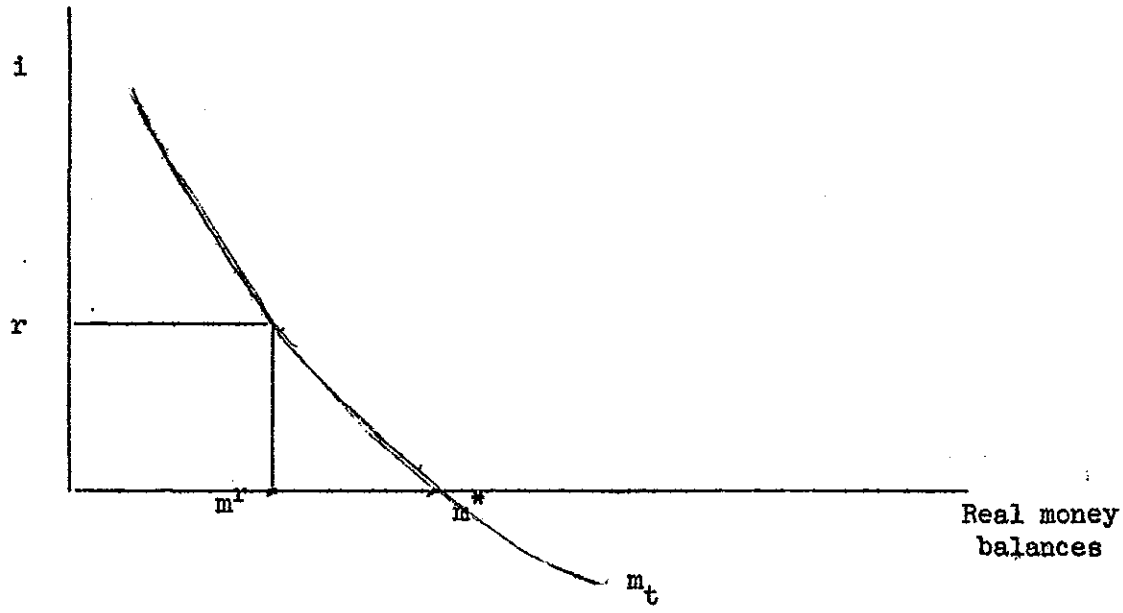
PART A

1. Figure 1 shows the demand for real money balances m at any time t. We use the Cagan specification of the demand for real money balances with a modification to allow for growth:

$$m_t = e^{gt} \cdot m_0^* \cdot e^{-\alpha i} \qquad t \geq 0 \ , \ g \geq 0, \ \alpha > 0$$

$$= m_t^* \cdot e^{-\alpha i}$$



Here i is the nominal rate of interest and g is the growth rate of real income.

For simplicity, we have assumed that the income elasticity of the demand for money is unity.

We have chosen to normalize the demand for money with respect to the optimum level of real money balances, m^*. Nothing substantive is implied by that normalization, however. For example, we could just as easily have chosen the level of real balances corresponding to the real rate of interest, r:

$$m_t = m_t^* \cdot e^{-\alpha r} e^{-\alpha(i-r)}$$

$$= m_t^r \cdot e^{-\alpha(i-r)}$$

The following questions have to do with the inflation tax. We employ the usual assumptions of that analysis:

(1) The growth rate of output is independent of the growth rates of money and prices.

(2) Anticipated and actual inflation rates are equal.

(3) Nominal interest rates fully reflect anticipated inflation.

(4) The real rate of interest is constant.

(5) The demand for and supply of money are always equal.

(a) Let λ be the rate of increase of nominal money and π the rate of inflation. Derive an expression relating π to λ.

(b) Derive an expression relating i, the nominal rate of interest, to λ.

(c) Suppose that $g > 0$. Write an expression for the revenue of the government as a function of λ. Derive the revenue maximizing rates of inflation and money growth.

(d) It is customary to put the criterion for the maximum revenue from inflation in terms of one of the properties of the demand curve for money. What is that criterion? In what sense is it satisfied in (c)? Use that criterion to interpret the behavior of the monetary authority in standard price-theory terms.

Suppose the economy pursued a "Golden Rule of Accumulation" policy. What does that imply about the real rate of interest? In such a world what monetary rule produces the optimal level of money balances?

2. Discuss the search theory of unemployment as an alternative to a bargaining interpretation of the Phillips curve.

PART B

3. "Theorists have been seeking an explanation of maintained economic cycles--that is, periodic swings that neither explode nor expire." Discuss the main elements of two alternative approaches to this problem.

4. The Quantity Equation identity is

$$(1) \quad M \cdot V \equiv Py,$$

where M is nominal money, P is the price level, y is real income, and V is velocity, defined so as to make (1) an identity.

The modern Quantity Theory, on the other hand, starts with the concept of desired velocity, V*, defined as

$$(2) \quad V^* = \frac{y^*}{(\frac{M}{P})^D}$$

where y* is permanent real income, and $(M/P)^D$ is real money balances demanded.

How would a modern Quantity Theorist (like Friedman, for example) combine (1) and (2) to provide a framework for a theory of measured nominal income? In your answer indicate (a) what other hypotheses he would need to introduce, (b) how he would be likely to specify those hypotheses, and (c) what empirical evidence he would adduce to support his specifications.

PART C

5. Write briefly (no more than two pages) on 3 of the following concepts, being as precise and rigorous as possible:

(a) Consumption ratchet.

(b) Production and expenditure lags.

(c) Reduced and final form equations of a macroeconomic model.

(d) Marginal efficiency of capital.

(e) Real balance effect.

(f) Permanent income theory of consumption.