Economics 470/570
Fall 2006
Midterm 2

Definitions

① Velocity is defined as $\frac{\text{Nominal GDP}}{\text{Money supply}} = \frac{PY}{M}$. It measures how fast money circulates in the economy

② Disposable income = Income − taxes + transfers
− (net taxes)

MPC = marginal propensity to consume. This is how much of an additional dollar of disposable income will be allocated to consumption rather than saving.

③ Policy effectiveness refers to the ability of monetary or fiscal policy to affect real output. If a given change in, say, M, G, or T causes a large change in output than before due to some change, we say policy is more effective.

(4) Total Expenditures is the sum of C, I, G, and NX, i.e. it sums up the demand of households (C), businesses plus housing (I), Government expenditures (G), and the foreign Sector (NX). So, $E = C + I + G + NX$

(5) the IS curve is all pairs (i, Y) that are equilibrium values in the goods market.

(6) Crowding out refers to a rise in the interest rate brought about by an increase in the deficit (GT, e.g.)

When, say, $G\uparrow \rightarrow i\uparrow \rightarrow \begin{matrix} I\downarrow \\ NX\downarrow \end{matrix}$

So $Y = C + I + G + NX$

$\downarrow \quad \uparrow \quad \downarrow$

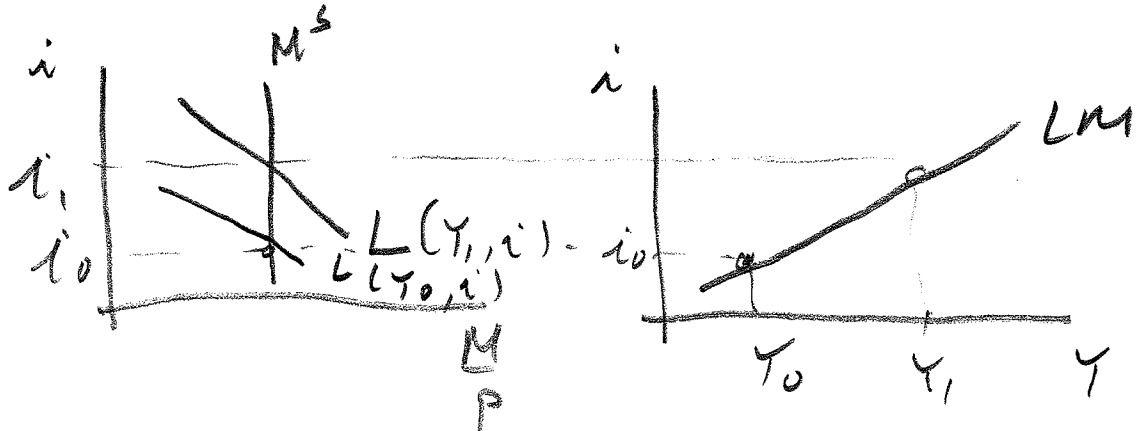
$G\uparrow$ "crowds out" I and NX.

Short Answer

① In Keynes' model:

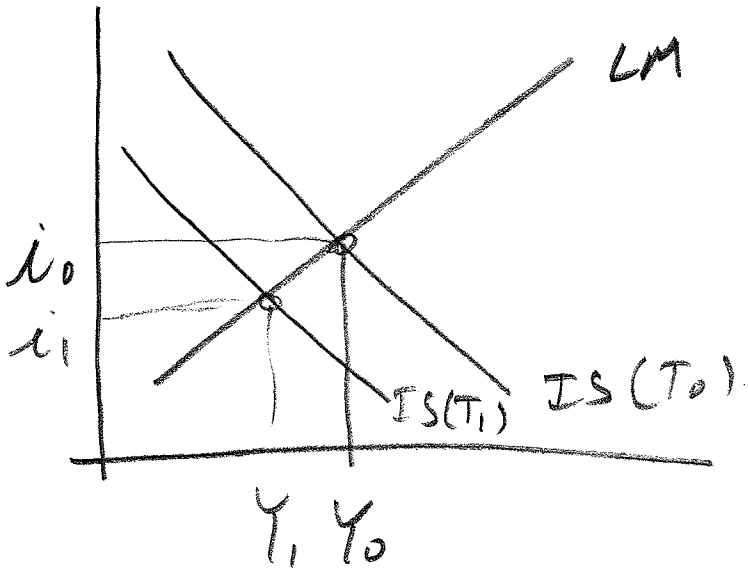
$$V = \frac{PY}{M} = \frac{PY}{PL(Y,i)} = \frac{Y}{L(Y,i)}$$

Thus, when Y & i change, V changes as well ($i\uparrow \rightarrow L\downarrow \rightarrow V\uparrow$, $Y\uparrow \rightarrow \frac{\text{num}\uparrow}{\text{den}\uparrow}$, can't tell net effect). So, not a constant. Important because Classical/Cambridge Schools Assumed $V = \bar{V}$ in SR, but, with M in particular, does not appear to be a constant. Keynes model is at least broadly consistent with the evidence.

② 

When $Y\uparrow$, money demand (L)$\uparrow \rightarrow$ price of money, i.e. the i-rate, $\uparrow$. So, $Y\uparrow \rightarrow L\uparrow \rightarrow i\uparrow$.

(3)

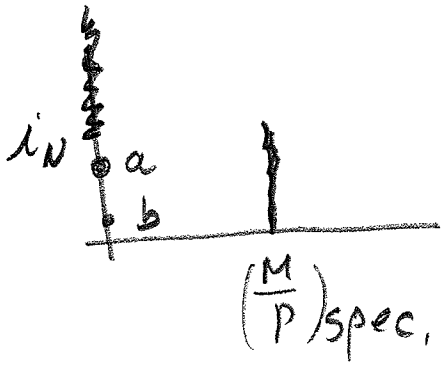


$Y \downarrow$
$i \downarrow$

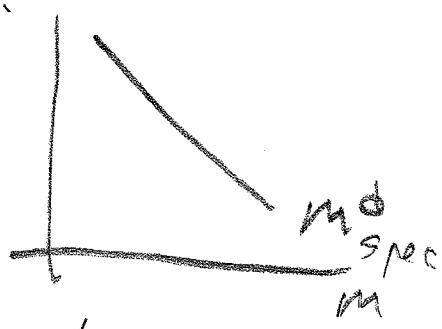
why? $T \uparrow \rightarrow$ disp inc $\downarrow \rightarrow C \downarrow \rightarrow AD < Y$
$\rightarrow$ inventories $\uparrow \rightarrow Y \downarrow$. As $Y \downarrow$, less money needed for transactions $\rightarrow L \downarrow$.
As money dem $\downarrow$, i (price of money) $\downarrow$.
This then leads to second round effects that echo the 1st round. Thus,
$T \uparrow \rightarrow Y \downarrow$ and $i \downarrow$

(4) In Keynes' model, any deviation from the long-run Normal rate of interest made the agent absolutely certain that the rate would

rise/fall in the future. That is the agent is equally certain it will rise at points a and b.



Thus, with full certainty, the investor is either all the way into Bonds, or all the way out → switching behavior shown in graph. Tobin added uncertainty → you are more sure at b that i↑ in future than at a, so, take on more Bonds at a, this gives a smooth md function for the individual. This was important because it removed an objection (that people didn't switch like his model implies) to Keynes' theory of money demand.



Essay

(1) The Quantity theory of money begins with a definition of velocity.

$$V \equiv \frac{PY}{M}$$

Then, $M = \frac{1}{V}(PY)$. If we assume V is a constant, the $\frac{1}{V}$ is a constant. Call it k. The

$$M = kPY.$$

This is a transactions demand for money approach. The Cambridge economists took this a step further and also incorporated the Store of value function into their analysis. In the end, they two thought

$$M^d = kP\bar{Y}$$

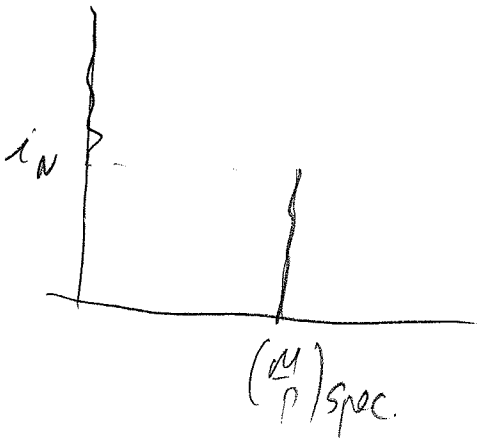
But they at least hinted that

if $i\uparrow \rightarrow$ hold less money $\rightarrow k\downarrow$.
Thus, they provide a framework for Keynes to build upon later. In both cases, assuming $V=\bar{V}$ in SR takes it from a definition / identity into a falsifiable statement (i.e. a theory).

(2) For Keynes, the transactions and precautionary demand were both constant fractions of nominal income, i.e., that $m^d = kPy$ in both cases. Thus, to this point, Keynes does not differ from the classicals.

What he adds, and where he differs, is in the theory of the

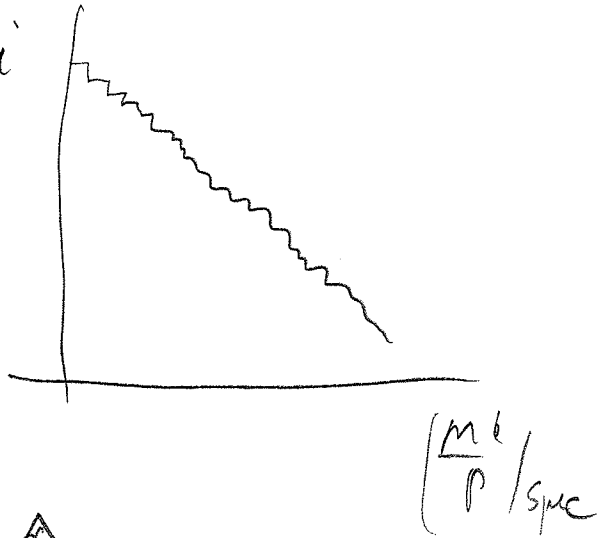
Speculative demand for money. Keynes thought each person had a normal or long-run i-rate. Call it i_N



When $i < i_N$, expect i↑ in future. Since also expect P_{Bonds} ↓, hold M rather than financial assets.

When $i > i_N$, opposite occurs. Expect i↓ So expect P_{Bonds} ↑. So, hold fin. Assets rather than money and $(\frac{M}{P})^d_{spec}$ falls to zero.

That is for each individual. In Aggregate, start with i > highest i_N anyone has. as i↓, begin crossing individual's i_N, they switch out of Bonds into money, and $(\frac{M^d}{P})_{spec}$ ↑ [cont.]



Thus, in aggregate, $i \downarrow \rightarrow \left(\frac{M}{P}\right)^d \uparrow$, so, i affects $\frac{M^d}{P}$.

When all three motives are put together, get $\left(\frac{M}{P}\right)^d = L(Y, i)$

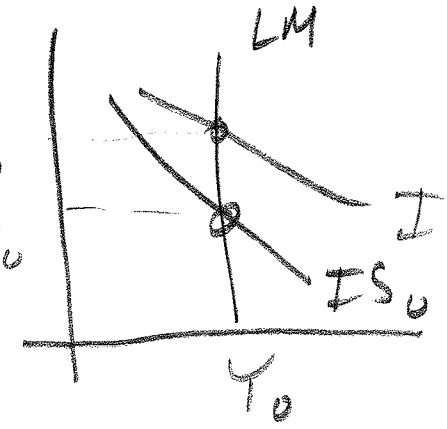
$P \uparrow \rightarrow M^T$ in proportion

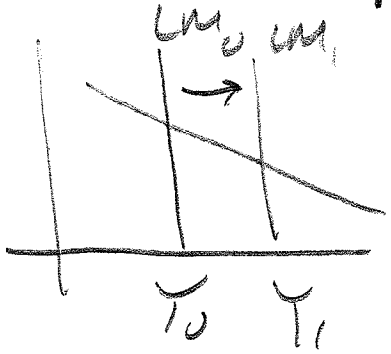
$Y \uparrow \rightarrow$ trans dem. $\uparrow \rightarrow \frac{M^d}{P} \uparrow$

$i \downarrow \rightarrow$ spec. dem. $\downarrow \rightarrow \frac{M^d}{P} \downarrow$.

(3) [Next page]

(3) The extreme case of insensitivity is represented by the classical model of money demand $M = PL(Y)$ where the i-rate does not appear. Thus, in this case, the LM curve is vertical. In this case, as shown in graph, fiscal policy does not affect Y at all. Monetary Policy does:

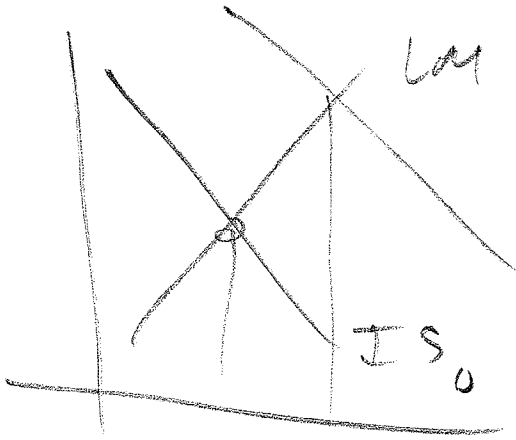




Thus, when md is completely insensitive to i-rate changes, M-policy is more effective than fiscal policy. In the more usual case, as

Shown in the graph

fiscal policy does affect, Y, r_m, as it gets less sensitive (LM gets steep), fiscal policy less effective relative to mon. policy.



Okay to use horiz LM too.

Intuitively (Summary)

$G\uparrow \rightarrow Y\uparrow \rightarrow L_1\uparrow \rightarrow i\uparrow \rightarrow \frac{NX}{I}\downarrow \rightarrow Y\downarrow$

↳ when LM vertical, this is "strong" → less effective

$M\uparrow \rightarrow i\downarrow \rightarrow \underset{NXT}{I\uparrow} \rightarrow Y\uparrow \rightarrow$ etc.

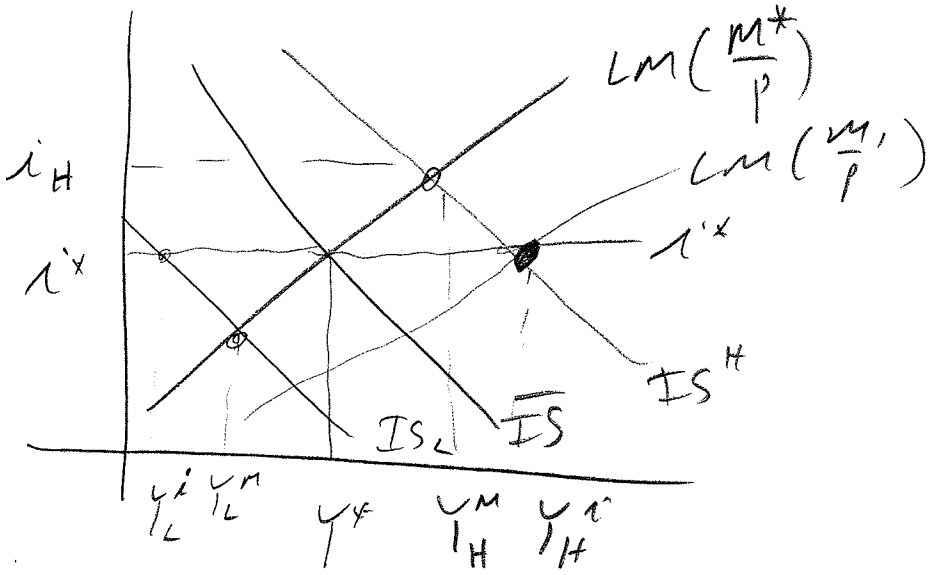
↳ when this is strong (LM steep), mon effective.

(4) Poole's Rules tell us whether to choose i or M as a monetary policy target according to whether there is instability in IS or LM curve.

IS unstable

Start at all targets i^*, M^*, Y^*

$\bar{IS}$ = Avg. or expected.

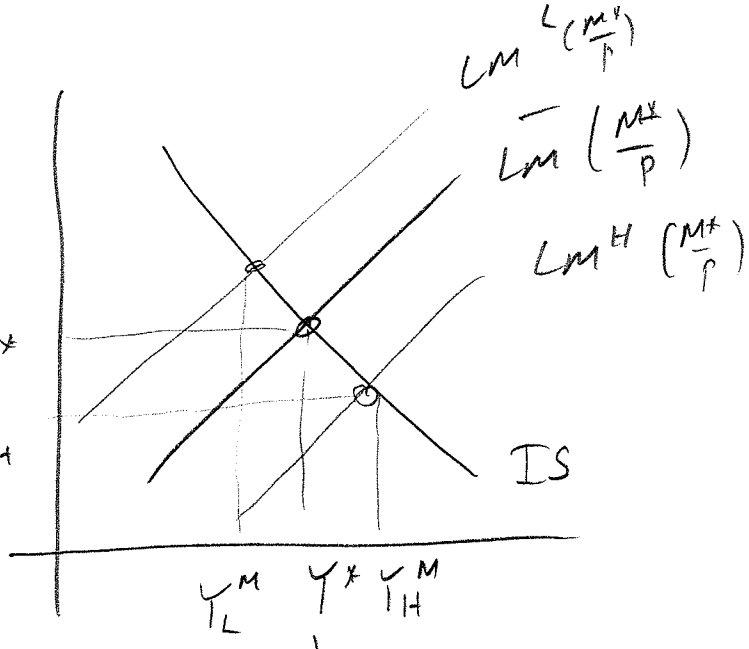


Suppose actual IS is higher. Then i^* to i^H, Still at M^*. $Y\uparrow$ to Y_H^M with money target. With i-target, Shift LM Out → go to Y_H^i. Since Y_H^i further from Y^* than Y_H^M, more variance with i-rule (so choose M-rule).

On other side, when IS too Low and get IS_L, Symmetric → also get more Variation for i-rule.

LM unstable

Here, with M-rule, move to Y_H^M, but, with i-rule, i_H Never move from Y^* ⇒ i-rule has smaller variance.



Since Fed uses i-rule, this model, if Correct, says they must believe LM more unstable than IS.