

SAMUELSON THEORY OF TRADE CYCLE

A prof. P.A. Samuelson in his article "Interaction between multiplier analysis and principle of accelerator" constructed a multiplier accelerator model which is also known as Dynamic Model of trade cycle.

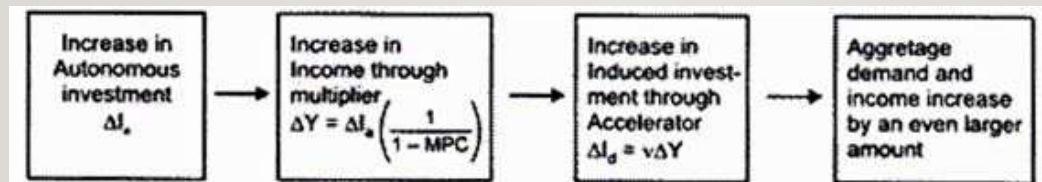


Fig. 13.4. Combining Accelerator with Keynesian Multiplier

where

ΔI_a = Increase in autonomous investment

ΔY = Increase in Income.

$\frac{1}{1 - MPC}$ = Size of multiplier where MPC = Marginal propensity to consume.

ΔI_d = Increase in induced investment

v = Size of accelerator.

• ASSUMPTIONS

The theory is based on the following assumptions :

- Relation between multiplier and accelerator is lagged.
- Investment is undertaken only by government and it is known as autonomous investment.
- The value of propensity to consume is 0.5.
- There is a closed economy.
- There is full utilization of production capacity of economy.
- Value of acceleration is 1.

• EXPLANATION

Samuelson had an opinion that income increases due to increase in investment. Amount of decrease in income depends upon value of multiplier and accelerator. **Acc. to Samuelson,** "Increase in consumption in time period (T) is function of income of T-1."

Increase in income leads to increase in consumption and this increase in consumption leads to increase in investment. The cyclic change in an economy are results of interaction of multiplier and accelerator. Samuelson Model of Trade Cycle can also be defined with the help of following equation :

$$Y_t = I_t + C_t + G_t \quad \dots 1$$

$$C_t = LY_{t-1} \quad \dots 2$$

$$I_t = B(C_t - C_{t-1}) \quad \dots 3$$

Put Equation 2 in 3,

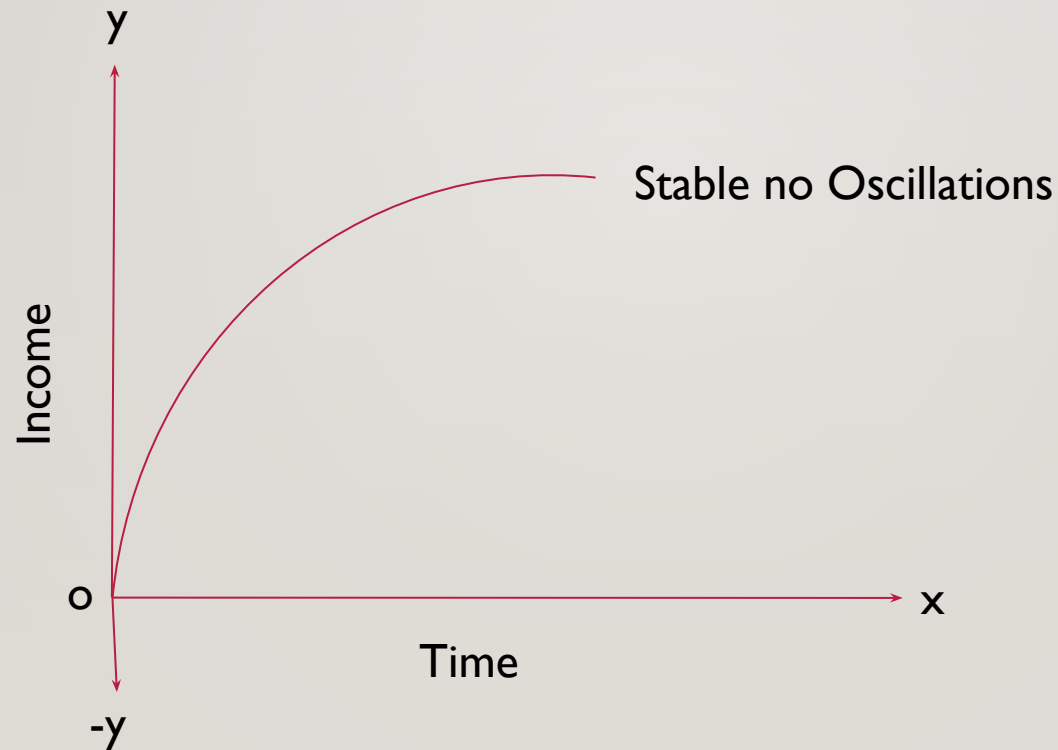
$$I_t = B(LY_{t-1} - LY_{t-2})$$

$$(I_t = LB Y_{t-1} - LB Y_{t-2}) \quad \dots 4$$

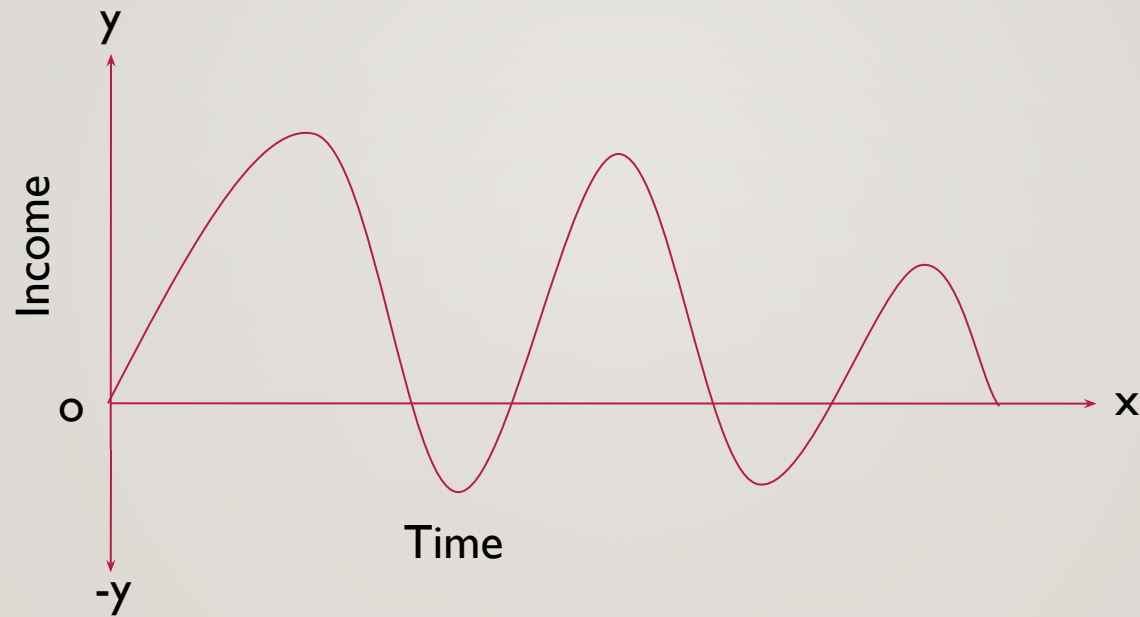
These five values generate five types of cycles :

I. When L is 0.5 & B is 0 :- In this type of situation, level of income is influenced by multiplier because value of acceleration is zero (0). Under this situation, income moves upwards & downwards at a decreasing rate till it reaches a new level. The new level of income will be equal to the multiplier, i.e., $1/1-x$.

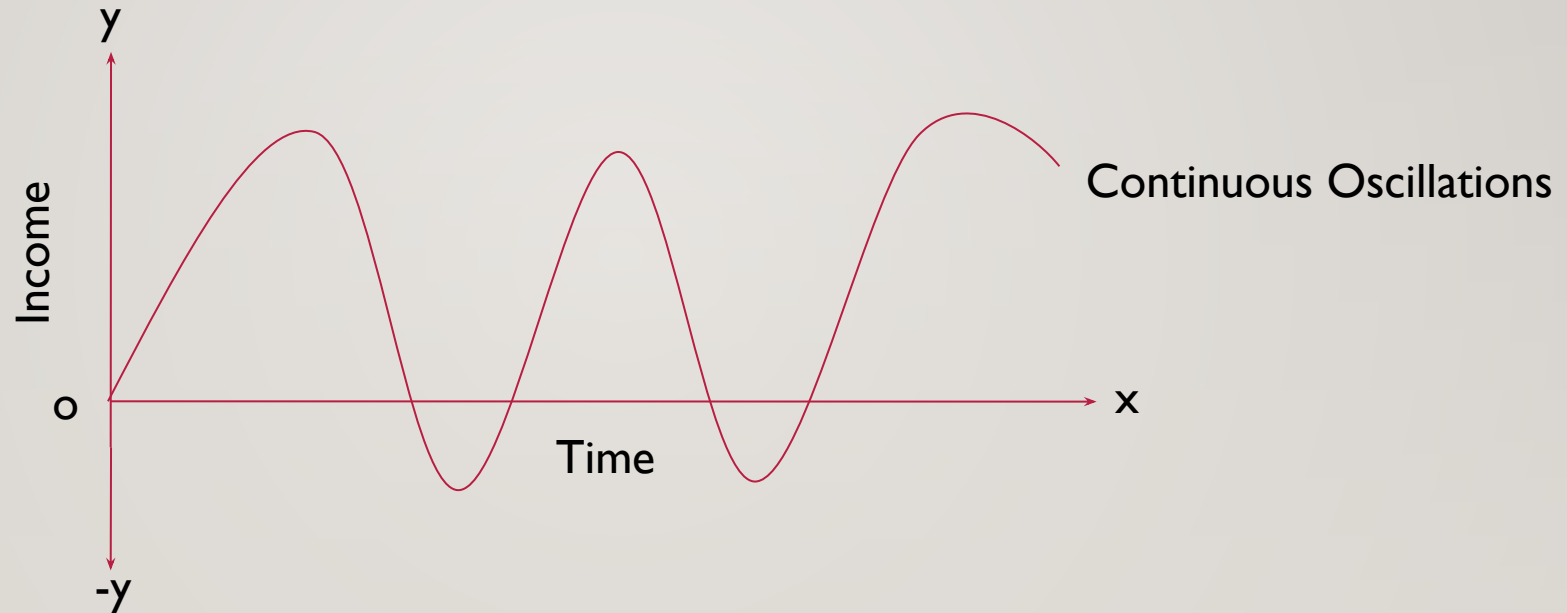
This fluctuation can be defined properly with the help of following diagram :



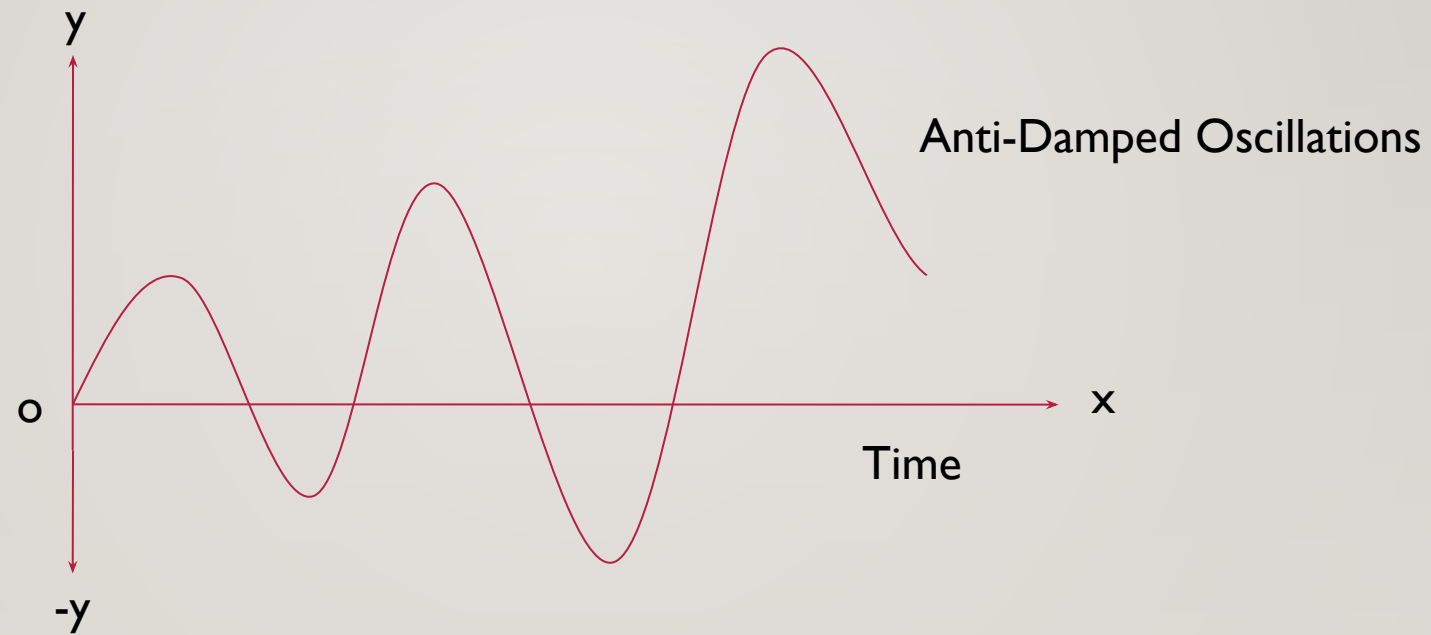
2. When L is 0.5 & B is 1 :- This gives us damped oscillations. In this situation, the income fluctuates through a series of cycle of smaller & smaller amplitude until the cycles virtually disappear. The cycle is shown in following diagram :



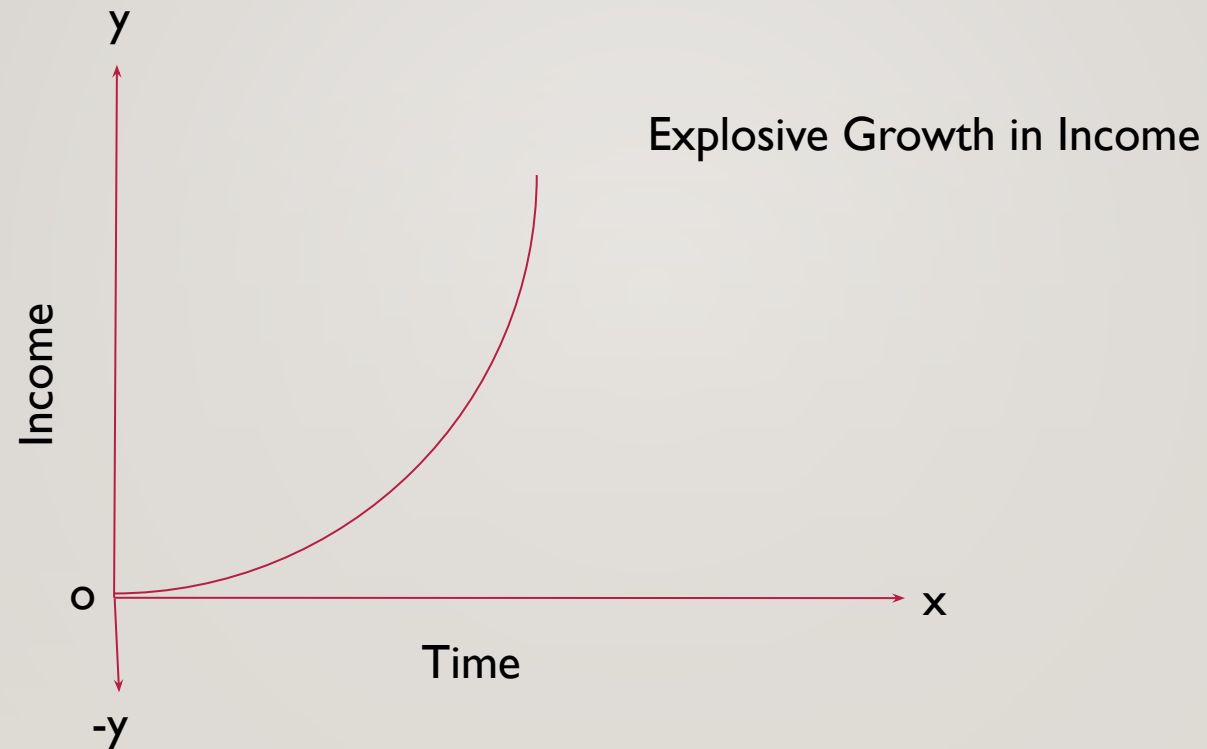
3. **When L is 0.5 & B is 2** :- This gives us regular & continuous cycle where more are less same values repeat themselves & it can be defined with the help of following diagram :



4. **When L is 0.6 & B is 2** :- This will give anti-damped cycles. In this situation the income fluctuates through series of cycle of wider & wider amplitude. This gives us explosive cycles as shown in diagram :



5. When L is 0.8 & B is 4 :- This gives us ever increasing income gradually. Increasing approaching compound rate of interest. In other words, income increases at an increasing rate. This is shown with the help of following diagram :



A photograph of a staircase with a black rectangular overlay containing the text 'THANK YOU!' and a red horizontal line.

THANK YOU!
