

**MEC-102: MACROECONOMIC ANALYSIS**  
**Tutor Marked Assignments**

**Course Code: MEC-102**  
**Assignment Code: MEC-002/AST/2024-25**  
**Maximum Marks: 100**

**Note: Answer all the questions.**

**Section A**

**Answer the following questions in about 700 words each. Each question carries 20 marks. 2X20=40**

1. Specify the Lucas Supply Function. What are its implications? In what respects is it different from the classical aggregate supply function?
2. What are the implications of IS and LM curves? What are the factors on which the position and the slope of IS and LM curves depend?

**Section B**

**Answer the following questions in about 400 words each. Each question carries 12marks. 5X12=60**

3. Explain the mechanism through which internal and external balance takes place under flexible exchange rate.
4. What does the Phillips curve signify? How do you reconcile the difference in the shape of the curve in the short run and the long run?
5. Bring out the salient features of real business cycle models. What are its implications?
6. Classify various theories of unemployment based on the possible responses of the firm.
7. Write short notes on the following:
  - a) Capital asset pricing model
  - b) Permanent income hypothesis

MEC-102Section-A

(1) Specify the Lucas Supply function. What are its implications? In what respects is it different from the classical aggregate supply function?

Ans:- The Lucas Supply Function: An Overview:-

The Lucas Supply Function, developed by Nobel Laureate Robert E. Lucas Jr, is a cornerstone of the New classical macroeconomics that emerged in the 1970s. This function forms the foundation of the Lucas Critique, which argues that traditional Keynesian macroeconomic models are flawed because they fail to account for the effects of changes in policy on people's expectations. The Lucas Supply Function

emphasizes the role of rational expectations & the idea that individuals make decisions based on their expectations of future economic conditions, rather than relying solely on past experiences

### The specification of the Lucas Supply

#### Function :-

The Lucas Supply function can be specified as follows :-

$$Y = Y^* + \alpha(P - E[P])$$

Where :-

- $Y$  is the actual output of the economy.
- $Y^*$  is the natural level of output, which corresponds to the long-run equilibrium output where unemployment is at its natural rate.
- $P$  is the actual price level.

- $E[P]$  is the expected price level.
- $\alpha$  is a positive coefficient that measures the sensitivity of output to deviations of the actual price level from the expected price level.

### Implications of the Lucas Supply Function:-

#### 1. Rational Expectations & policy ineffectiveness:-

One of the most significant implications of the Lucas Supply function is the idea that economic agents form expectations rationally, using all available information.

2. Natural Rate Hypothesis:- The Lucas supply function supports the Natural Rate Hypothesis, which asserts that the economy gravitates towards a natural level of output & unemployment in the long run.

### 3. Short-Run Not-Neutrality & Long-Run Neutrality of Money:-

In the short run, unanticipated changes in the money supply can lead to deviations in output from its natural level, as the actual price level diverges from the expected price level.

### Differences from the Classical Aggregate Supply Function:-

The Lucas supply function differs significantly from the classical aggregate supply function, primarily in its treatment of expectations & its implications for economic policy.

#### 1. Role of Expectations:-

In the classical aggregate supply function, output is determined by factors such as labor, capital & technology, & it is assumed that prices & wages are fully flexible.

## 2. Policy Implications:-

The classical model suggests that monetary & fiscal policies are ineffective in influencing real variables like output & employment in both the short run & long run because the economy is always at full employment.

## 3. Short-Run vs. Long-Run Dynamics:-

In the classical aggregate supply model, the supply curve is vertical in both the short run & the long run, reflecting the idea that output is always at its natural level & is unaffected by changes in the price level.

## Conclusion:-

The Lucas Supply Function represents a significant departure from the classical aggregate supply function by incorporating the role of rational

expectations & unanticipated price changes.

The introduction of rational expectations & the emphasis on the natural ~~to~~ rate of output have had profound implications for macroeconomic theory & policy-making, challenging traditional Keynesian approaches & shaping the development of modern macroeconomics.

(2) What are the implications of IS & LM curves? What are the factors on which the position & the slope of IS & LM curves depend?

Ans:- The IS-LM model, developed by John Hicks & popularized by Alvin Hansen, is a fundamental framework in macroeconomics that illustrates the relationship between interest rates & output in the goods & money markets.

## Implications of IS & LM Curves:-

### 1. Macroeconomic Equilibrium:-

The intersection of the IS & LM Curves indicates the economy's equilibrium where the goods & money markets are simultaneously balanced.

### 2. Monetary Policy Implications:-

The LM curve shifts in response to changes in the money supply. For instance, an increase in the money supply shifts the LM curve to the right, leading to a lower interest rate for a given level of income.

### 3. Fiscal Policy Implications:-

The IS curve shifts due to changes in fiscal policy, such as government spending or taxation. An increase in government spending or a reduction in taxes shifts the IS curve to the

right, reflecting higher aggregate demand & output for a given interest rate.

#### 4. Crowding out Effect:-

The model highlights the potential "crowding out" effect of fiscal policy. When the government increases spending, the IS curve shifts to the right, raising the equilibrium output & interest rate.

#### 5. Liquidity Trap:-

The IS-LM model also addresses situations where monetary policy becomes ineffective, such as in a liquidity trap. In this scenario, the LM curve becomes horizontal at a very low interest rate, indicating that changes in the money supply have little to no effect on interest rates or output.

Factors influencing the position & slope of the IS curve:-

1. Marginal propensity to Consume:-

The slope of the IS curve depends on the marginal propensity to consume.

2. Interest Sensitivity of Investment:-

The IS curve's slope is also influenced by the interest sensitivity of investment. If investment is highly sensitive to changes in interest rates, the IS curve will be flatter because small changes in interest rates causes significant changes in output. If investment is less sensitive to interest rates, the IS curve will be steeper.

Conclusion:-

The IS-LM model is a powerful tool for understanding the interactions between the goods & money markets.

& the implications of fiscal & monetary policies. The position & slope of the IS & LM curves depend on various factors, including the marginal propensity to consume, interest sensitivity of investment, money supply & the sensitivity of money demand to income & interest rates.

### Section B

(3) Explain the mechanism through which internal & external balance takes place under flexible exchange rate.

Ans:- Mechanism of internal & External balance under flexible Exchange Rates:-

Flexible exchange rates play a critical role in ensuring internal & external balance within an economy.

### 1. Automatic Adjustment through Exchange Rate Movements :-

In a flexible exchange rate system, the value of a country's currency is determined by market forces - supply & demand for the currency in the foreign exchange market.

### 2. Role of Capital Flows :-

Capital flows also play a significant role in the external balance under a flexible exchange rate regime.

### 3. Internal Balance & the Phillips Curve :-

Internal balance relates to the economy's ability to maintain full employment & stable prices. The appreciation reduces export competitiveness, which helps to reduce inflationary pressures by decreasing demand for

goods & services.

#### 4. Monetary & Fiscal Policy Coordination

The effectiveness of flexible exchange rates in maintaining internal & external balance also depends on the coordination of monetary and fiscal policies.

However, if the government simultaneously pursues expansionary fiscal policy, the benefits of higher interest rates may be negated, leading to persistent inflationary pressures.

#### 5. Market Expectations & Speculation

Market expectations & speculative activities can also impact the effectiveness of flexible exchange rates in achieving internal & external balance.

Conclusion:-

In a flexible exchange rate system, internal & external balance is achieved through a combination of automatic adjustments in the exchange rate, capital flows & coordinated monetary & fiscal policies. While the flexible exchange rate mechanism provides the economy with the ability to absorb ~~shocks~~ shocks & adjust to imbalances, it requires careful management & economic stability.

(4) What does the philips curve signify? How do you reconcile the difference in the shape of the curve in the short run & the long run?

Ans:- The short-run philips Curve:-

In the short-run, the phillips curve is typically depicted as a downward-sloping curve. This indicates that when

unemployment is low, firms are more likely to raise wages to attract scarce labor. As wages increase, firms often pass these higher costs onto consumers in the form of higher prices, leading to inflation.

### The Long-Run Phillips Curve:-

Over time, the short-run trade-off between inflation & unemployment breaks down leading to the concept of the long-run Phillips curve.

### Reconciling the Difference:-

The key to reconciling the difference between the short run & long-run Phillips curves lies in the role of expectations.

Therefore while short-run policies can influence inflation & unemployment, they cannot alter the

economy's natural rate of unemployment in the long run.

Implications for policy:-

The distinction between the short-run & long-run phillips curves has significant implications for economic policy.

In conclusion, the phillips curve provides a crucial framework for understanding the trade-offs & limitations of macroeconomic policy.

(5) Bring out the salient features of real business cycle models. What are its implications?

Ans:- Salient Features of Real Business

Cycle Models - & Their Implications:-

Real business cycle models represent a significant development in macroeconomic theory, offering a distinct perspective on the causes of economic fluctuations.

Here, we will explore the salient

features of RBC models & discuss their implications for economic policy & our understanding of economic fluctuations.

### 1. Real Shocks as the Primary Drivers of Business Cycles:-

The cornerstone of RBC models is the idea that real shocks, such as changes in technology, productivity or resource availability, are the primary drivers of business cycles.

### 2. Rational Expectations & Intertemporal Optimization:-

RBC models assume that economic agents, including households & firms, have rational expectations & optimize their decisions intertemporally. This feature implies that economic agents respond to real shocks in a way that smooths

consumption & investment over time, reflecting forward-looking behavior.

### 3. Flexible Prices & Wages:-

RBC models operate under the assumption of fully flexible prices & wages. This means that prices & wages adjust rapidly to changes in supply & demand, ensuring that markets always clear.

### 4. No Role for Monetary Policy in Stabilization:-

Given that RBC models emphasize real shocks as the cause of economic fluctuations & assume price & wage flexibility, there is little to no role for monetary policy in stabilizing the economy.

### 5. Empirical Calibration & Simulation:-

RBC models are typically calibrated using empirical data to match observed economic behavior.

This involves selecting parameters that replicate the statistical properties of real-world data, such as the persistence & volatility of output, consumption & investment.

### Implications of Real Business Cycle

Models:- The implications of RBC models for economic theory & policy are profound & somewhat controversial.

#### 1. Reevaluation of ~~can~~ Economic

#### Fluctuations:-

RBC models challenge the traditional Keynesian view that business cycles are primarily driven by demand-side factors & market imperfections. Instead, they suggest that economic fluctuations are natural & efficient responses to changes in real factors like technology & productivity.

## 2. Controversies & Criticisms:-

RBC models have faced criticism for their assumptions, particularly the idea of fully flexible prices & wages, which may not hold in the real world where market imperfections, sticky prices & wage rigidity are common.

## Conclusion:-

Real business cycle models offer a distinct perspective on economic fluctuations, emphasizing real shocks & the economy's natural adjustment mechanisms.

6) Classify various theories of unemployment based on the possible responses of the firm.

Ans:- 1. Demand-side theories of

Unemployment:- Demand side theories focus

on the role of aggregate demand in determining employment levels.

### a) Keynesian Theory :-

Keynesian economics posits that employment arises from insufficient aggregate demand. According to John Maynard Keynes, during a downturn, consumer spending & investment decline, leading firms to reduce production & consequently, employment.

### b) Monetary Theories :-

Monetary theories, particularly those aligned with Milton Friedman's monetarism, argue that unemployment can result from fluctuations in the money supply.

### 2. Supply-side Theories of Unemployment :-

supply-side theories focus on factors

that affect the willingness & ability of workers to supply their labor.

### a) Classical & Neoclassical Theories:-

Classical & neoclassical economists argue that unemployment is a result from real shocks of wage rigidity,

where wages are kept above the market-clearing level due to minimum wage laws, unions or other factors.

### b) Real Business Cycle Theory:-

Real business cycle theory posits that unemployment results from real shocks to the economy, such as technological changes or shifts in productivity.

### 3. Structural Theories of Unemployment:-

Structural unemployment arises from a mismatch between the skills

of workers & the needs of firms.

### a) Mismatch Theory :-

Mismatch theory explains unemployment can occur when there is a shift in demand from one industry to another.

### Conclusion :-

Theories of unemployment offer diverse perspectives on the reasons behind joblessness & how firms respond to economic conditions. Demand-side theories emphasize the role of aggregate demand, supply-side theories focus on labor market regulations & incentives & structural theories highlight mismatches between worker skills & firm needs.

### (7)(a) Capital asset pricing model :-

The capital asset pricing model is a foundational concept in finance that helps in determining the expected return on an investment, taking into account its risk relative to the overall market.

Key concepts:-

1. Expected Return:-

The CAPM formula calculates the expected return on an asset using the risk-free rate, the asset's beta & the expected market return.

The formula is expressed as:-

$$\text{Expected Return} = R_f + \beta \times (R_m - R_f)$$

where  $R_f$  is the risk-free rate,  $\beta$  is the beta of the asset, &  $R_m$  is the expected market return.

2. Beta ( $\beta$ ) :- Beta measures an asset's volatility or systematic risk compared

to the market.

3. Risk premium :- The term  $(R_m - R_f)$  represents the market risk premium which is the excess return expected from investing in the market as a whole over the risk-free rate.

Applications & Limitations :-

CAPM is widely used in investment analysis, portfolio management & corporate finance for estimating the cost of equity & making investment decisions.

~~This theory~~

(b) Permanent income hypothesis :-

The permanent Income Hypothesis, proposed by economist Milton Friedman in 1957, is a theory that attempts to explain consumer spending behavior.

According to this hypothesis, an

individual's consumption decisions are not solely used based on their current income but rather on their perceived long-term average income, which Friedman termed as "permanent income." This concept contrasts with the idea that consumption is driven by current or transitory income levels. Overall, the permanent income hypothesis highlights the importance of long-term income expectations in shaping consumer behavior, challenging the view that consumption is directly tied to current income levels. This theory has important implications for understanding savings behavior & the effectiveness of fiscal policy.