Economics 470/570
Fall 2011
Midterm Exam 2

Part 1: Definitions

1. Velocity of money: The velocity of money is defined as PY/M, i.e. Nominal GDP divided by the price level. It measures how many times, on average, a dollar changes hands in a given time period.

2. MP Curve: The MP curve is the Fed's reaction function. It shows how the fed changes the interest rate it controls in response to changes in output (Y) or inflation (π), i.e. $r = f(Y, \pi)$ (+ +).

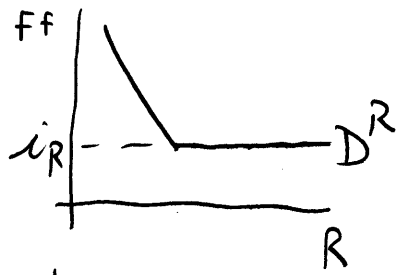
3. Crowding Out: This occurs when an increase in government spending increases the deficit, and the demand for funds to finance the deficit causes the interest rate to increase. The increase in the interest rate cause investment (as well as C and NX) to fall. So an increase in G "crowds out" I.

4. AE curve: This is the total expenditures (demand) on goods and services in the economy. It is the sum of Consumption, Investment, Government Spending, and Net exports.

5. Policy effectiveness: This refers to the ability of goverment policy to change output. If a given change in G, T, or M has a larger impact on Y (output), we say policy is more effective.

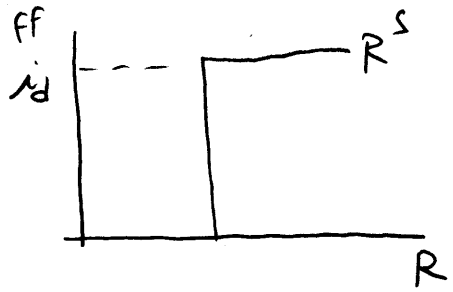
Part II Essay Questions

(1) (a) As the ff rate increases, the cost of insurance against unexpected losses of reserves (bad loans, withdrawals, etc.) ↑. Since insurance (reserves over the required amount) is more expensive, firms purchase less (reserves fall).



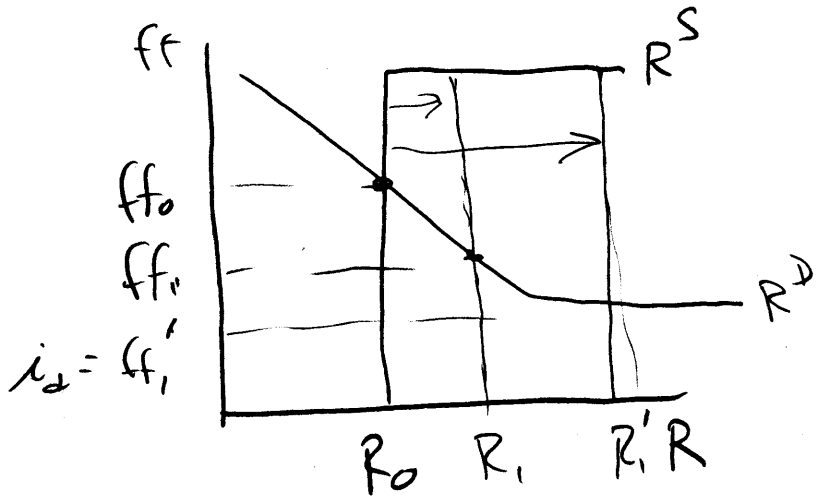
The floor, i_R, is the amount the Fed pays on reserves. No bank would make a loan at less than i_R, so the interest rate cannot fall below this amount.

(1) (b) i_d is the discount rate. When ff < disc rate, the supply of reserves is fixed.

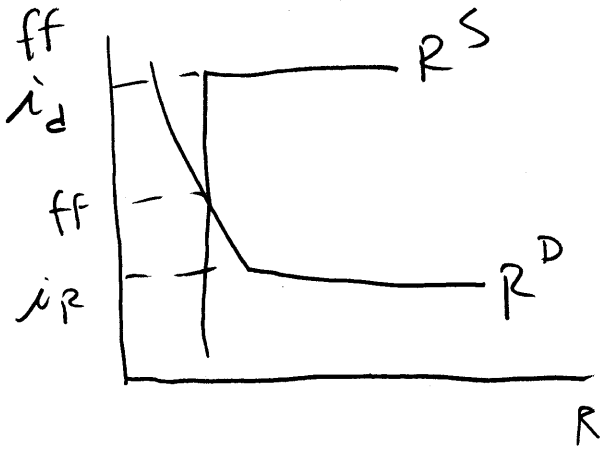


The Fed chooses this value. When the ff hits i_d, the Fed supplies reserves as desired by banks at the rate i_d, so the curve becomes horiz. No bank would ever borrow at a rate higher than i_d because it can always borrow from the Fed at i_d (i.e. why pay more than that? They won't.).

(c) An open market purchase of bonds increases the supply of reserves so the vertical R line shifts to the right and the ff falls. If the increase in R is large enough, the ff falls to the lower bound i_d (R_1' on diagram).



① (d) No matter how R^S and R^d shift, the ff rate cannot go outside of the bounds i_d and i_R. They are the max and min i-rates (ff) for the reasons given above. Then, when i_d and i_R are closer together, the potential variability in ff falls.

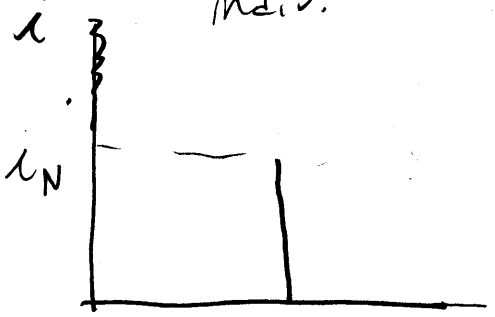


② The Quantity theory of money begins with the definition of velocity; $V \equiv PY/M$. This can also be written $PY \equiv MV$. This is an identity. It is not falsifiable so it isn't a theoretical statement. If we assume $V = \bar{V}$, which is falsifiable (it might not be true), then $M\bar{V} = PY$ is the Q-theory of money. This equation can also be written as $M = kPY$ where $k = \frac{1}{V}$. This is the classical m^d curve. The m^d curve also points out the

② [cont.] essential difference between the Cambridge and classical views. For the classical economists, $M^d = kPY$ was the transactions demand for money (money demand is a fraction, k, of total spending). For the Cambridge Economists, the $M^d = kPY$ curve was both transactions demand and store of wealth (money is one way to store wealth). Cambridge economists believed that as i-rate ↑, less wealth would be held as M, so M^d goes down. That is, essentially, they believed that

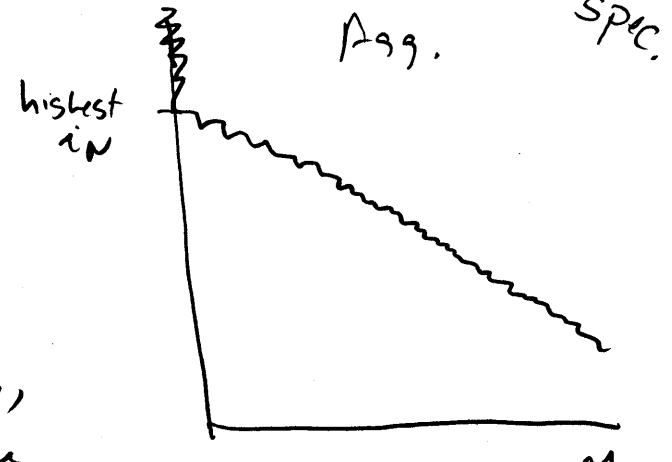
$M^d = k(i)PY$, where $k(i) \downarrow$ as $i \uparrow$

(3) Keynes believed that people have a normal or long-run interest rate, call it i_N. When $i > i_N$, people expect $i \downarrow$ in the future, so they also expect $P_{Bonds} \uparrow$. Thus, bonds are a good investment and people will move their speculative balances into financial assets. When $i < i_N$, the opposite occurs. People expect $i \uparrow$, so they also expect $P_{Bonds} \downarrow$, so they hold money, not bonds



Expectations are held with certainty, i.e. whenever $i > i_N$, 100% sure $i \downarrow$ in the future.

To get aggregate money demand, start above the highest i_N held by anyone. As $i \downarrow$, begin crossing i_N for individuals, and they switch into money. Since there is a distribution of i_N values in aggregate.



as $i_N \downarrow \rightarrow M_{Spec} \uparrow$

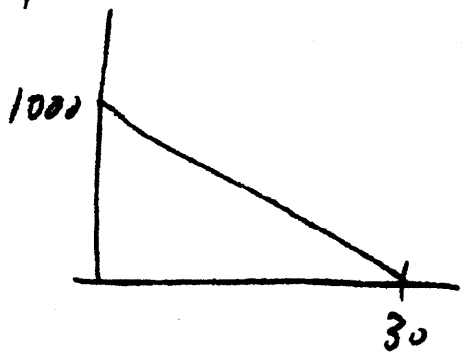
(3) [cont.] Tobin did a better job than Keynes at incorporating risk into the model, i.e. expectations are uncertain rather than certain, and this led to smooth indiv. md curves rather than the switching behavior exhibited in Keynes model.
[Note: I don't think I talked about this, so I am going to eliminate this part of the question.]

(4)

Begins on Next Page

(4) The short answer is: the i-rate is opportunity cost of money. As i-rate ↑, cost of holding money for transactions ↑ → hold less. more detail:

Suppose an indiv. is paid $1,000/month (in "Bonds" to make it simpler) and spends it all at a constant rate over the month. Graphically



In this case:

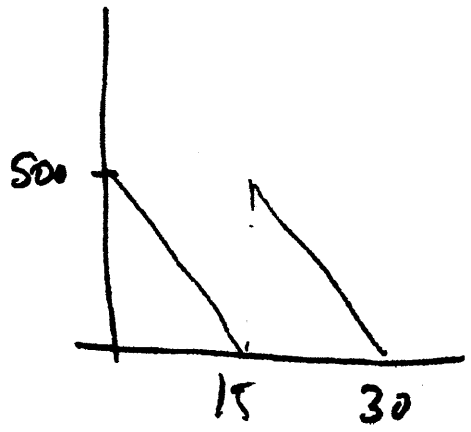
Avg $\frac{M^d}{P} = 500$

Avg Bonds held $= 0$

Since paid in Bonds, this requires 1 trip to the bank

What if you take 2 trips to take out $500 on 1st, 15th?

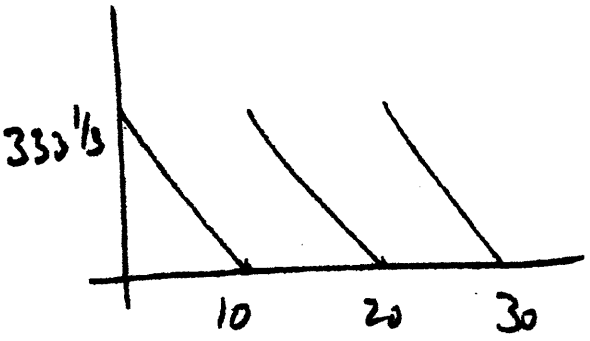
Then



Avg $\frac{\text{Mdp}}{\text{p}} = 250$

Avg $\frac{\text{Bmdr}}{\text{held}} = 250$

Try 3 Trips



Avg $\frac{\text{Mdp}}{\text{p}} = 167\ 2/3$

Avg Bmdr = $333\ 1/3$

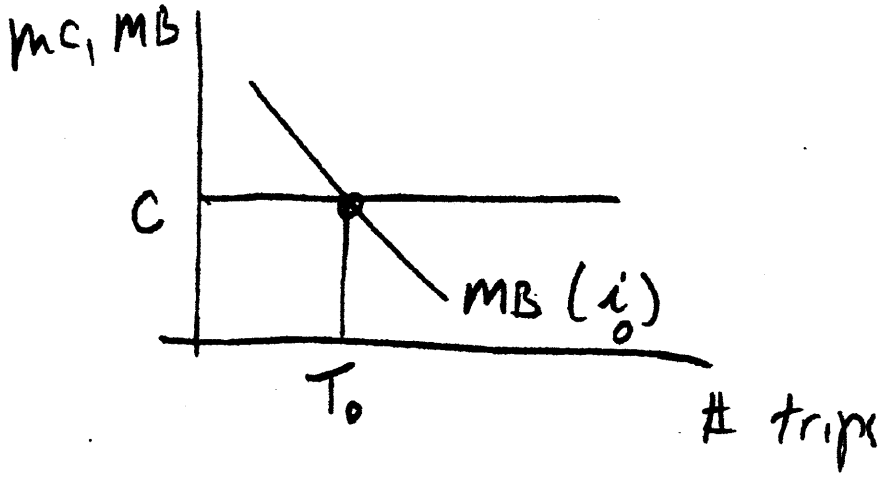
Summarize:

[cont]

Summarize:

	$\frac{MC}{P}$	Bnfts	Let i-rate be 10%
1 Trip	500	0	
2 Trip	250	250	> MB = 25.00
3 Trip	$166\frac{2}{3}$	$333\frac{1}{3}$	> MB = 8.33

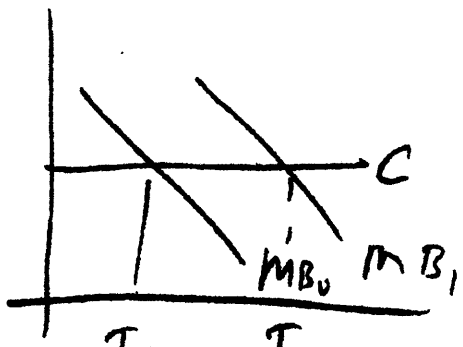
So, MB ↓ as trips ↑. Let cost of a trip be constant (C)



If i-rate is i_0, make T_0 trips

[cont.]

When $i \uparrow$, $MB \uparrow$ (more interest)



$\rightarrow$ Trips $\uparrow$.

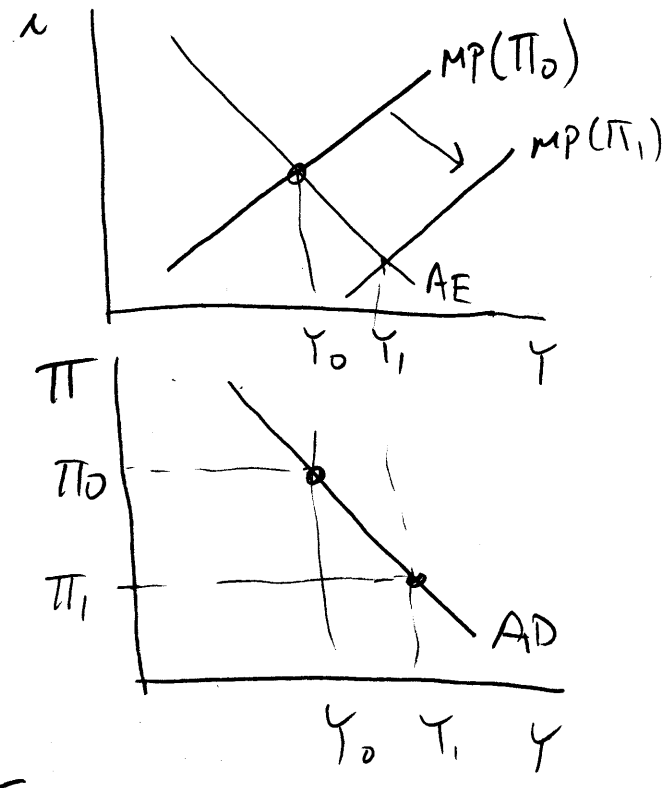
From table, (Summary)

Trips $\uparrow \rightarrow \left(\frac{m^d}{P}\right)_{Trans} \downarrow$

So, $i \uparrow \rightarrow \left(\frac{m^d}{P}\right)_{Trans} \downarrow$.

Important because it overcame objections to including i-rate in $\frac{m^d}{P}$ function. Keynes said Spec d depends upon i-rate, but, resisted. This showed trans d depends upon i, ended to controversy

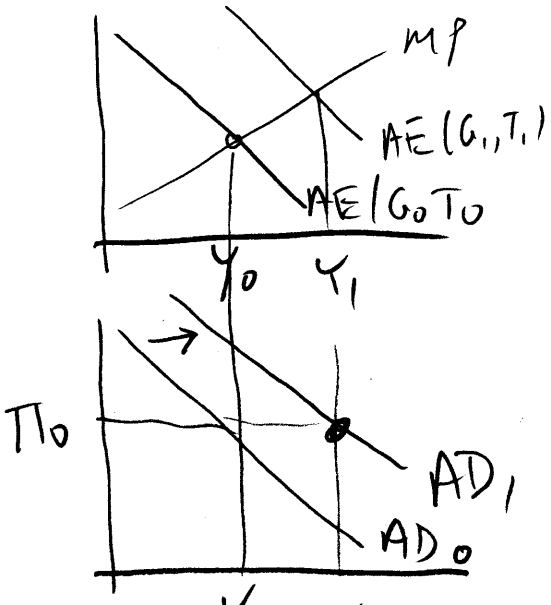
(5)(a) Start at π_0. At π_0, $Y = Y_0$. Now let π_0 fall to π_1, that causes the mp curve to shift out, and $Y\uparrow$. So $\pi\downarrow \rightarrow Y\uparrow$, i.e. negatively sloped AD curve.



Intuition: when $\pi\uparrow$, Fed will increase interest rates to slow down the economy and bring inflation down.

AS $i\uparrow \rightarrow \underset{Ex}{\overset{C}{I}}\downarrow \rightarrow Y\downarrow$. So $\pi\uparrow \rightarrow Y\downarrow$.

(b) When $G\uparrow$ or $T\downarrow$, AE curve shifts out. This gives $Y\uparrow$ at the same π, so AD must shift out. In General, Anything that shifts AE out or mp out (except a chg in π) will cause AD to shift.



(6) (a) The government budget constraint is $G + \underset{\text{debt}}{\text{int on}} - T = \Delta M^S + \Delta \text{Bonds}^S$.

The left-hand side is the deficit (Spending minus taxes). If there is a deficit, it can be financed by $T\uparrow$, $\Delta m^S \uparrow$, or ΔBonds $\uparrow$. If it's politically impossible to increase T or deficit (Bonds), then $\Delta m^S \uparrow$ is only choice $\rightarrow$ inflation. (In developing countries, tax base may be too small, and borrowing (Bonds) limited $\rightarrow \Delta m^S$ to finance debt).

(b) debt monetization occurs as follows:

1. G↑ or T↓ financed by Bonds↑ (deficit).
2. Fed uses open mkt operations to purchase bonds, replace with money (debt monetized).
3. In the end, it's as though G↑ by printing money.