Economics 470/570
Midterm 2
Winter 2007

Definitions

① The Quantity equation says that $MV = PY$, that is, (Money)(velocity) = (price)(real income).

② Aggregate demand is the sum of consumption by households, investment by businesses, expenditures on goods + services by the government, and net foreign demand, i.e. exports minus imports. Thus,

$$AD = C + I + G + NX$$

③ Policy effectiveness refers to the ability of government policy. If a given change in G, T, or M has a larger impact on Y, we say policy is more effective.

④ This is the part of M^d unrelated to income or the i-rate. E.g., if the stock market becomes more risky (an autonomous factor), M^d will increase.

(5) The LM curve shows all combinations of income and the interest rate at which money demand equals money supply

(6) Crowding out refers to a rise in the interest rate brought about by an increase in the deficit ($G\uparrow$ or $T\downarrow$).
When, say, $G\uparrow \rightarrow i\uparrow \rightarrow I\downarrow$, $\rightarrow NX\downarrow$ $\rightarrow$ So, I is "crowded out"

$$Y = C + \underset{\downarrow}{I} + \underset{\uparrow}{G} + \underset{\downarrow}{NX}$$

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

Part II

(1) Defensive open-market operations are the day-to-day actions that keep the M^s growing along the target path. Corrections that "keep the car on the road." Dynamic open-market operations are actual changes in the course of monetary policy

[cont.]

Primary, seasonal, and secondary credit refer to discount window operations.

Primary credit: used to help with short-term liquidity problems, expect to repay quickly, not many restrictions on borrowing

Seasonal: helps a limited number of banks in agricultural and vacation areas to smooth reserves over the year

Secondary: Rarest of the three, given to banks with severe liquidity problems, must present a detailed repayment plan

The Fed doesn't use res. requirements to manage the money supply because

1. it's too blunt an instrument, small changes in req. lead to big changes in M so fine-tuning is hard
2. raising res. req. can cause liquidity problems, so policies are not easily reversible.

(2) The classical M^d curve is derived from the quantity equation. $MV = PY$. Assuming that velocity is essentially constant in SR, we can write

$$M^d = \left(\frac{1}{\bar{V}}\right)(PY) = kPY$$

where $k \equiv \frac{1}{\bar{V}}$.

Notice that because the focus is on transactions (that's what the Q-equation captures), and i does not play a role.

However, in the Cambridge version, which looks the same, they recognize both the medium of exchge and store of value functions of money. The store of value function does bring i into the model, albeit indirectly, and it is

[cont.]

reflected as part of k. I.e., we can write:

$$M^d = k(i)\,(PY) \quad \text{where } k\downarrow \text{ when } i\uparrow$$

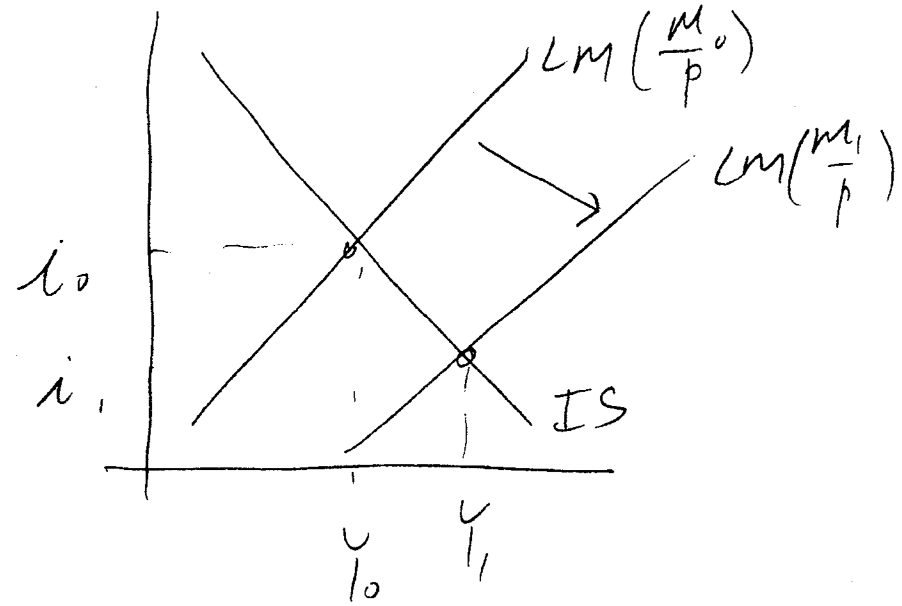
→ neg. relation between i and M^d.

But, the ideas aren't very clear in Cambridge contributions, and Keynes and others clarify the role of the i-rate in subsequent work.

So, for U.S. economists in the classical tradition, i did not play a role. For Cambridge economists though, there was at least some recognition that i would play a role through the store of wealth function for money

(3) Graphically

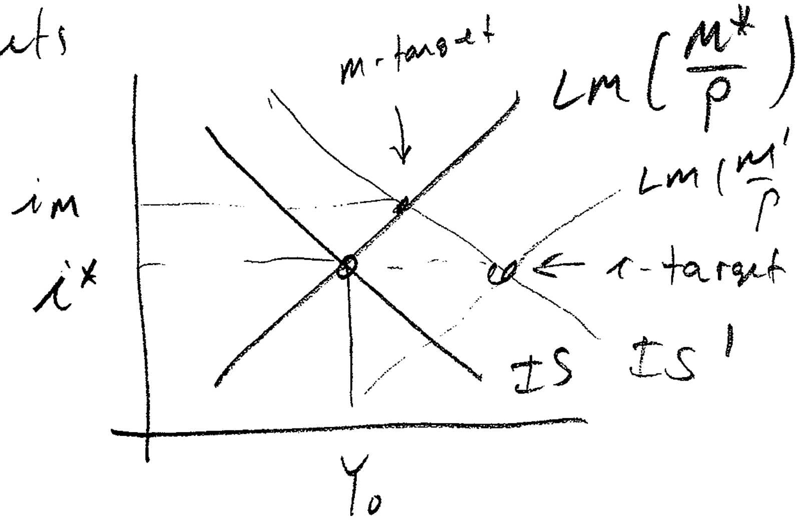
Graph shows M↑ → i↓ and Y↑.



Why?

When M↑, real money $(\frac{M}{P})$ ↑ since P fixed.
Thus, $\frac{M}{P} > L$ ($m^s >$ money demand), so, price of money (i) falls. As i↓, I↑, C↑, NX↑
→ $Y^{AD} > Y$, and, inventories ↓.
The fall in inventories is a signal to increase Y, so, Y↑.
Thus, M↑ → i↓ and Y↑ as in graph.

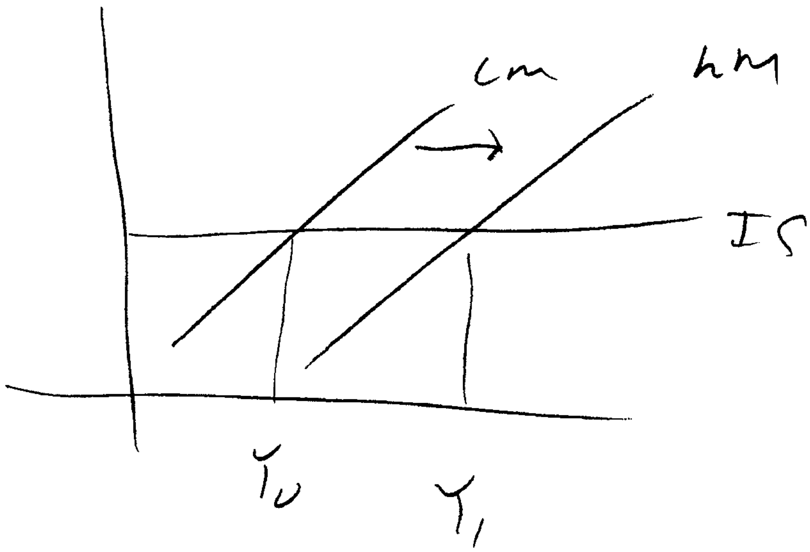
(4) Start at targets i^*, M^*



Let IS shift out. With m-target (stay at M^*), No longer at i^*, so, not at both anymore. To go back to i^*, m must ↑ to m', so, no longer at m^*. So, can't hit both after IS shifts, must choose one or the other.

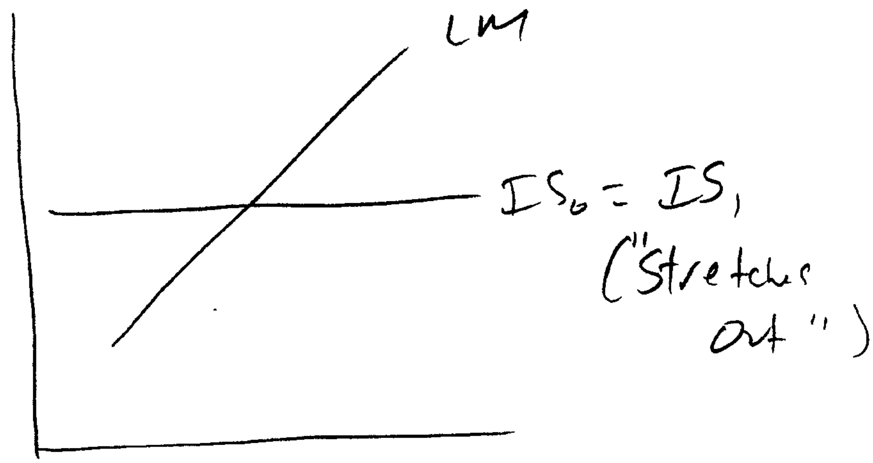
mon → complete resp case

effective



Fiscal, complete resp case

ineffective



mon better when resp.

Summary

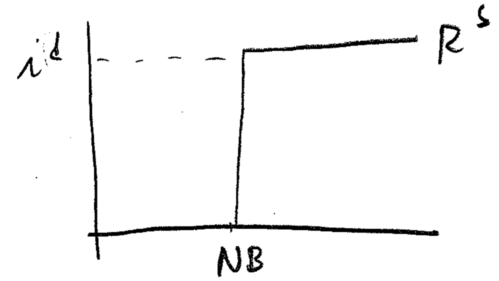
resp (full emp) mon better than fiscal

unresp (recession) fiscal " " mon

⇒ fiscal useful in Recession,
mon " near full employment

Part III

① (a) The demand curve for reserves slopes downward because when the $i \uparrow$, the oppor. cost of excess reserves, held as insurance against unexpected deposit outflows, goes up.

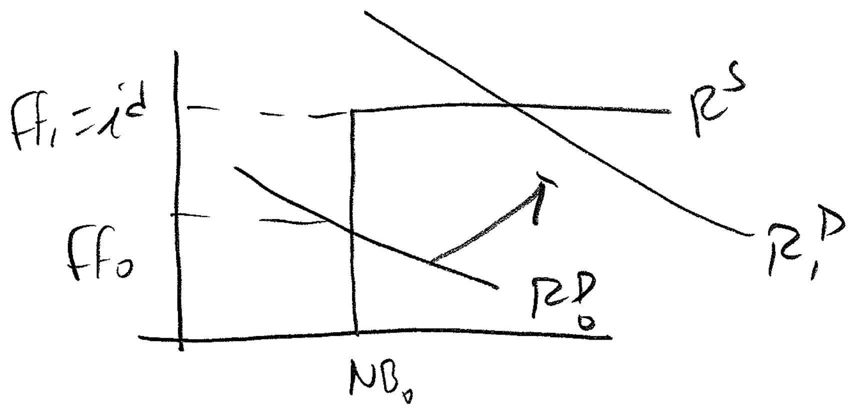
(b)


The supply of reserves is kinked. When the ff rate is below the discount rate (i^d), Banks will borrow on the ff-market. Since, at a point in time, the supply of non-borrowed reserves is fixed, the supply curve is vertical below i^d.

[cont.]

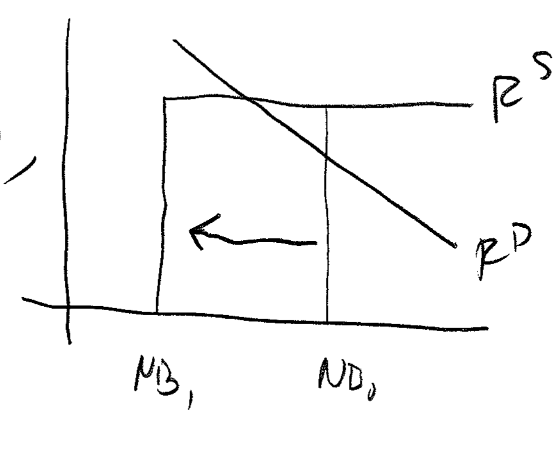
When the i-rate on reserves (i.e. the ff-rate) tries to rise above i^d, banks will prefer to borrow from the Fed. Since the Fed will supply all the reserves banks want at i^d, the curve is horizontal (i.e. infinitely elastic).

(c)



When D↑ unexpectedly, ff is "capped" by i^d.

When R^s shifts in (i.e. NB reserves ↓), again, ff is "capped" by i^d.



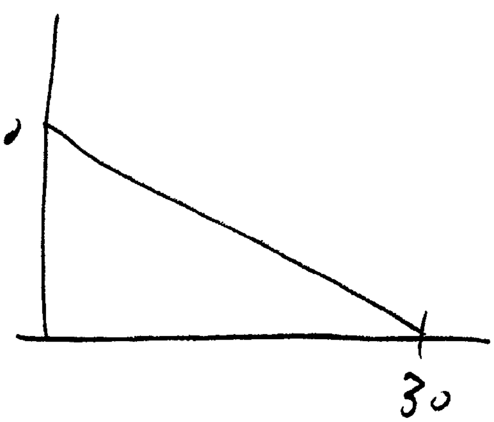
(2) The short answer is: the i-rate is oppor. cost of money. As i-rate ↑, cost of holding money for transactions ↑ → hold less. more detail:

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

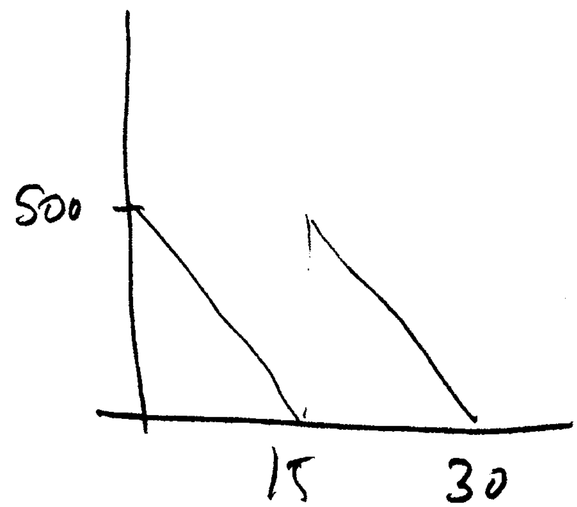
Avg Bonds held $= 0$



Since paid in Bonds, this requires <u>1 trip</u> to the bank.

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

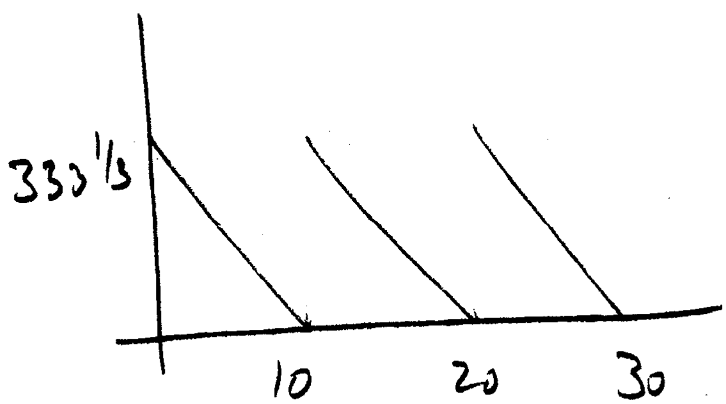
Then



Avg $\frac{m^d}{P} = 250$

Avg Bonds held $= 250$

Try 3 Trips



Avg $\frac{m^d}{P} = 167\,^2/_3$

Avg Bonds $= 333\,^1/_3$

Summarize:

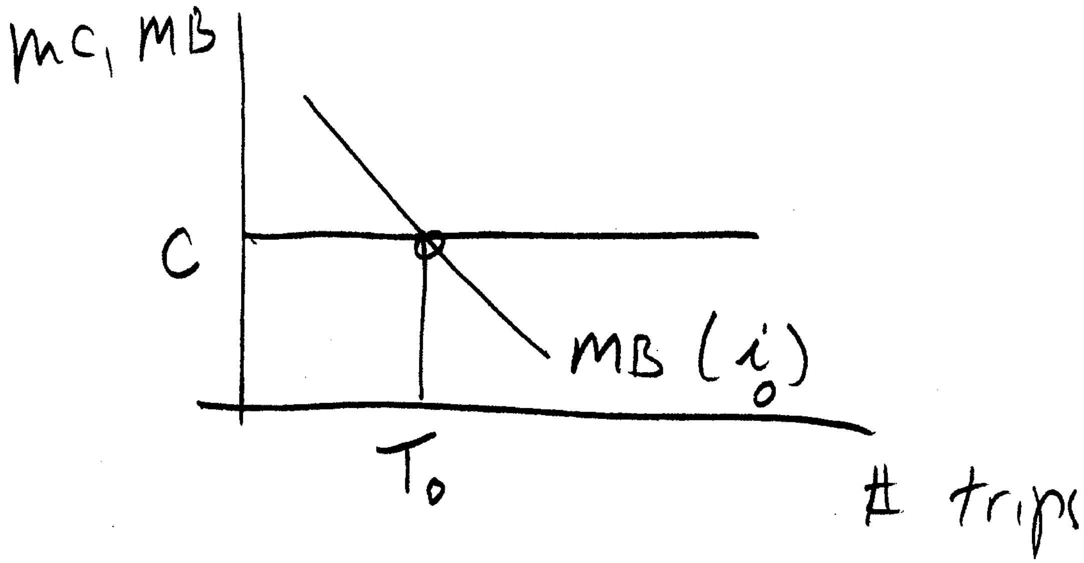
[cont]

Summarize:

Let the i-rate be 10%

	$\frac{M^d}{P}$	Bonds	
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)

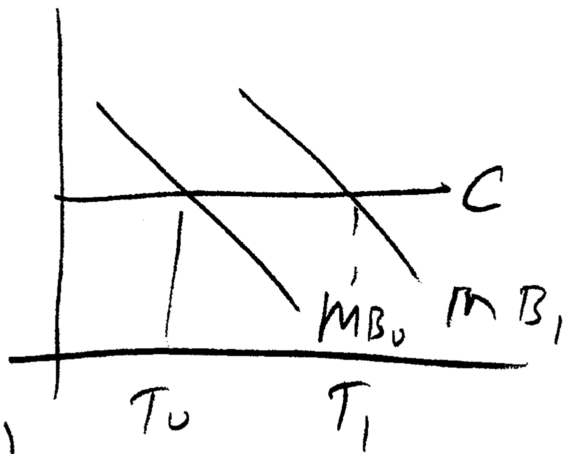


If i-rate is i_0, make T_0 trips

[cont.]

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

→ Trips ↑.



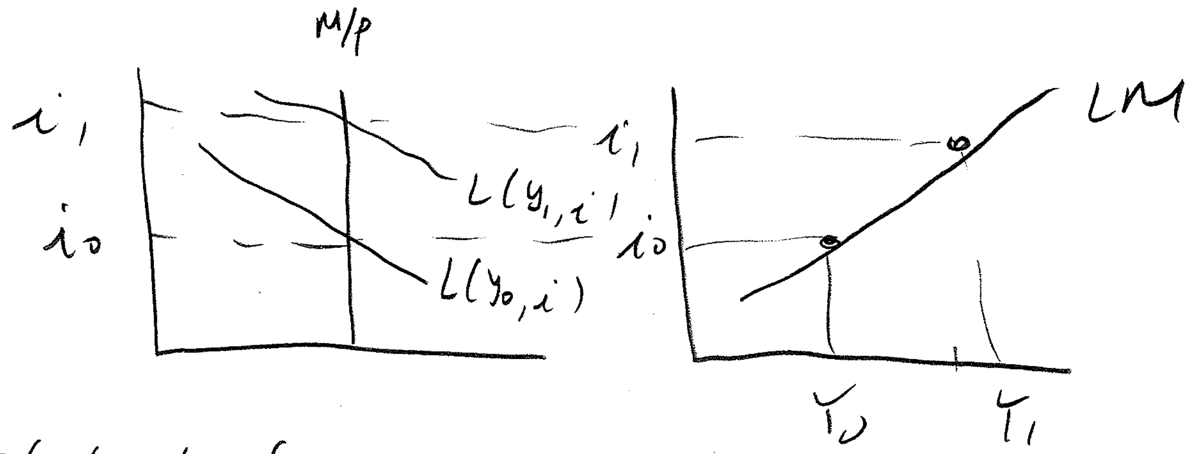
From table, (summary)

Trips ↑ → $\left(\frac{M^d}{P}\right)_{Trans}\downarrow$

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

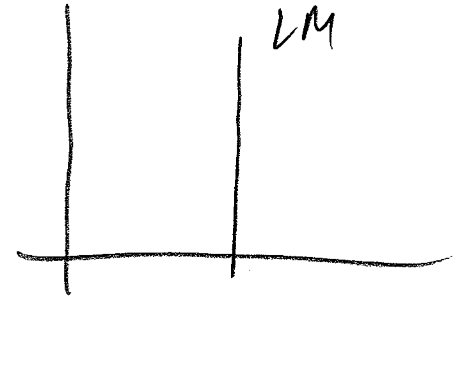
Important because it overcame objections to including i-rate in $\frac{M^d}{P}$ function. Keynes said <u>spec. d</u> depends upon i-rate, but, resisted. This showed <u>trans d</u> depends upon i, ended the controversy

(3) (a) Derive LM

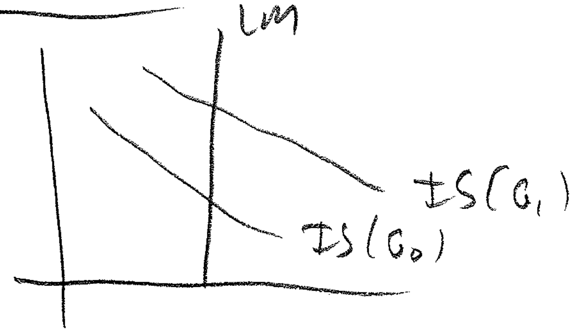


Start at (i_0, y_0). Let $y\uparrow \rightarrow L$ shifts out $\rightarrow i\uparrow$. So, $y\uparrow \rightarrow i\uparrow$.
(i.e. $y\uparrow \rightarrow L\uparrow \rightarrow i\uparrow$).

(b) When $\frac{M}{p} = L(Y)$, for a given M and given P, we have one equation, one unknown $\rightarrow$ value of y that solves $\frac{M}{p} = L(y)$. Since y is the same no matter what i is, LM is:



fiscal Policy



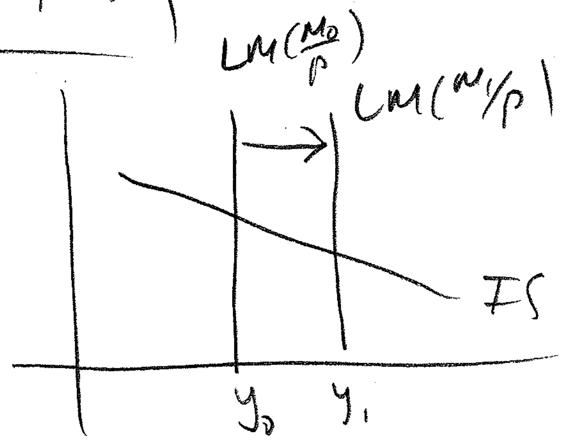
G↑ → no chge in Y, so, not effective

(This case has complete crowding out

G↑ → (Y↑) → L↑ → i↑ → NX/C ↓ → (Y↓)

completely offset each other

Monetary Policy



Mon Policy is effective.

(M↑) → i↓ → I/NX ↑ → (Y↑) → L↑ → no chge in Y, so, no offsets.

M↑ → Y↑.

(4) Recall slope of IS, intuitively, is

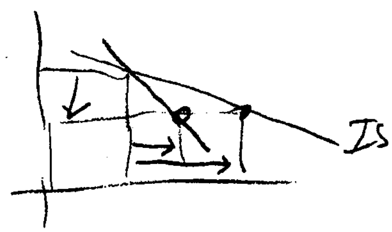
$i \uparrow \rightarrow I \downarrow \rightarrow Y \downarrow$

↳ when i - more responsive,

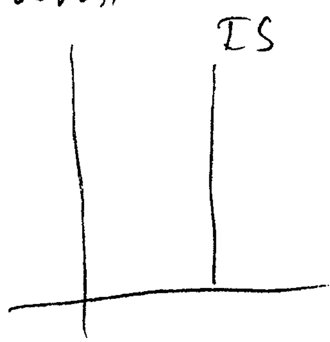
$Y \downarrow$ more for given $i \uparrow$

$\Rightarrow$ IS flatter

In extreme:

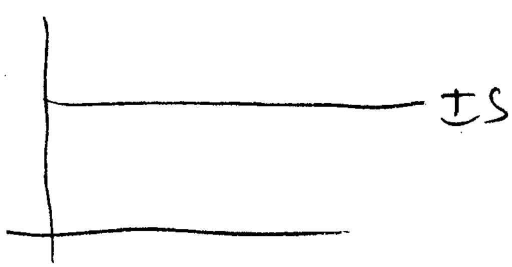


No responsiveness



No response

Complete responsiveness

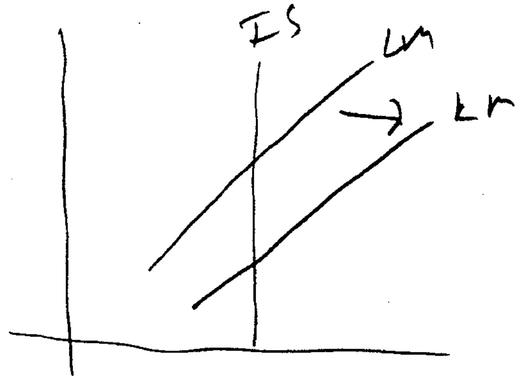


Complete response

Look at each

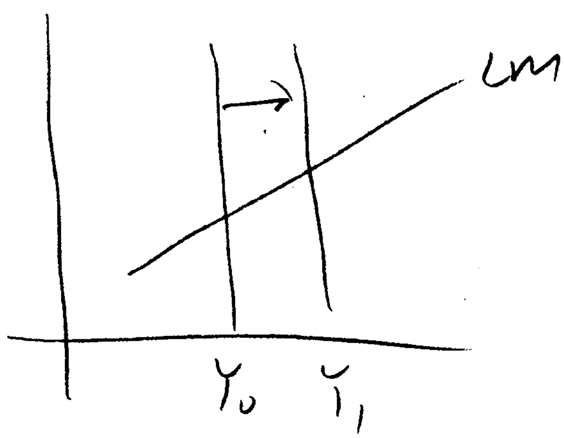
Mon - no resp case

mon ineffective



Fiscal - no resp case

effective



⇒ fiscal better than mon. when no response (as is more likely in recessions → see above)