

# RELATIONSHIP BETWEEN GDP, CONSUMPTION, SAVINGS AND INVESTMENT

**GROSS DOMESTIC PRODUCT (GDP)** – is the total value of final goods and services produced within a country over a period of time.

**CONSUMPTION (C)** – includes expenditure of **households** on food, rent, medical expenses...

**SAVINGS (S)** – is an income received by a consumer that that is not spent on the output of firms through consumption expenditure. It is saved for the future.

**INVESTMENT (I)** – is a purchase or investments in **capital** goods (non-financial product purchases - they are not consumed but used in future production) e.g. machines, buildings, new technology...

## 1. Relationship between consumption and savings

Income = Consumption + Savings

The largest part of total spending is **consumption**.

**C = f (Y)**

If income increases, consumption also increases BUT not as quickly as income.

**S = f (Y)**

If income increases, savings also increase BUT at the higher rate than income.

**Propensity to Consumption (how much income is consumed)**

PC = Consumption / Income

**Marginal Propensity to Consumption (how consumption changes with changing income)**

MPC = Change in Consumption / Change in Income

For example, if a household earns one extra dollar of disposable income, and the marginal propensity to consume is 0.65, then of that dollar, the family will spend 65 cents and save 35 cents.

**Propensity to Savings (how much income is saved)**

PS = Savings / Income

**Marginal Propensity to Savings (how savings change with changing income)**

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**How is National Income divided in the economy – Keynesians Theory**

$Y = C + S$

$$(C / Y) + (S / Y) = 1$$

$$(\Delta C / \Delta Y) + (\Delta S / \Delta Y) = 1$$

John Maynard Keynes developed a theory of consumption that focused primarily on the importance of people's disposable income in determining their spending. A rise in real income gives people greater financial resources to spend or save. The rate at which consumers increase demand as income rises is called the marginal propensity to consume.

In the most developed countries proportion of Savings increases and Consumption decreases.

## 2. Investment and Demand for Investment

**Investment** is a part of Aggregate Demand that changes its value very quickly and very often.

**Investment** can be defined as a financial cost (money) used on real capital formation (buildings, machines...).

### Gross Investment

$$I (\text{gross}) = I (\text{net}) + I (\text{restitution})$$

### Net Investment

- net investment increases the capacity of production

### Restitution Investment

- investment (amount of money) used on replacement and repair of worn out capital
- restitution investment decreases income and production
- it equals to depreciation

### Relationship between Investment and Savings

Savings from Income of households are Potential Investments.

Level of investment depends on **Marginal Propensity to Investment**.

$$MPI (i) = \text{Change in Investment} / \text{Change in Income}$$

Investment depends on Marginal Efficiency of Capital and Interest rate (r)

**Marginal Efficiency of Capital** compares costs on extra unit of output and expected revenue from an extra unit of output produced. Revenue can be only estimated.

The higher the Marginal Efficiency of Capital, the higher the investment.

The higher the interest rate, the lower the investment.

### Investment Multiplier and Accelerator

**Investment Multiplier and Accelerator** are the coefficients that show the relationship between change in Income and change in Investment

**Investment Multiplier (k)**

$$k = \Delta Y / \Delta I$$

$$\Delta Y = k \cdot \Delta I$$

**It means:** increase in investment leads to even more increase in income. Increase in Savings leads to decrease in multiplier.

$$(\Delta C / \Delta Y) + (\Delta S / \Delta Y) = 1$$

$$k = 1 / (1 - (\Delta C / \Delta Y)) = 1 / (\Delta S / \Delta Y)$$

**Multiplier Process works under two conditions:**

1. Investments with Multiplier Effect are the investments into the production of consumer goods (do not increase the production capacity – this theory has only static character).
2. Multiplier Effect works in the economy only if the factors of production are not used to maximum level of production

**Investment Accelerator (a)**

**Investment Accelerator** is the coefficient that shows how change in Income leads to change in Investment.

$$\Delta I = a \cdot \Delta Y$$

Accelerator Process works only in connection with Investment which increases the capacity of production.

If there were no increase in Income, there would not be any increase in Aggregate Demand and it will be enough to replace worn out capital and not increase the capacity of production. Only if there was an increase in Income and Aggregate Demand it would lead to increase in investment and production of goods and services.

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