Acceleration Principle

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ACCELERATION PRINCIPLE

(KEYNESIAN VERSION)

DEFINITION

"An induced consumption leading to an induced investment is known as acceleration principle as accelerator."

Increase in the demand for capital goods (investment) due to an increase in the demand for consumer goods is the acceleration principle. The acceleration principle is also known as magnification of derived demand.

CONCEPT

- An increase in national output or income will lead to an increase in investment.
- Such investment, which depends on national income or its rate of change, is called induced investment.
- J.M. Keynes who developed the multiplier, ignored the effects of induced investment.

CONCEPT

- In reality,

- we observe that a business firm's decision to make new investment depends on the rate of change of sales (demand for its product) or of output, because the demand for capital goods is a derived demand.

- The acceleration principle is based on the idea that an increase in demand for consumer goods (food, clothing, furniture) produces a far greater increase in demand for producer or capital goods (food processing equipment, looms, and lathes).

What is Capital Output Ratio ?

- The capital/output ratio (K/Y) is the value of capital (K) needed to produce a given level of output divided by the value of that output (Y).
- capital must increase for the economy to produce more output
- If output is high but fails to increase in a particular year, investment will fall to zero
- Thus, investment in an economy depends not on the level of income but on how fast output — or the level of business sales — is rising or falling. To raise investment, output not only has to grow; it has to grow by increasing rate.

ASSUMPTIONS

- **The acceleration principle is based on:**
- Investment has both autonomous and induced components.
- Investment depends not on the absolute level of output or demand but on the rate of increase in NNP or in total demand.
- The rate of increase is growing, investment spending will increase; if the rate of income is stable, investment will be constant; if the rate of increase declines, investment will fall.
- The acceleration principle also emphasises the extreme volatility of investment as compared with other components of aggregate demand. It suggests that any percentage change in aggregate demand may result in much larger percentage changes in investment spending.

ACCELERATION CO-EFFICIENT:

The ratio between the net change in consumption expenditure and the induced investment is known as the

Acceleration co-efficient.

Symbolically, $$a = \frac{\Delta I}{\Delta C}$$

Where, **a = Acceleration co-efficient.**

ΔI = Net change in investment.

ΔC = Net change in consumption.

The value of the acceleration co-efficient depends upon the capital-output ratio and the durability of capital goods. Higher the capital-output ratio, higher the acceleration co-efficient.

WORKING OF THE ACCELERATOR

An increase in the demand for consumption goods leads to an accelerated demand for investment goods. This will lead to an increase investment and income.

Period	*Consumer Goods.*	*Capital goods required*	*Investment needed for replacement*	*Induced investment*	*Total investment*
1	100	400	40	--	40
2	115	460	40	60	100

Suppose the demand for consumer goods is 100 units. Suppose the firm require capital assets worth 400 units to produce 100 units of consumer goods. Then, the capital output ratio is 4:1.

If the depreciation rate is 10%, then the replacement of capital would be 40 units every year.

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Suppose in the second period, demand for consumer goods has gone up from 100 to 115 units. This would necessitate capital goods of 460 units (since the capital-output ration is 4:1)

Due to an increase in demand for consumer goods, the investment in capital goods will increase from 40 units to 100 units i.e. 40 units for regular replacement and 60 units as new additional investment. Therefore, 15 units of additional demand for consumption goods has been generated additional investment of 60 units. Hence the value of the acceleration is 4.

$$a = \frac{\Delta I}{\Delta C} = \frac{60}{15} = 4$$

Thus induced consumption in the economy will induce investment by 4 times i.e. by the value of the accelerator

LIMITATIONS OF ACCELERATION PRINCIPLE

The acceleration principle is based on certain assumptions and which may not be realistic in a dynamic economy.

- **Capital- output ratio may not remain constant. Hence the acceleration effect would be different at different times.**

- **There should be no excess capacity in the capital goods sector. If there is excess capacity new investment will not take place to meet the demand for consumer goods.**

- **The change in the demand for consumption goods should be permanent. Otherwise entrepreneurs will not invest in additional capital goods.**

- **Resources should be elastic to enable investment in new capital goods.**
- **Money supply especially credit should be elastic, so that funds are available for induced investment.**
- **There should be no time lag between the demand for consumer goods and the demand for capital goods. Otherwise the acceleration effect is limited.**

In spite of these limitations, the acceleration principle is very useful in explaining the process of income generation.