17-1 Output + Exchange Rate in the Short-run

Have a reasonable view of asset markets, exchange rates and prices at least in the long run – and we even looked at long-run output in a growth context, but much of the real-world action is about the short-run – an environment in which prices adjust slowly.

- This emphasis arises naturally after a period in which there has been relatively slow price level growth for two decades: a period considered to be highly successful for macroeconomic/monetary policy.

We develop a framework of Aggregate Demand/Supply to characterize the goods (+services) market in equilibrium linking output w/ exchange rates.

We then link equilibrium in the asset markets to the level of output and exchange rates and examine the process that gives an economy-wide equilibrium.

Agg. Demand

We use a standard tool: AD and AS to characterize the behaviour of outputs

$AD \to D$.

$$D = D_{\text{domestic output demand}} = C_d + I_d + G_d + X_*$$

where the subscript (d) reminds us that we are demanding domestic output.

– But we observe "total consumption" and make our spending ~~[illegible]~~ decisions without regard to 'country of origin'

$\therefore \quad C = C_d + C_M$ where the subscript m reminds us that some are imports

Similarly

$$I = I_d + I_M$$
$$G = G_d + G_M$$

$$D = C + I + G + X - (G_M + I_m + G_m)$$
$$= C + I + G + X - M$$

the familiar relationship

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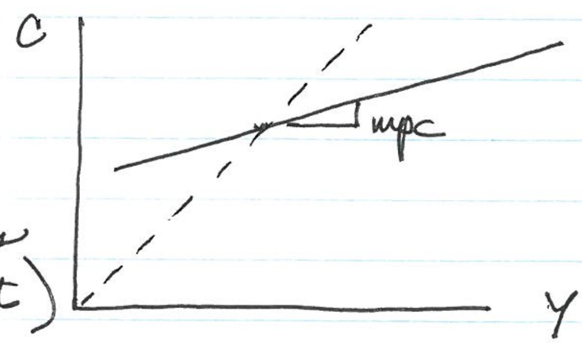
Behaviour underlies these categories.

$$C = C(Y - T)$$



We won't explore here, but there are richer frameworks

e.g. $C = C\left(\frac{M}{P}, \text{or other asset}\right)$

We want to focus on the current account:

$$CA = EX - IM$$

$$CA = CA(q, Y-T; Y^*)$$

$$= CA\left(\frac{EP^*}{P}, Y^d\right) \quad \text{where } Y^d = Y-T.$$

Recall $\frac{EP^*}{P}$ is the real exchange rate and reflects how many baskets of our goods we give up for a basket of foreign goods.

When $q\uparrow$: ① $\uparrow EX$ both substitution + income effects increase exports
i) cheaper for foreigners
ii) raises their incomes

② IM more complicated
(i) $q\uparrow$ means foreign goods more expensive so we buy fewer goods - lower volume.

$IM = q \cdot M$ and $q\uparrow$ even as $M\downarrow$
(M measured in baskets of foreign goods)

$$IM = \underbrace{\left(\frac{\text{bskt dom}}{\text{bsk for.}}\right)}_{q} M(\text{bkst for}) \cdot M$$

$\therefore \frac{\Delta IM}{\Delta q}$? if volume effect > value effect then $\frac{\Delta IM}{\Delta q} < 0$

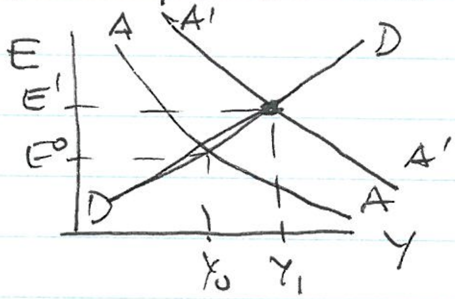
Formally depends on the Marshall-Lerner condition

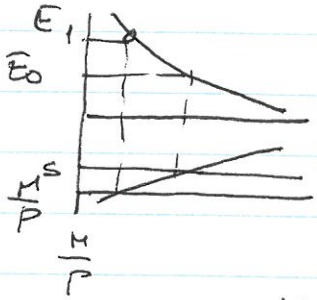
$\therefore$ We assume $CA = CA\left(\underset{+}{\frac{EP^*}{P}}, \underset{-}{Y^d}\right)$

17-2

Last time we derived the AA and DD schedules representing asset and goods market equilibrium in E-Y space

1. We saw that a temporary ($\bar{E}^e$) monetary increase $\Delta M > 0$ w/ $\bar{P}$ caused R↓ and E↑ as AA → AA'

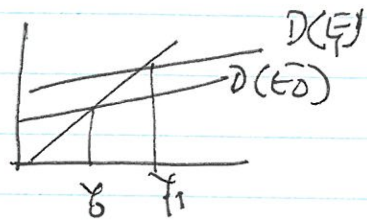




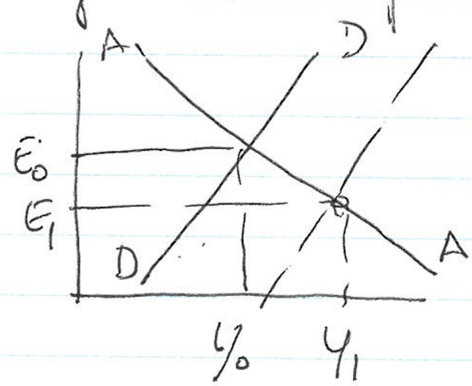
$$\downarrow R = \bar{R}^* + \frac{\bar{E}^e - E\uparrow}{E}$$

① reduced expected \$ depreciation offsets lower R.

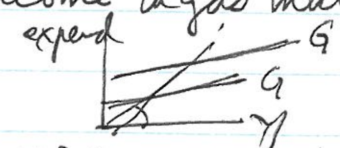
② E↑ expands demand for home goods → Y↑.



2. Temporary Fiscal Policy



① Increased expenditure raises income in gds mkt. G → G'



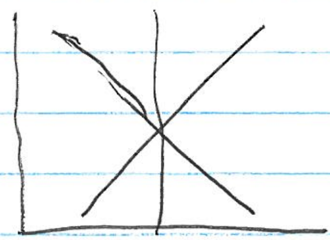
② Higher Y raises R↑ and $\bar{E}^e$ → E↓ so that $\bar{E}^e$ − E↓ increase the expected depreciation of \$ (to offset the higher R) ($\bar{R}^*$).

Issues of temporary policy

1. Inflationary bias: (i) can always expand demand by way of money creation

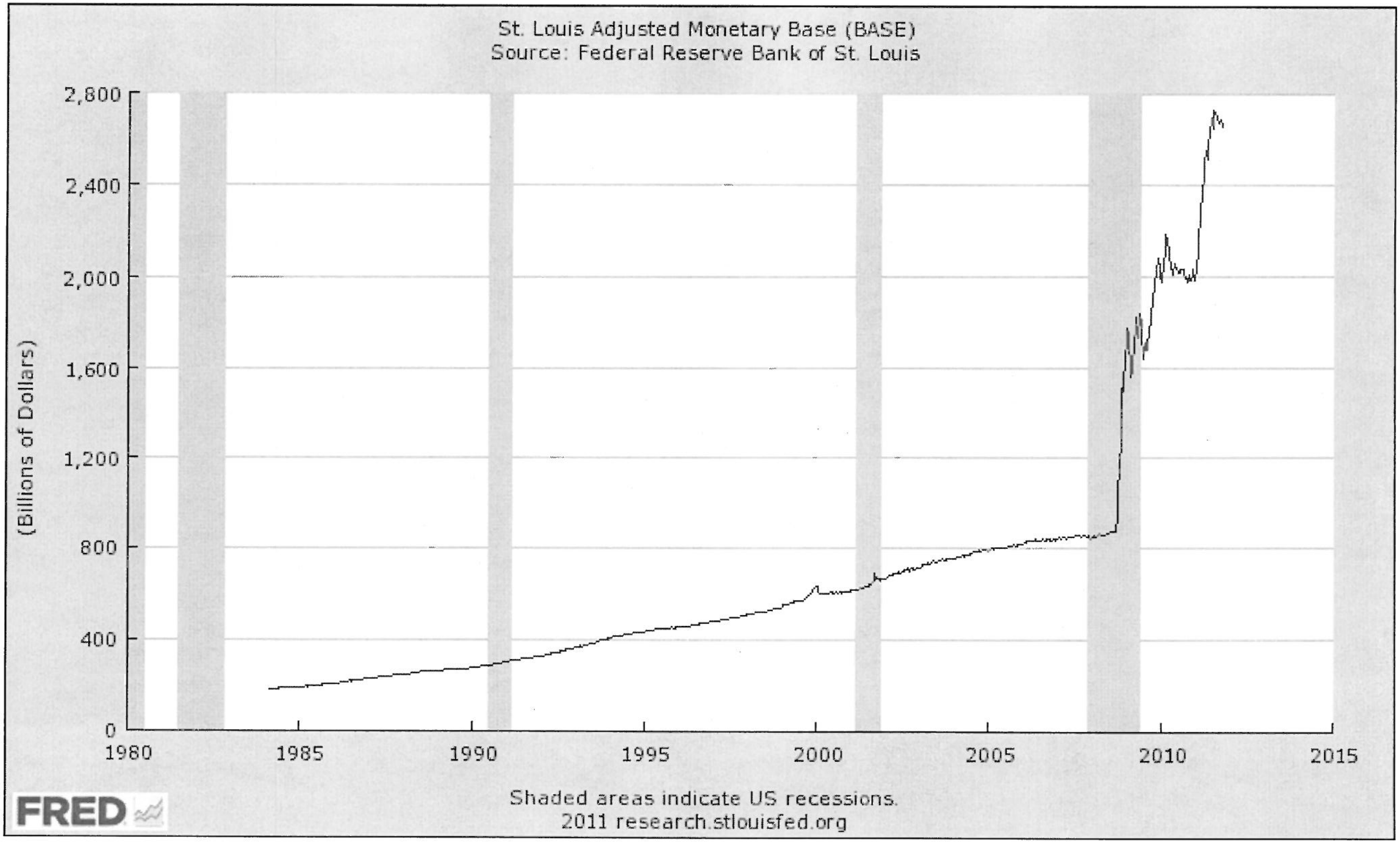
(ii) If firms & workers begin to anticipate then adjustment of M are to offset expectations ⇒ spiral of prices.

2. Hard to tell where shocks originate. Not a problem here but in reality, it is so.



3. Bureaucracy will (a) alter and (b) slow (likely) policy responses e.g. recent US 'standoff' between Congress and President.
4. Budget may be another target $Bud = G - T + iB$ wrt to mention debt ~~and~~ (ΣBud).
5. Lags in policy response by the economy.

Temporary v. permanent. Can the government commit?
e.g. Japan treat $M^S\uparrow$ as temporary.



St. Louis Adjusted Monetary Base (BASE)
Source: Federal Reserve Bank of St. Louis
(Billions of Dollars)
2,800
2,400
2,000
1,600
1,200
800
400
0
1980
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate US recessions.
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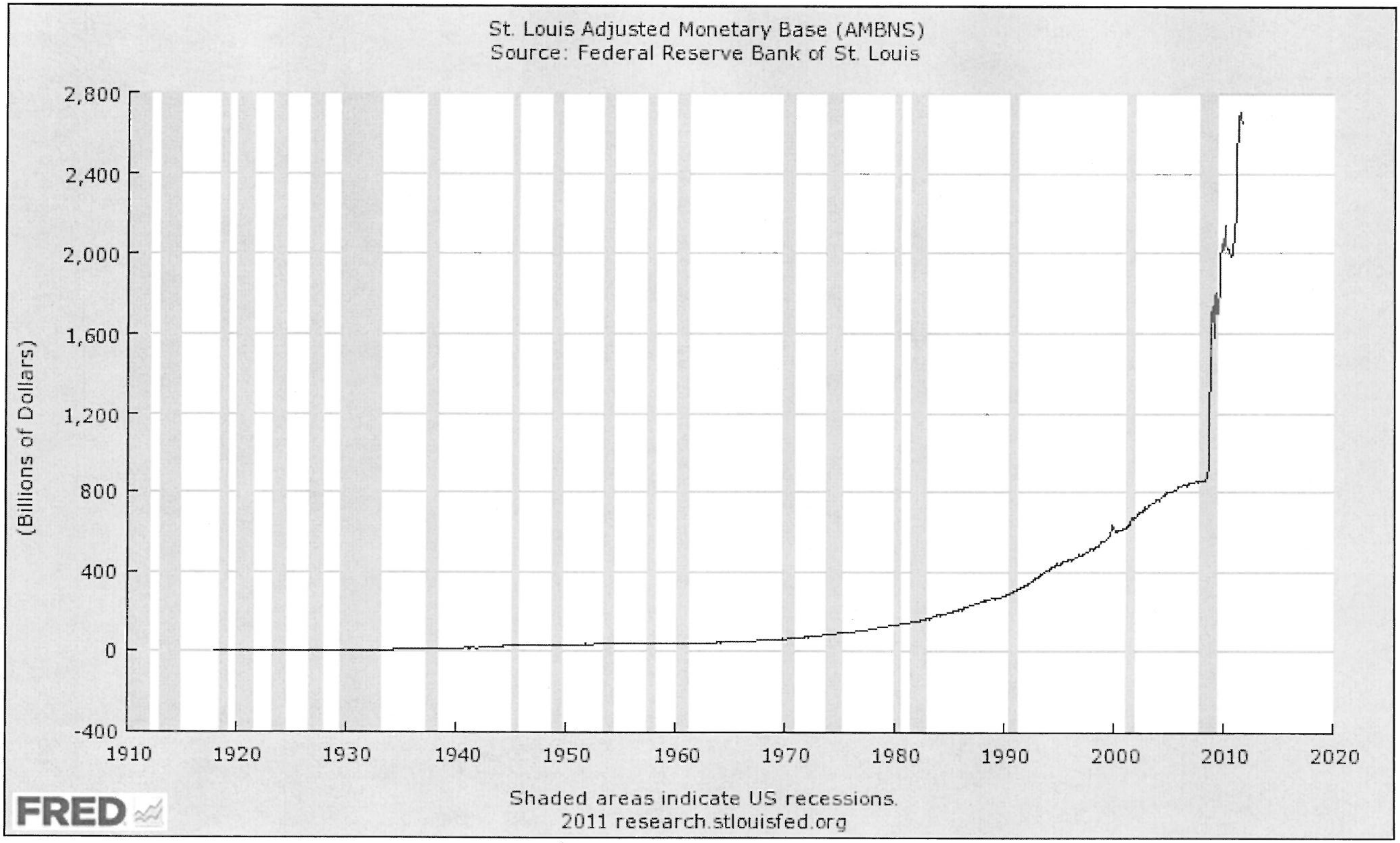
St. Louis Adjusted Monetary Base (AMBNS)
Source: Federal Reserve Bank of St. Louis
(Billions of Dollars)
2,800
2,400
2,000
1,600
1,200
800
400
0
-400
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
Shaded areas indicate US recessions.
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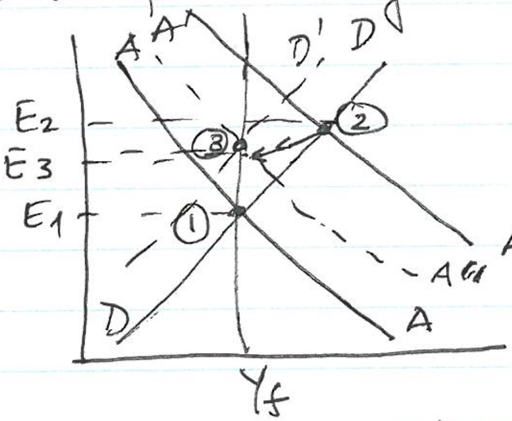
Now consider Permanent policy : ΔM, ΔG

In this case E^e adjusts to the LR consequences of the underlying policies. Moves take place at Y_f.

① $\Delta M \uparrow$ permanently



① The shift in $AA \to A'A'$ is greater then the shift associated w/ temporary ΔM.

$$\downarrow R = R^* + \frac{\uparrow E^e - E \uparrow}{E} \uparrow$$

(Recall $\bar{P}$ SR fixed) but in LR we know $E \uparrow \propto M \uparrow$ and $P \uparrow$.

② From point ② we have dynamics $P \uparrow$, $(Y_f < Y)$

This shifts both A' to A'' and $D \to D'$.

③ Y_f reestablished at $E_3 \propto \Delta M, \Delta P$ and since

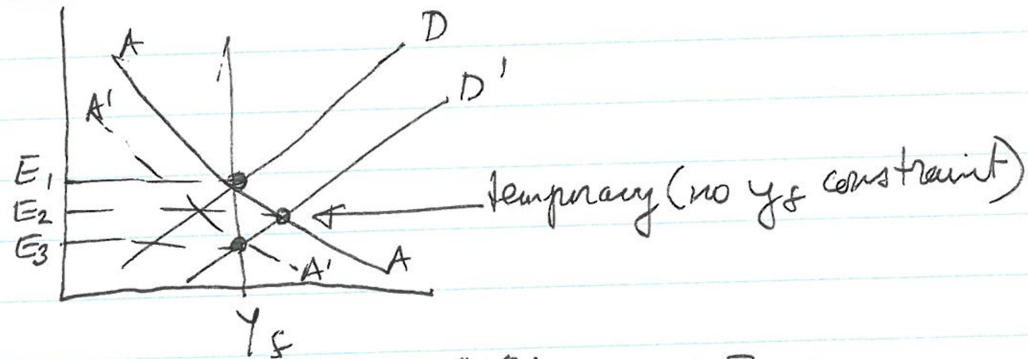
$$\left(\frac{M}{P}\right)_0 \to \left(\frac{M'}{P'}\right)_0 \to R' \Rightarrow R_0$$

We have overshooting of the exchange rate since

$E \to E_2 \to E_3$

Permanent Fiscal Policy : ΔG, .. etc.

More awkward



① No change in $\left(\frac{M^s}{P}\right) \rightarrow \Delta R = 0$

② As Y starts to increase $E^e \downarrow$ together w/ E !

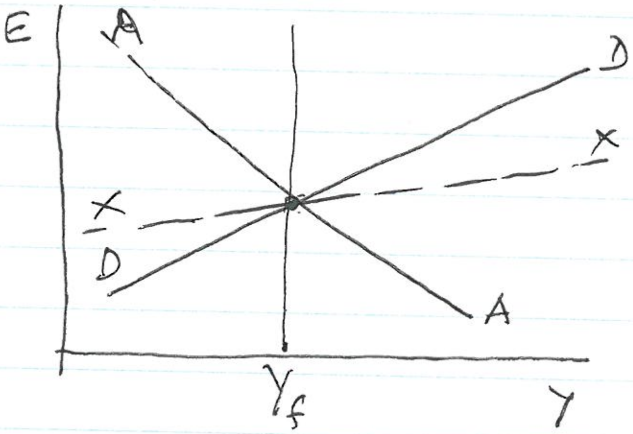
$$\bar{R} = R^* + \frac{E^e - E}{E} \downarrow$$

$\therefore$ AA $\rightarrow$ A'A' at E^3.

Since E^e and E move together, the change is "instantaneous"

$E \downarrow$ just offsets the increase in fiscal expenditure.

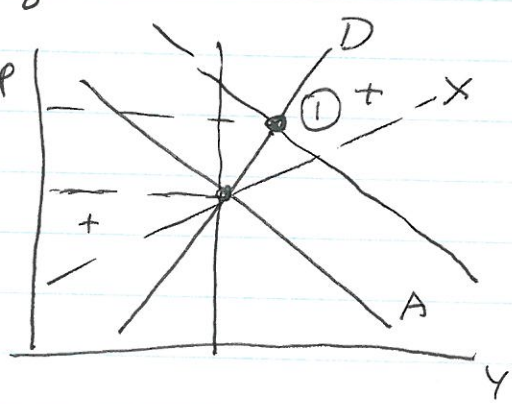
Macro Policy and the Current Acct

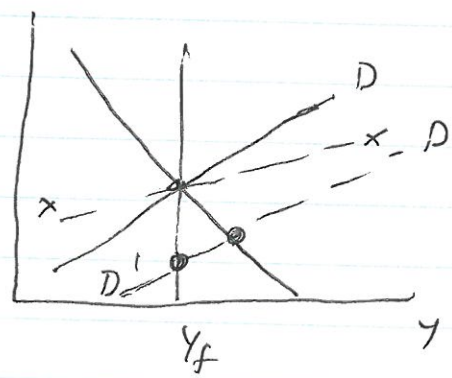


XX : $\overline{CA}$ $\quad CA = CA\left(\frac{E.P^*}{P}, Y-T\right)$

slope XX : $Y\uparrow \rightarrow E\uparrow$ to increase demand below DD as higher Y induces savings so to raise expenditure $E\uparrow$ both to raise foreign demand (XX) but also to offset saving increase

Suppose ΔM^{Temp}
CA > 0





J-curve

$$CA = X - qM \qquad CA = X(q) - qM(q, Y_F)$$

We assume the Marshall-Lerner conditions

$$\frac{dCA}{dq} > 0 \quad \text{in the LR.}$$

but in the SR: $q\uparrow = E\uparrow \cdot \frac{P^*}{P}$

$$CA_0 = \bar{X} - q\uparrow \bar{M} < 0$$

$$q = \frac{EP^*}{P}$$

over time $\frac{\Delta X}{\Delta q} > 0 \quad \frac{\Delta M}{\Delta q} < 0$