It implies that the relation between income and tax is inversee. In other words, if tax increases income must increases and vice versa.

Logically and graphicall result of this increased tax is identical with mathematical result.

When the economy produces an output level below the full employment level then what may be a monetary policy measure?

Ans:- If the initial equilibrium value of real output is below the full employment level, then the monytary policy can increase the equilibrium output (a movement towards full employment output), shifting the agg demand schedule to the right by an increase in real money balance.

Here we will use a four quadrant diagram to explain the effect. Since money supply changes do not affect any of the curvers underlying the IS ~~curve~~ schedule, we just add a fixed

IS curve to the (r-Y) quadrant.

Let the initial level of money supply be $\overline{M}_0$, price level be P_0. So initial real money balance is $\frac{\overline{M}_0}{P_0}$. Initially the economy as at rate of interest-income combination of (r_0, Y_0). Now we consider that money ~~that~~ supply is increased by $\Delta\overline{M}$ from $\overline{M}_0$ to $\overline{M}_1$. Initially interest rate remains at r_0, fixing the level of speculative demand for money. In this case all of the money supply increase ($\Delta\overline{M}$) would be available for transaction balances to support a higher level of income. So, income increases to Y_1 ~~to Y_0~~ at r_0. This shifts the LM schedule LM to LM_1.

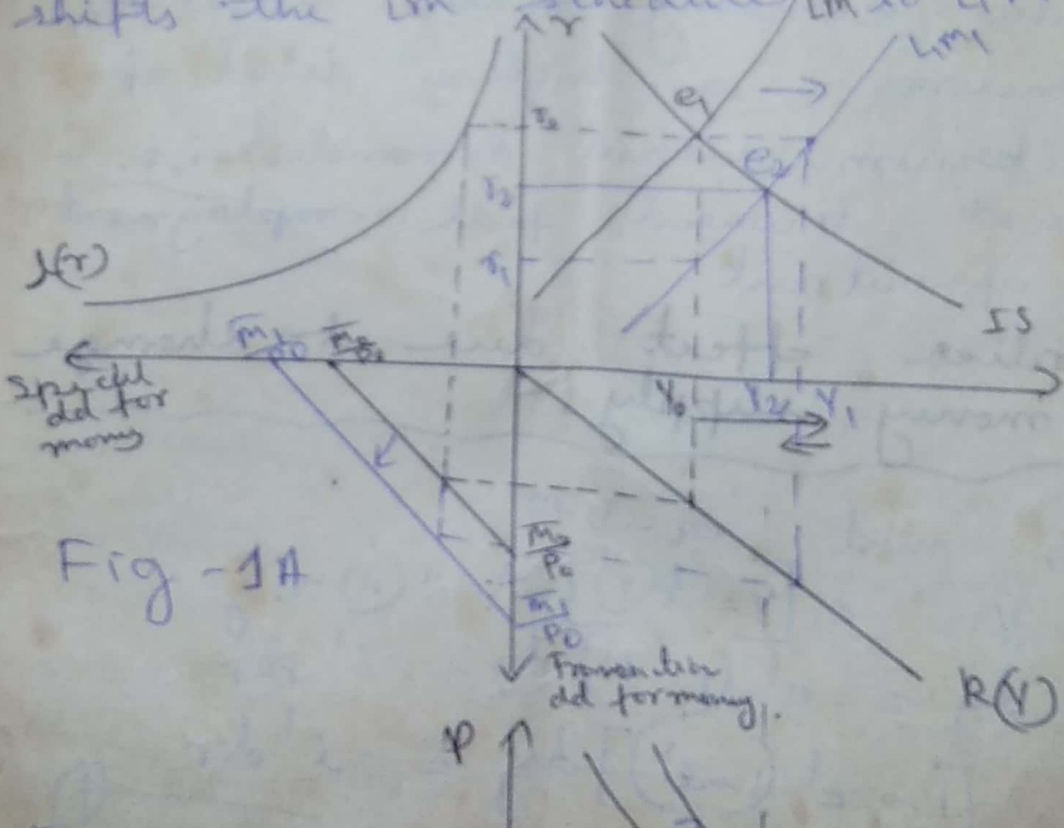
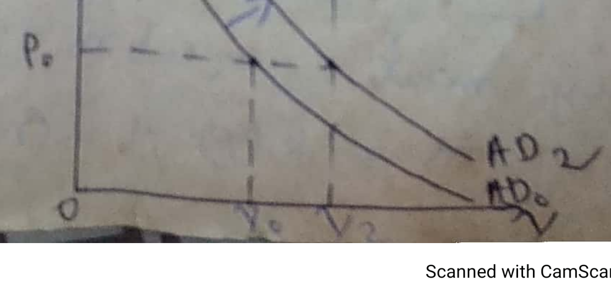


Fig-1A

Fig-1B



Derive agg demand schedule from equilibrium demand side of the econom

The agg demand schedule maps out the IS-LM equilibrium holding ~~out~~ autonomus spending and the nominal money supply constant and allowing price to vary. A higher price level, i,e a lower real money supply shifts the LM curve to the left, resulting into a lower agg demand for output.

We will show the above mechanism in figure-1 using four quadrant diagram.

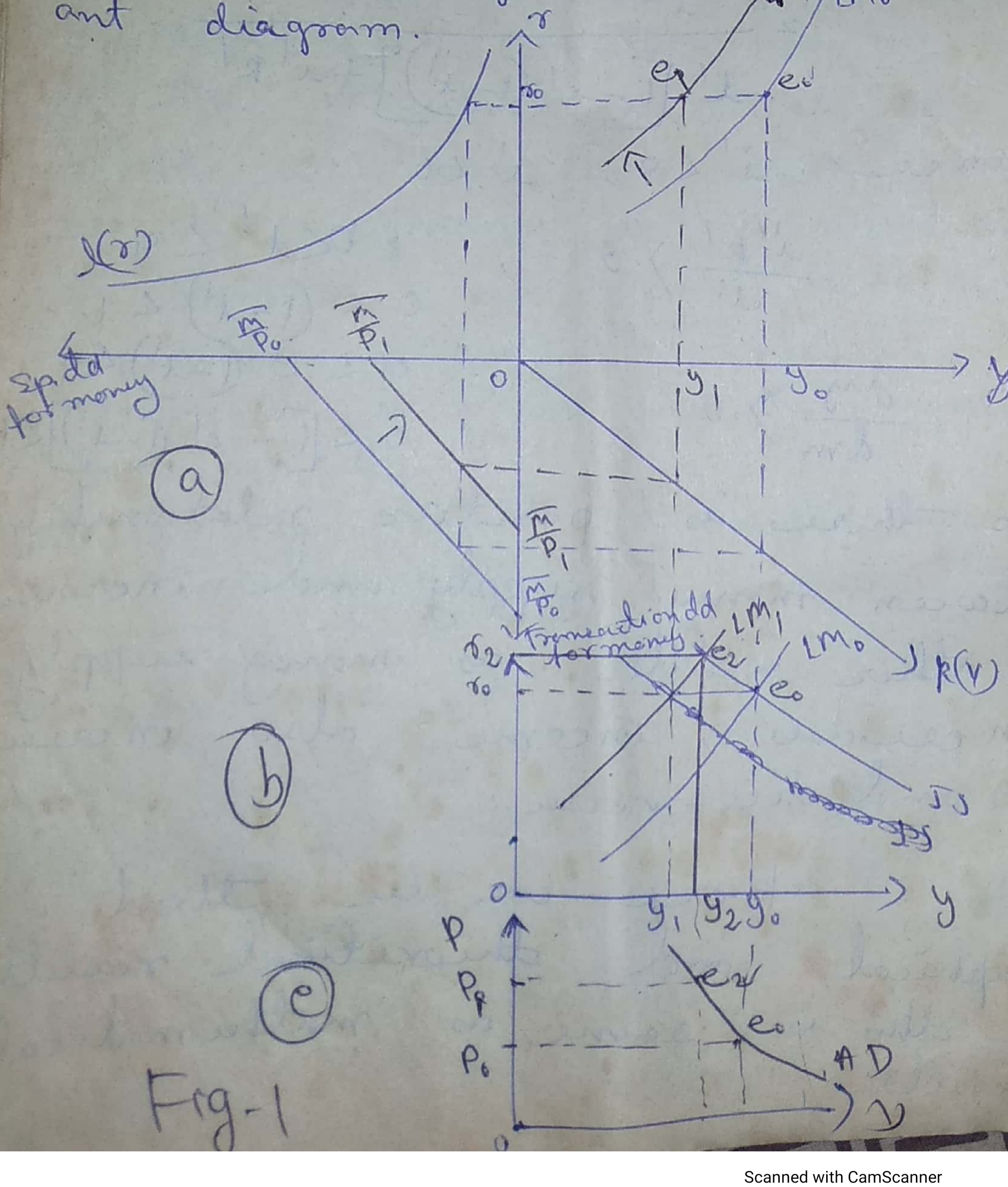


Fig-1

Suppose the price level in the economy is P_0. Fig-b shows the IS-LM equilibrium. In fig-a the real money supply, which determines the position of the LM_0 curve is $\frac{\bar{M}}{P_0}$. The intersaction of the IS and LM_0 curves give the level of agg demand corresponding to price level P_0 and is marked by point e_0 in fig-e.

Suppose price level increases to P_1. The curves LM_1 shows the LM schedule based on the real money supply $\frac{\bar{M}}{P_1}$. Since $\frac{\bar{M}}{P_1} < \frac{\bar{M}}{P_0}$, LM_1 is located to the left of LM_0. Point e_2 shows the corresponding point in price output quadrating fig-e. Reapeting this action for a varity of price levels and connecting successive equilibrium points we derive the agg demand schedule AD.

Multiplier effect for the change in price :-

Product market equilibrium :-

$$y = c\,[y - t(y)] + i(r) + \bar{g}$$

$$\Rightarrow dy = c'\,[1 - t']\,dy + i'\,dr$$

$$\Rightarrow \left[1 - c'(1-t')\right] dy = i'\,dr \quad \text{——— (1)}$$

Money mkt equilibrium :-

$$\frac{\bar{M}}{P} = k(y) + l(r)$$

$$\Rightarrow \frac{P\,d\bar{M} - \bar{M}\,dP}{P^2} = k'\,dy + l'\,dr$$

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$\frac{d\frac{m}{p}}{} - \frac{m}{p}\cdot\frac{dp}{p}$

$\Rightarrow \frac{dm}{p} - m\frac{dp}{p^2} = p[k' dy + l' dr]$

Setting, $p = 1$, $dm = 0$

$-m\, dp = k' dy + l' dr$

$\Rightarrow l' dr = -m dp - k' dy$

or $dr = -\frac{m}{l'} dp - \frac{k'}{l'} dy$ — ②

Substituting the value of dr in ②, we get,

$[1 - e'(1-t')]\, dy = i'\left[-\frac{m}{l'} dp - \frac{k'}{l'} dy\right]$

$\therefore \left[1 - e'(1-t') + \frac{i'k'}{l'}\right] dy = -\frac{i'm}{l'} dp$

$$\Rightarrow \frac{dy}{dp} = -\frac{\frac{i'm}{l'}}{\left[1 - e'(1-t') + \frac{i'k'}{l'}\right]} < 0$$

$i' < 0$, $l' < 0$, $\frac{i'm}{l'} > 0$, $k' > 0$

$0 < t' < 1$

$0 < 1 - t' < 1$

or $0 < e'(1-t') < 1$

or $0 < [1 - e'(1-t')] < 1$

$\frac{i'k'}{l'} > 0$

$\therefore \frac{dy}{dp} < 0$

So here, the relationship between price level and income is inverse. As price level increases, income also ~~inc~~ will decrease and vice-versa