

Outline

1. Crowding out.

(a) Traditional View.

(b) K.C. view (Keynes)

(c) IS-LM Model.

(d) IS-LM model w/ Accelerator

(i) What is the IA?

(ii) KC multiplier

(iii) Implications for
Crowding out.

2. ~~ECB~~ Controversy over ECB Management of recession.

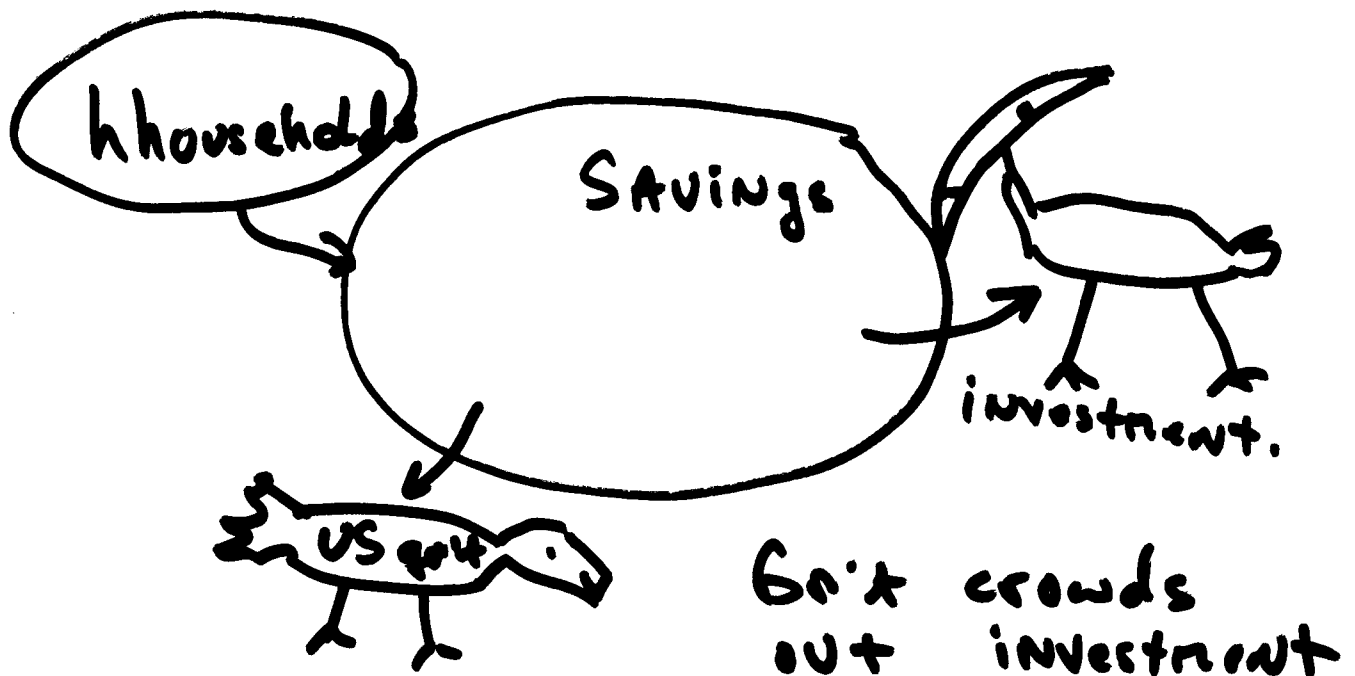
3. Supply Side of Economy.

US govt borrowing
lots of money
ON world financial
markets.

~~Why do~~ What is implication?
Look at short run implications.

Complaint that US is
"crowding out" other people.

Traditional View

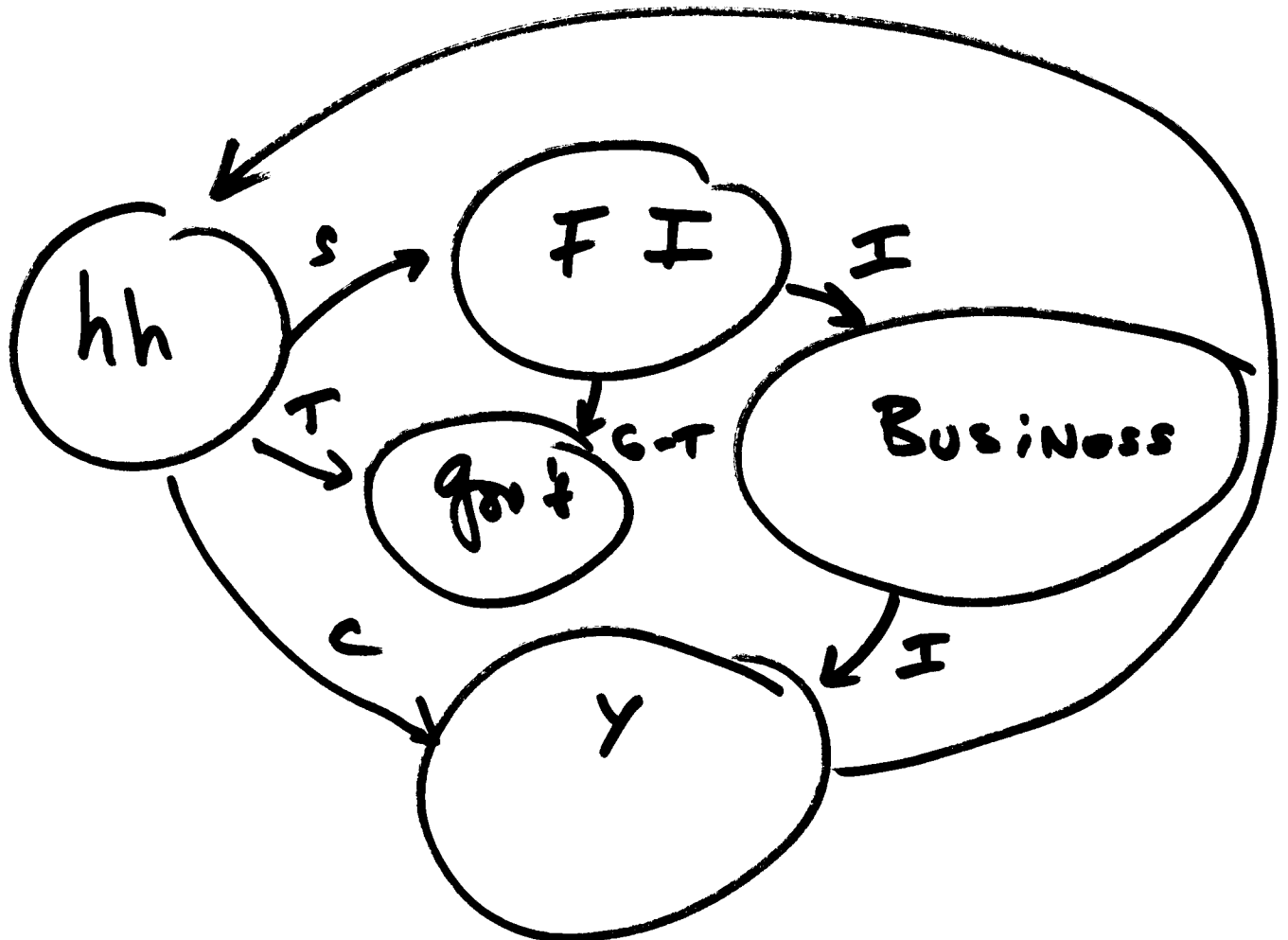


KC model.

What happens if $T \downarrow \Delta T > 0$

$T: T \rightarrow$

$T - \Delta T$



K.C. (i) New equilibrium after ΔT

(ii) process of transition

$$\Delta T$$

$$C = C_0 + c_1 Y_D$$

Households:

$$Y_D = Y - T$$

$$\Delta Y_D = (\Delta Y + \Delta T)$$

$$= \left(\frac{c_1}{1-c_1} \Delta T + \Delta T \right)$$

$$= \left(\frac{c_1}{1-c_1} + \frac{1-c_1}{1-c_1} \right) \Delta T$$

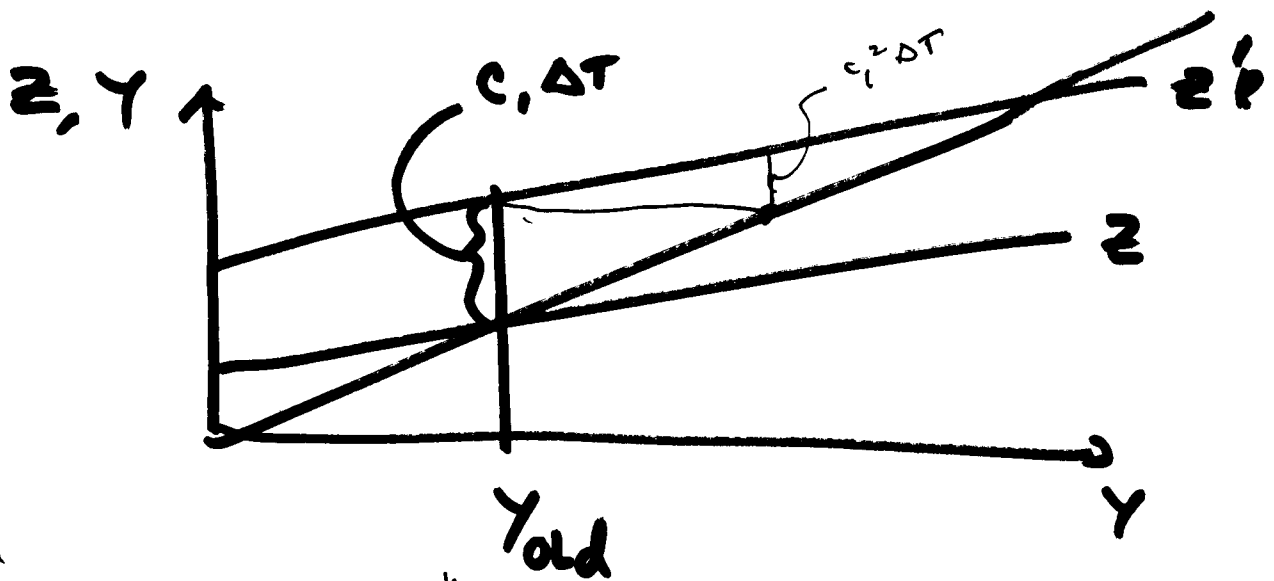
$$= \frac{1}{1-c_1} \Delta T$$

$$\Delta C = c_1 \times \frac{1}{1-c_1} \Delta T$$

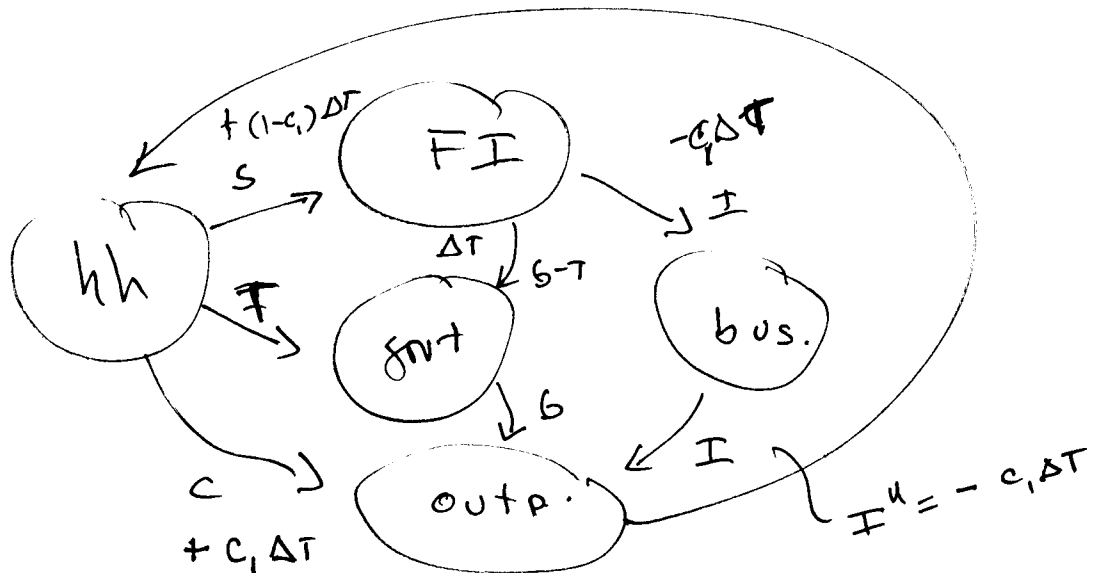
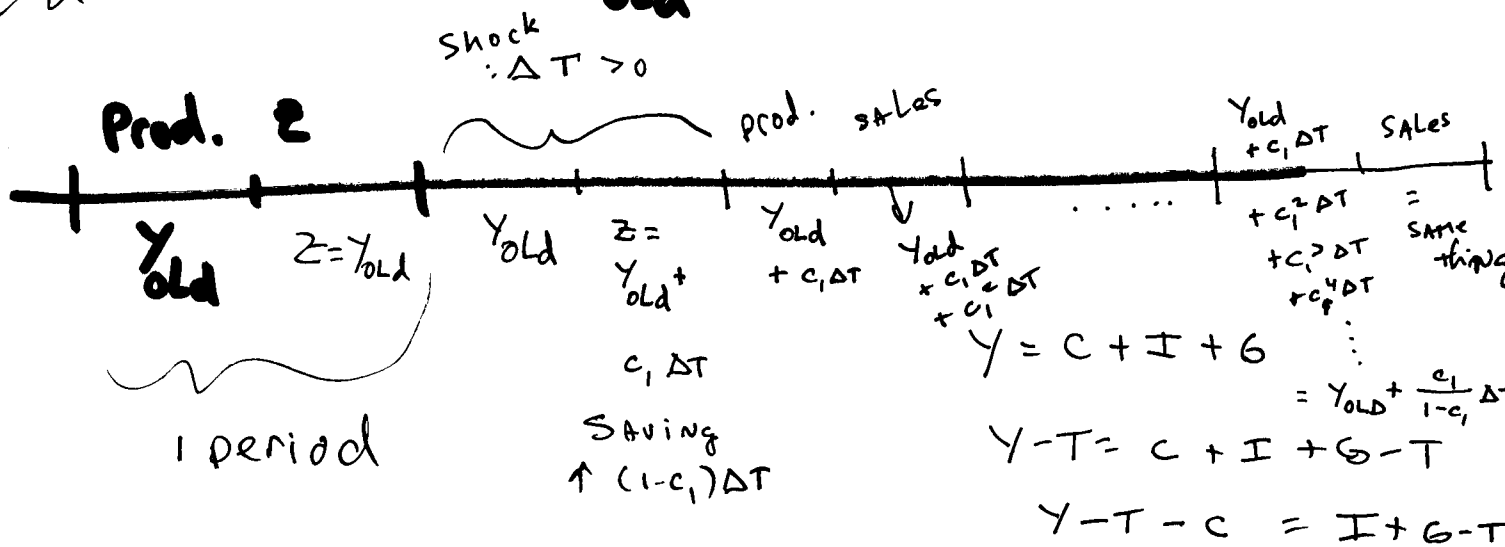
$$S = Y_D - C = -C_0 + (1-c_1) Y_D$$

$$\Delta S = (1-c_1) \Delta Y_D = \Delta T$$

Gov't cuts T.



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$$S = c_1 + c_1^2 + c_1^3 + \dots$$

$$c_1 S = c_1^2 + c_1^3 + c_1^4 + \dots$$

$$S - c_1 S = c_1$$

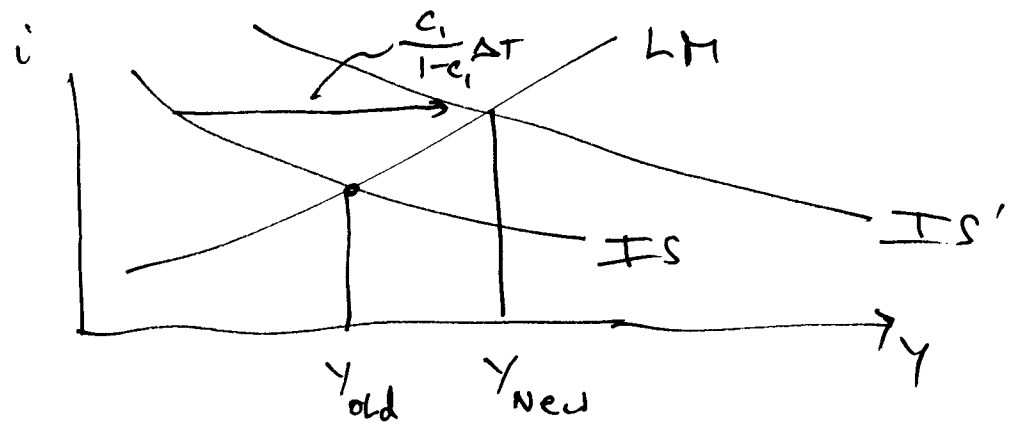
$$S(1 - c_1) = c_1$$

$$S = \frac{c_1}{1 - c_1}$$

Crowding out: in $KC \sim \underline{\text{Zero}}$
crowding out. $T \downarrow$, then
boom triggered by $T \downarrow$ raises
income enough so resulting
rise in saving exactly matches
 $T \downarrow \Rightarrow$ No need to "crowd out" I .

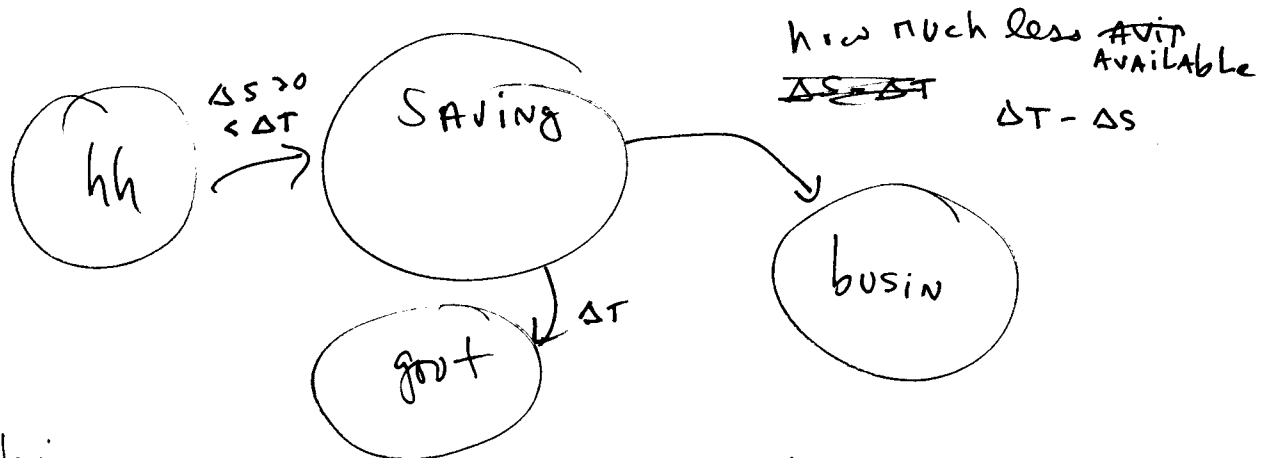
Response of KC to IMF: if US raises
taxes it will generate a recession,
reduce world saving & not make extra
funds available for I .

IS-LM model. Cut T.

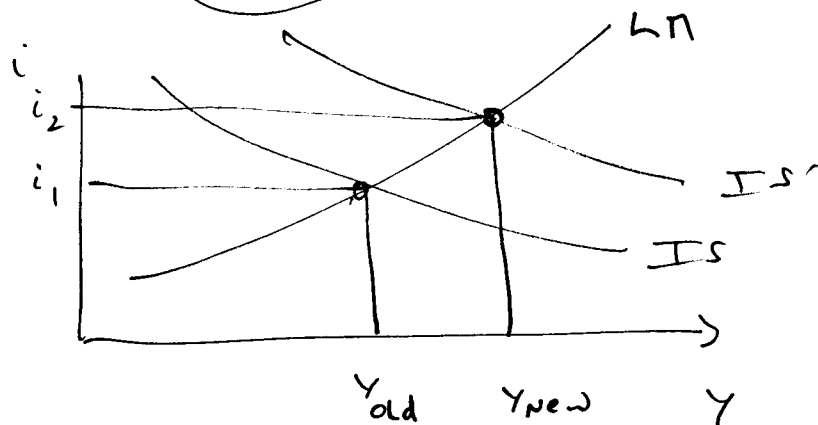


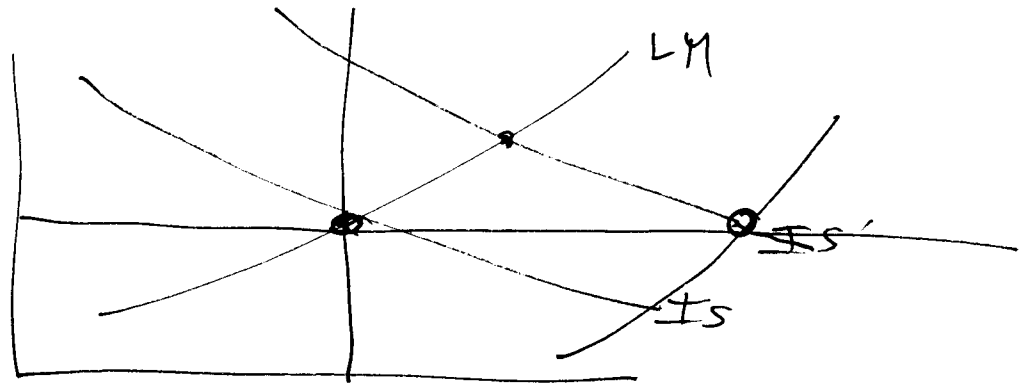
Before: $\Delta S = \Delta T = \cancel{(\Delta T)} (1-c_1)(\Delta Y + \Delta T)$

Now: $\Delta S < \Delta T$ because multiplier is less.



$$I = \bar{I} - bi$$



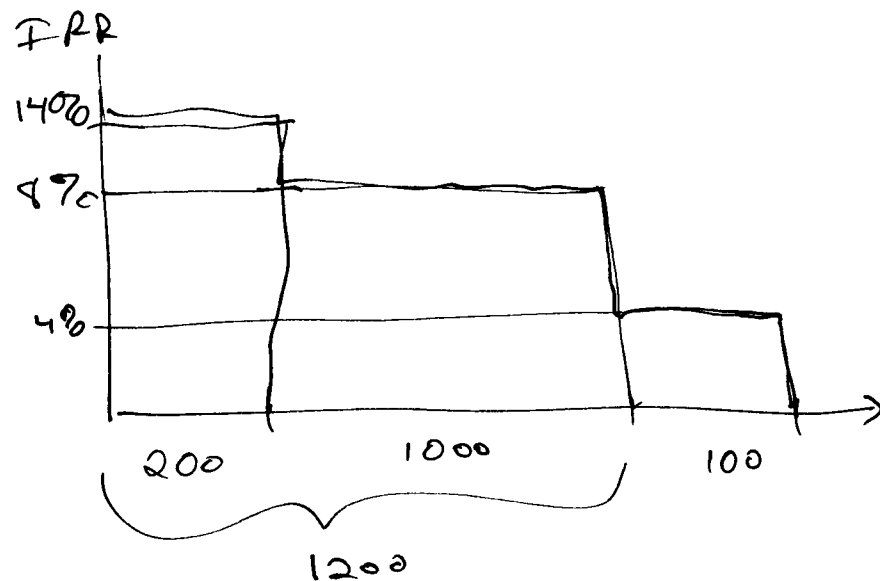


Example where M authority expands M by exact amount of increase in money demand. Then the full Keynesian cross ~~not~~ multiplier would work.

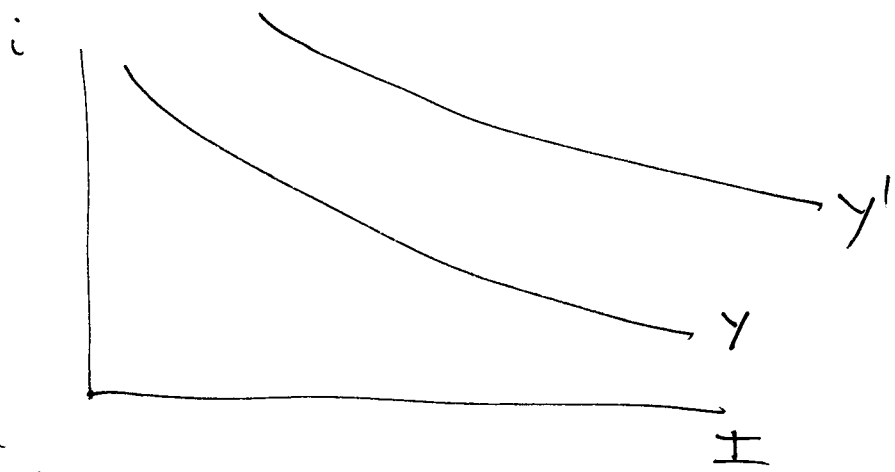
"Monetary Authority accommodating tax".

Third perspective: IS-LM model with accelerator effect.

$$I^d = \bar{I} - b i + \gamma Y.$$



IRR calculation (Guesstimate) for each project depends on how "busy" the economy is (Y).

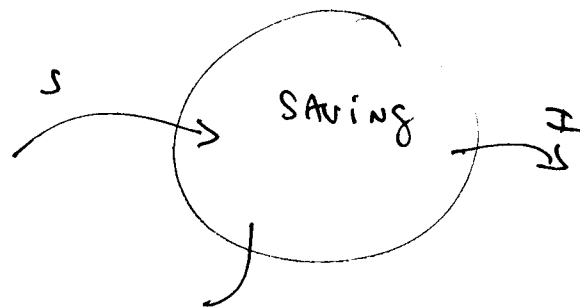


$$C_1 \Delta T + C_1 \Delta T (c_1 + g) + C_1 \Delta T (c_1 + g)^2 + \dots$$

$$\frac{C_1 \Delta T}{1 - (c_1 + g)}$$

Multiplier is big because 2nd, 3rd ... round impacts on desired spending bigger.

Crowding out



$K, C.$

$$\begin{aligned} \Delta S &= (1 - c_1) \times (\Delta Y + \Delta T) = (1 - c_1) \left[\frac{c_1}{1 - (c_1 + g)} + 1 \right] \Delta T \\ &= (1 - c_1) \left[\frac{1 - g}{1 - (c_1 + g)} \right] \Delta T \end{aligned}$$

> 1

Brief synopsis of Crowding out discussion

- Traditional view: society's pool of saving is fixed. If government takes out an extra \$1, that's one dollar less for business to finance investment. The US government has been borrowing a lot from the world saving pool, and that has removed funds that might have been used to pay for roads, hospitals, etc. This view was reflected in recent years in an International Monetary Fund (IMF) report on the US economy. This view was also important in the 1930s, when policymakers were very worried about government deficits. Investment was low already at the time, and the concern was that every dollar taken by government borrowing was a dollar taken away from an already too-low level of investment.
- Let's see what our models imply for crowding out. We consider the Keynesian Cross, the IS-LM model and the IS-LM model with accelerator effect on investment. Although a variety of views will be represented, the full range of views is not. That's because, at this time in the course, we focus on the short run. When we get to the long run, we'll get another view, one that is a little closer to the traditional view.
- Keynesian cross. From this perspective, there is a flaw in the traditional view in its assumption that the pool of saving is a fixed amount. According to the KC model, when the government cuts taxes, it does not take money away from business. Instead, the tax cut causes an economic expansion, which increases saving. The rise in saving exactly matches the increase in borrowing by the government. So, there is no crowding out. Implicit in the IMF view is the suggestion that the US should raise taxes, so as to stop depriving the world of the funds needed for roads, hospitals, etc. The KC response is that if the US raised taxes, that would cause a recession (at first in the US and then eventually to the whole world), and the recession would produce a fall in saving that exactly matches the reduction in borrowing by government. That is, raising taxes would not imply that more funds are released for investment.
- IS-LM. Now, the expansion in output generated by a tax cut causes the interest rate to rise and that has a dampening effect on investment. So, the multiplier is not so large. Now, a government deficit does do some crowding out.
- IS-LM with investment accelerator. According to the investment accelerator idea, the Internal Rate of Return (IRR) of an investment project is a function of how much activity there is in the economy. A measure of the activity is Y , the aggregate level of output. This leads to the following desired investment function, $I^d = \bar{I} - bi + qY$. When $q > 0$, output has an accelerator effect on investment.
 - It should be obvious that the KC multiplier is now bigger. Imagine that $q = 0$. In this case, the multiplier is $1/(1 - c_1)$. If $q > 0$ then

desired investment rises with an increase in output, and this adds to the equilibrium rise in output associated with any shock, for example with $\Delta\bar{C}$.

– The tax multiplier now is

$$\frac{c_1}{1 - (c_1 + q)} \Delta\bar{T}.$$

So, with a cut in taxes of $\Delta\bar{T} > 0$, equilibrium disposable income in the KC model rises by

$$\begin{aligned} \Delta Y_D &= (\Delta Y + \Delta\bar{T}) \\ &= \left[\frac{c_1}{1 - (c_1 + q)} + 1 \right] \Delta\bar{T} \\ &= \left[\frac{c_1}{1 - (c_1 + q)} + \frac{1 - (c_1 + q)}{1 - (c_1 + q)} \right] \Delta\bar{T} \\ &= \frac{1 - q}{1 - (c_1 + q)} \Delta\bar{T} \end{aligned}$$

So, saving rises by¹

$$\Delta s = (1 - c_1) \frac{1 - q}{1 - (c_1 + q)} \Delta\bar{T} > \Delta\bar{T}$$

It follows that the rise in saving associated with the tax cut exceeds the size of the tax cut itself. The cut in taxes leads to such a big increase in output that more funds are made available to business!

- If we put the investment accelerator into the IS-LM model, then the multiplier is smaller because of the rise in the interest rate. However, it could still be that there is no crowding out, if the interest rate effect cutting back on investment is smaller than the accelerator effect.
- We find that the multiplier in the IS-LM model is smaller than it is in the KC model. This assumes that monetary policy holds the money supply fixed. If monetary policy acted to keep the interest rate fixed (by moving M^s around appropriately), then the IS-LM multiplier would be the same as the KC multiplier.

¹To see why this inequality holds, note

$$1 < 1 + qc_1 = (1 - q)(1 - c_1) + (c_1 + q),$$

or

$$1 - (c_1 + q) < (1 - q)(1 - c_1).$$

Then,

$$\frac{1}{1 - c_1} < \frac{1 - q}{1 - (c_1 + q)}.$$

Multiply both sides by $1 - c_1$ and the result follows.