

ITRN 503: Macroeconomic Policy in the Global Economy, Study Guide

Updated July 9, 2019

Introduction

Preliminary observations on macroeconomics

Macroeconomic variables

Gross domestic product (GDP)

GDP deflator

Gross national income (GNI)

Types of financial flows

Foreign direct investment

Equity portfolio investment

Bond finance

Commercial bank lending

Open Economy Accounts

Circular flow diagram

Simple closed economy

Open economy with government, savings and investment

Fundamental accounting equations

Intuition of these

Accounting matrices

Accounting identity equations

Fundamental accounting equations

$$I - (S_H + S_G) = S_F = Z - E$$

Domestic Investment – Domestic Savings = Foreign Savings = Trade Deficit

$$(S_H + S_G) - I = -S_F = E - Z$$

Domestic Savings – Domestic Investment = Foreign Investment = Trade Surplus

Open economy model

Balance of Payments Accounts

Major parts/balances

Current account

Capital/financial account

Official reserve transactions

Errors and omissions

Overall balance (=0)

Balance of payments table

Items 1 through 16

Analyzing the balance of payments

Current account + capital/financial account + official reserve transactions = 0

Global imbalances

Types of capital flows: FDI, equity investment, bond finance, commercial bank lending

Classical Model

The assumptions of the classical mode (A1 to A9)

The aggregate production function and marginal product of labor

MP_N as demand for labor graph and $\frac{W}{P} = MP_N$

Labor supply graph and $N^S = g\left(\frac{W}{P}\right)$

Supply-side determination of output and the aggregate supply curve

Aggregate demand and the equation of exchange: $MV = Py$

Aggregate demand curve

The four equations of the classical model

$$y = F(N, K) \quad (\text{E1})$$

$$MP_N(N, K) = \frac{W}{P} \quad (\text{E2})$$

$$N = g\left(\frac{W}{P}\right) \quad (\text{E3})$$

$$MV = Py \quad (\text{E4})$$

M, K exogenous

N , y , W/P , and P endogenous

4 equations and 4 endogenous variables

The four graphs of the classical model

Aggregate production function

Labor market

Aggregate supply/aggregate demand

Loanable funds market

Why the classical theory of the interest rate (loanable funds market) means that the modern components of aggregate demand do not affect total aggregate demand

Unemployment in the classical model

Exchange Rates

Definition of nominal exchange rate and effective exchange rate

$$e = \frac{\textit{pesos}}{\textit{dollar}}$$

$$e = \frac{\textit{home currency}}{\textit{foreign currency}}$$

$$e^{\textit{eff}} = a_{US}e_{\textit{dollar}} + a_{EU}e_{\textit{euro}}$$

Value of home country scale ($1/e$)

Definition of real exchange rate and real effective exchange rate (REER)

$$re = e \times \frac{P^{US}}{P^M}$$

$$re = e \times \frac{P^{\textit{foreign}}}{P^{\textit{home}}}$$

$$re^{\textit{eff}} = a_{US}re_{\textit{dollar}} + a_{EU}re_{\textit{euro}}$$

Sources of changes in real exchange rate

Purchasing power parity model and hypothesis

$$e = \frac{P^M}{P^{US}}$$

$$e = \frac{P^{\textit{home}}}{P^{\textit{foreign}}}$$

Exchange rates and trade flows

$$P_Z^M = e \times P_Z^W$$

$$P_E^M = e \times P_E^W$$

Monetary approach to exchange rate determination

$$e = \frac{\frac{M^M V^M}{y^M}}{\frac{M^{US} V^{US}}{y^{US}}} = \left(\frac{M^M}{M^{US}} \right) \left(\frac{y^{US}}{y^M} \right) \left(\frac{V^M}{V^{US}} \right)$$

The Keynesian Model

Multiplier model horizontal y^S curve

Keynesian consumption function

$$C = a + b(Y - T) \text{ or } C = a + bY_D$$

$$a > 0$$

$$0 < b < 1$$

Keynesian savings function

$$S_H = Y_D - (a + bY_D) \text{ or } S_H = -a + (1 - b)Y_D$$

The multiplier diagram

Multipliers

$$\frac{\Delta Y}{\Delta I} = \frac{1}{(1-b)}$$

$$\frac{\Delta Y}{\Delta G} = \frac{1}{(1-b)}$$

$$\frac{\Delta Y}{\Delta T} = \frac{-b}{(1-b)}$$

$$\frac{\Delta Y}{\Delta G} + \frac{\Delta Y}{\Delta T} = \frac{1}{(1-b)} - \frac{b}{(1-b)} = 1$$

Open economy multipliers:

$$\frac{1}{(1-b)} \text{ versus } \frac{1}{(1-b+v)}$$

The Keynesian money demand function

$$M^D = L(Y, r)$$

$$\frac{\Delta M^D}{\Delta Y} > 0$$

$$\frac{\Delta M^D}{\Delta r} < 0$$

The money market diagram

The LM diagram (upward sloping) and its intuition

As Y increases, money demand increases. In order for equilibrium to be maintained in the Keynesian money market, r needs to increase to reduce money demand back to the given supply.

As r increases, money demand decreases. In order for equilibrium to be maintained in the Keynesian money market, Y must increase to increase money demand back up to the given supply.

The IS diagram (downward sloping) and its intuition

As Y increases, S_H will increase. For a given G and T (and therefore S_G), I must increase.

This occurs through a reduction in r .

As r increases, I will decrease. For a given G and T (and therefore S_G), S_H must decrease.

This occurs through a reduction in Y .

The IS/LM diagram

Effect of changes in G (fiscal policy)

Effect of changes in M (monetary policy)

For both of these, the contrast with the Keynesian multiplier

The real version of the IS/LM diagram and its use to derive the Keynesian aggregate demand curve (when the price level rises, real money supply decrease, and aggregate demand falls).

The reasons why the aggregate supply curve is upward sloping in the Keynesian model.

The analysis of changes in G (fiscal policy) in the IS/LM model with aggregate demand and aggregate supply.

The analysis of changes in M (monetary policy) in the IS/LM model with aggregate demand and aggregate supply.

Exchange Rate Determination

Terminology

Depreciation, appreciation

Flexible exchange rates

The trade-based model derived from $S_F = (Z - E)$

The S_F graph is vertical

Using this model to analyze capital inflows and outflows

The assets-based model derived from $S_F = (Z - E)$ and the interest rate parity condition

$$r_H = r_F + \frac{(e^e - e)}{e}$$

The S_F graph is upward sloping

How interest rates and expectations affect the position of the S_F graph

Adding in the money market diagram to show how monetary policies in the home and foreign countries affect the equilibrium exchange rate.

Fixed exchange rates

Terminology

Devaluation, revaluation

The menu of alternative exchange rate regimes

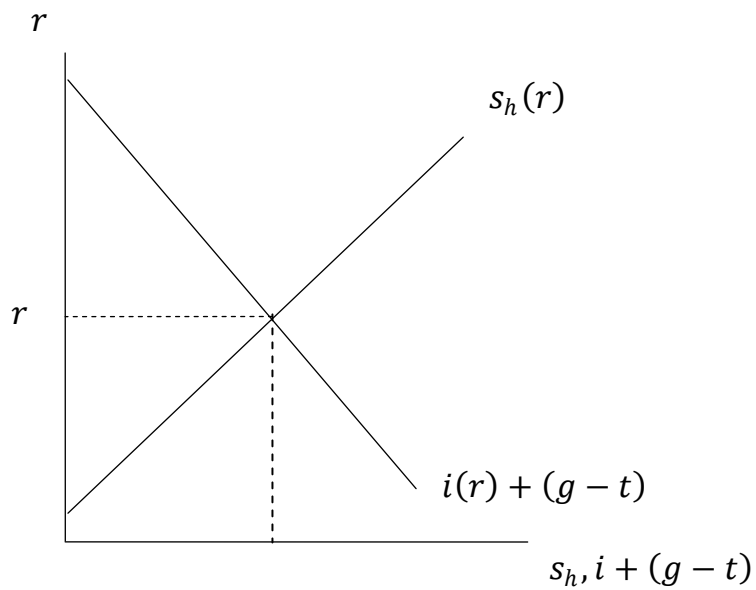
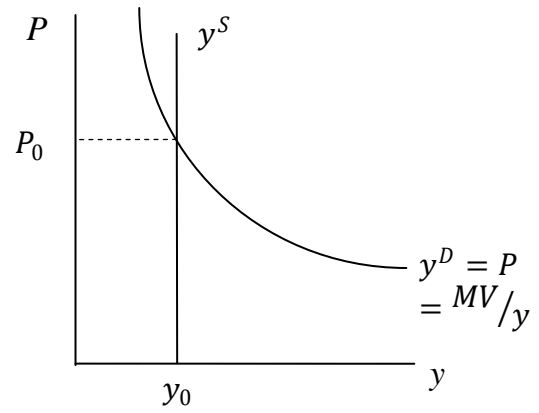
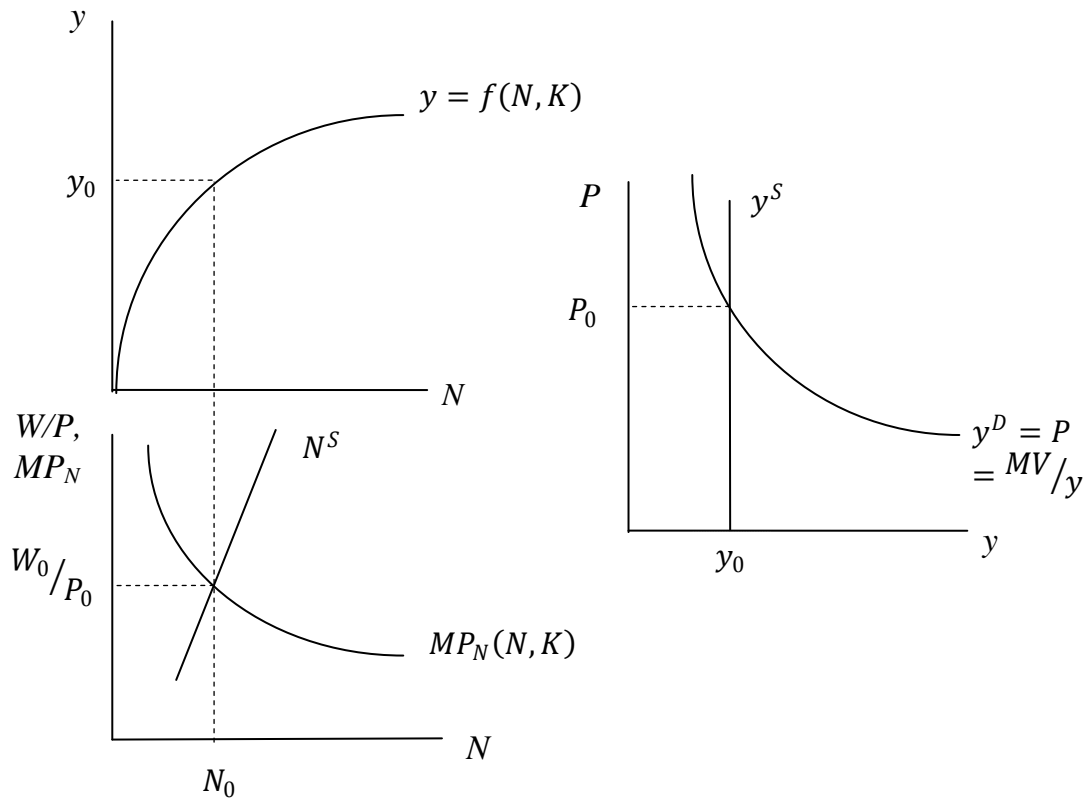
Overvaluation and undervaluation in the peso market diagram

Using the interest rate to try to maintain an *equilibrium* fixed rate

Using monetary policy to influence the interest rate to maintain an equilibrium fixed rate

The impossible trinity

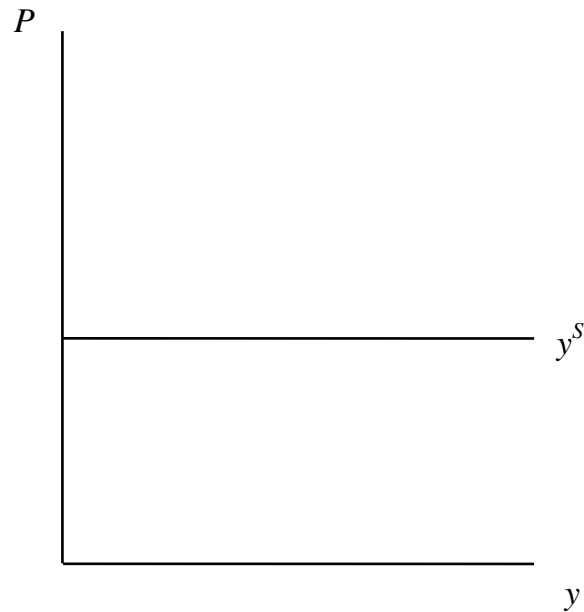
Classical Model Graphs



Summary of First Week on Keynesian Model

Here are the things you need to know from this first week on the Keynesian model.

The Keynesian multiplier model of aggregate demand assumes that the aggregate supply curve is horizontal:



In almost all circumstances, this is not a good assumption.

The Keynesian consumption function and its properties:

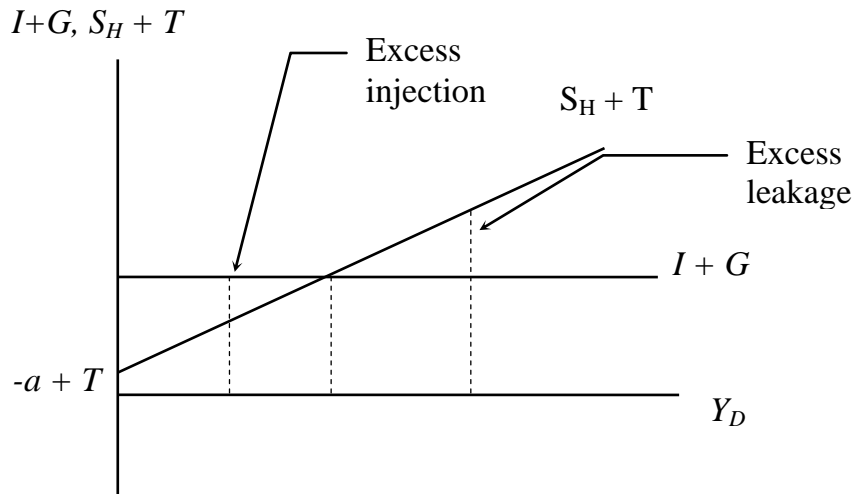
$$C = a + b(Y - T)$$

$$C = a + bY_D$$

The Keynesian savings function and its properties:

$$S_H = -a + (1 - b)Y_D$$

The multiplier diagram:



Multipliers:

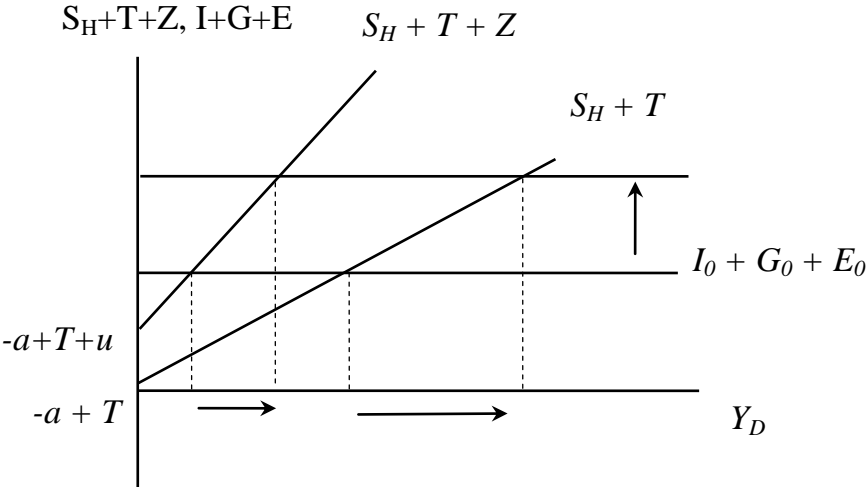
$$\frac{\Delta Y}{\Delta I} = \frac{1}{(1-b)}$$

$$\frac{\Delta Y}{\Delta G} = \frac{1}{(1-b)}$$

$$\frac{\Delta Y}{\Delta T} = \frac{-b}{(1-b)}$$

$$\frac{\Delta Y}{\Delta G} + \frac{\Delta Y}{\Delta T} = \frac{1}{(1-b)} - \frac{b}{(1-b)} = 1$$

Open economy multiplier diagram:



Open economy multipliers:

$$\frac{1}{(1-b)} \text{ versus } \frac{1}{(1-b+v)}$$

And the intuition as to why the open economy multipliers are smaller.

Summary of Second Week on Keynesian Model

Here are the things you need to know from the second week on the Keynesian model.

The Keynesian money demand function:

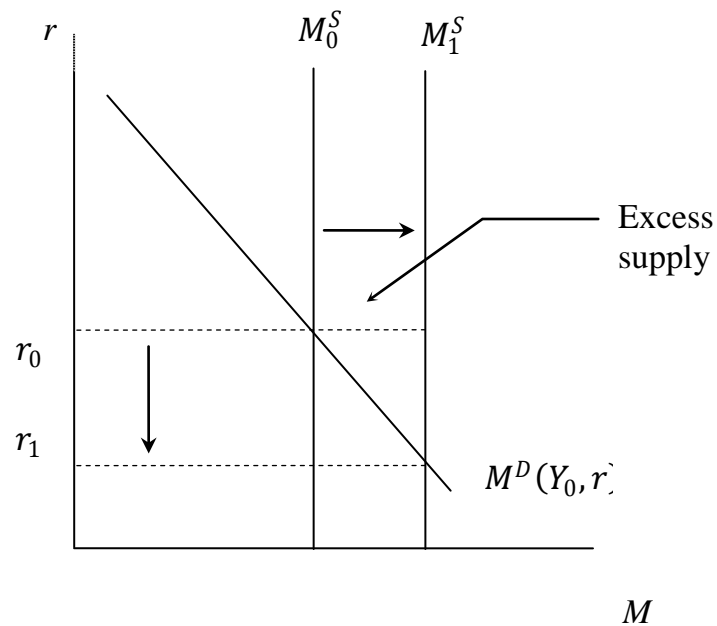
$$M^D = L(Y, r)$$

where:

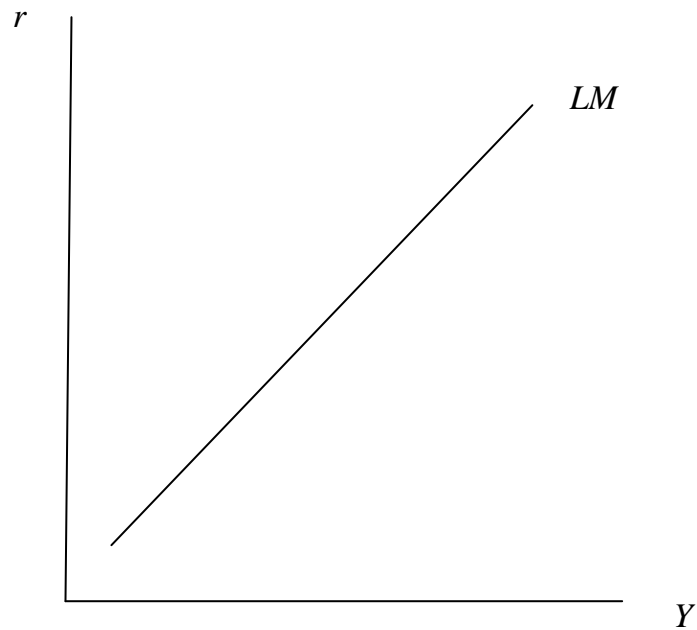
$$\frac{\Delta M^D}{\Delta Y} > 0$$

$$\frac{\Delta M^D}{\Delta r} < 0$$

The Keynesian money market diagram:



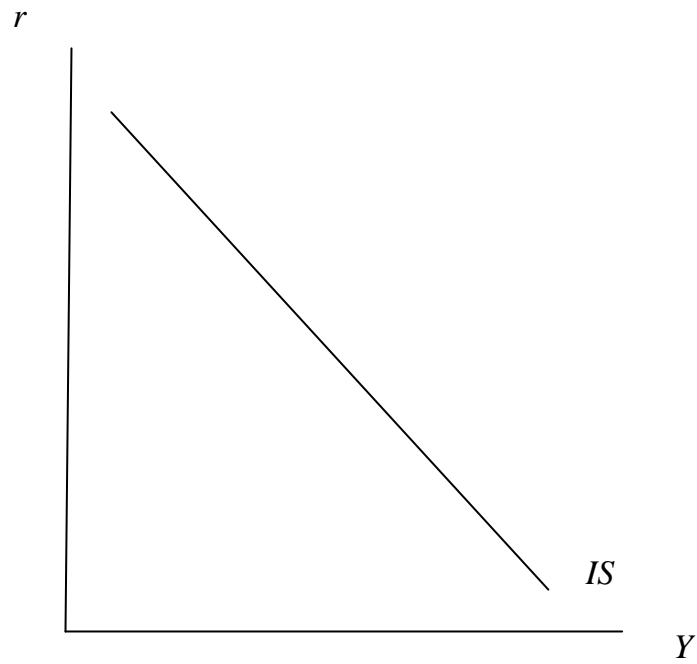
The LM curve:



And the intuition behind it:

As Y increases, money demand increases. In order for equilibrium to be maintained in the Keynesian money market, r needs to increase to reduce money demand back to the given supply.

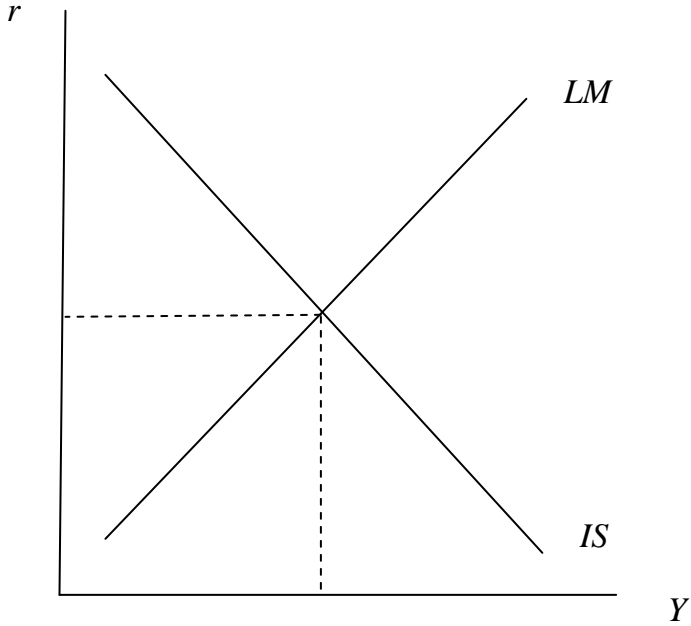
The IS curve:



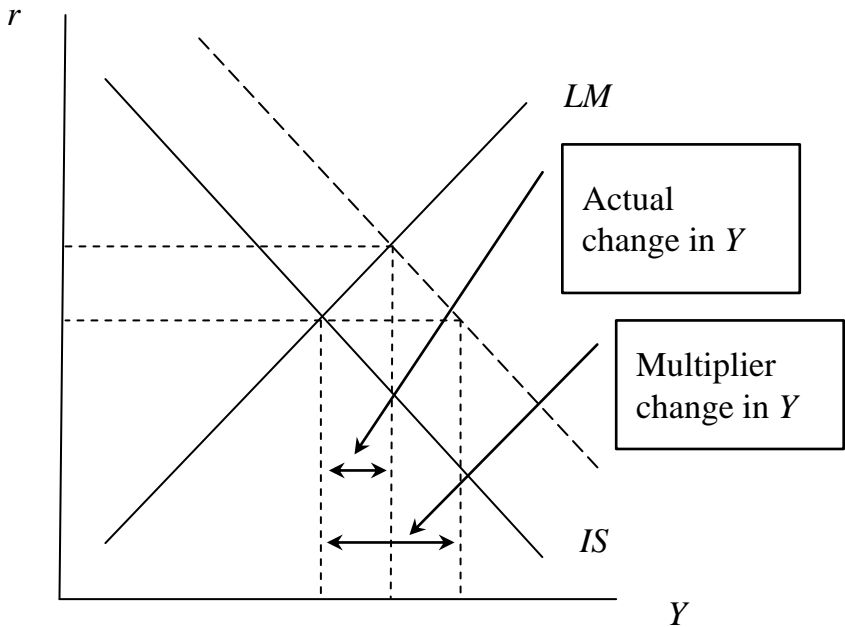
And the intuition behind it:

As Y increases, S_H will increase. For a given G and T (and therefore S_G, I must increase. This occurs through a reduction in r .

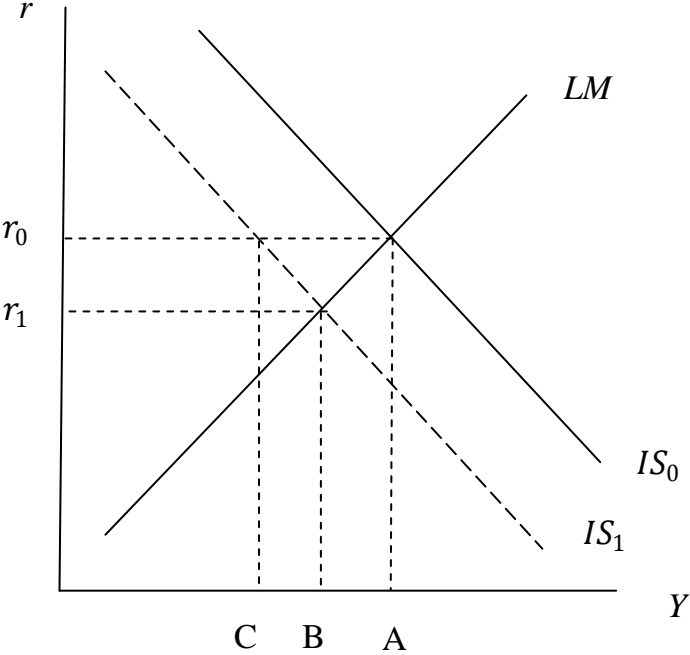
The determination of nominal aggregate demand in the Keynesian model:



The improved multiplier analysis:



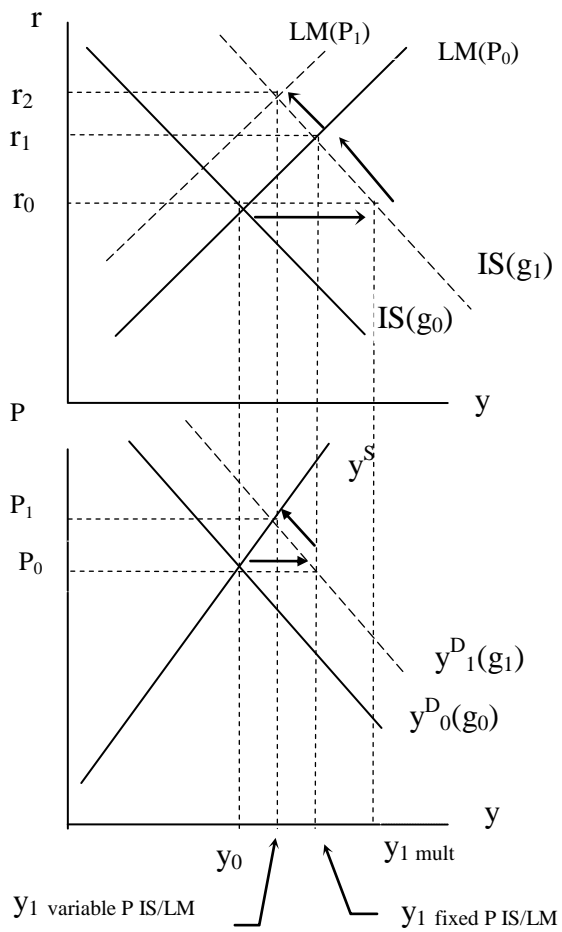
The less-than-stabilizing role of the interest rate in the face of a collapse in investment:



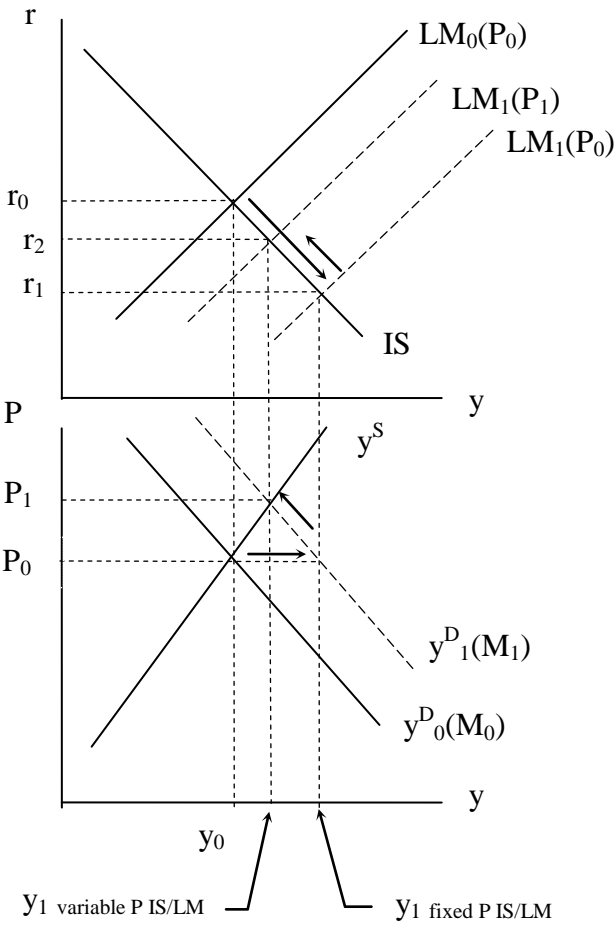
Finally, expansionary monetary policy in class exercise above.

Summary of Third Week on Keynesian Model

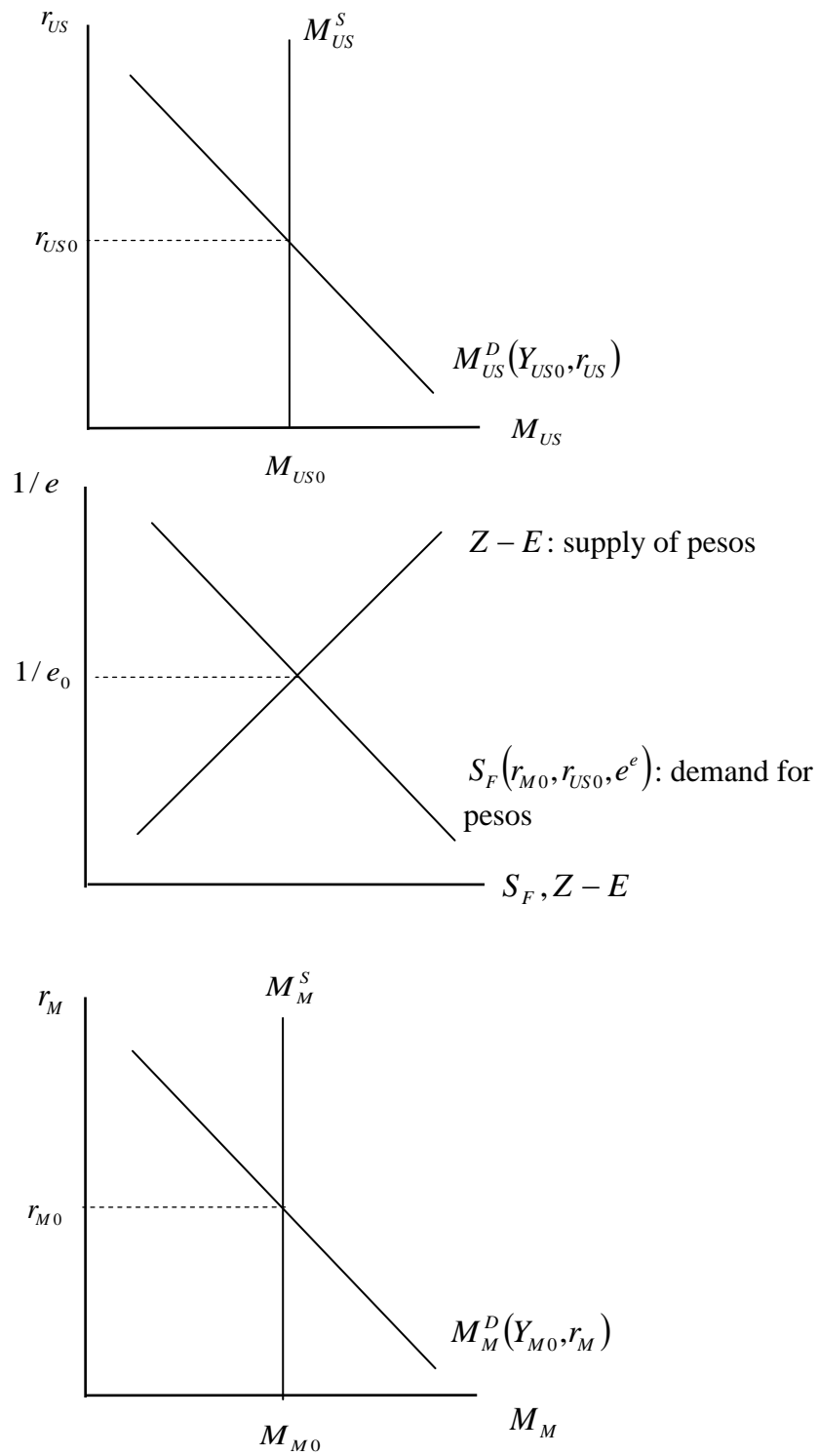
Keynesian analysis of government spending:



Keynesian analysis of monetary policy:



Exchange Rate Determination



Macroeconomic Wisdom from James Tobin

There is a two-regime model of the economy. Sometimes the economy is in a classical situation where markets are clearing... and the economy's ability to produce output is supply-constrained. You can't produce any more because there are essentially no idle resources.... At other times the economy is in a Keynesian situation in which the constraint on actual output is *demand* – aggregate spending. Extra output would be produced if there were extra aggregate real demand.... That situation obtains lots of the time, not always, and there are then demand-increasing policies that will eliminate the social waste involved.