

Accounting Identity: Saving Equals Investment

A fundamental macroeconomic accounting identity is that saving equals investment.

By definition, saving is income minus spending.

Investment refers to physical investment, not financial investment.

That saving equals investment follows from the national income equals national product identity.

No Government

Consider first an economy without government. Saving is national income minus consumption,

$$s = ni - c. \quad (1)$$

National income equals national product,

$$ni = np. \quad (2)$$

National product is consumption plus investment,

$$np = c + i. \quad (3)$$

It follows that saving equals investment:

$$\begin{aligned} s &= ni - c, \text{ by (1),} \\ &= np - c, \text{ by (2),} \\ &= (c + i) - c, \text{ by (3)} \\ &= i, \end{aligned}$$

as desired.

Government

With government, to show that saving equals investment is harder.

Government expenditure refers to government purchases of goods and services.

Taxes includes transfer payments and the interest on government debt as negative taxes.

By definition, government saving is taxes minus government expenditure,

$$gs = t - g. \quad (4)$$

Disposable income is national income minus taxes. Private saving is disposable income minus consumption,

$$ps = di - c = (ni - t) - c. \quad (5)$$

National income equals national product,

$$ni = np. \quad (6)$$

National product is consumption plus investment plus government expenditure,

$$np = c + i + g. \quad (7)$$

Total saving is private saving plus government saving:

$$\begin{aligned} s &= ps + gs \\ &= (ni - t - c) + (t - g), \text{ by (4) and (5).} \\ &= ni - c - g \\ &= np - c - g, \text{ by (6)} \\ &= (c + i + g) - c - g, \text{ by (7)} \\ &= i, \end{aligned}$$

as desired.

Example

Consider an initial economic state in which a student buys a football for \$1. Of course saving equals investment.

Contrast this situation to an alternative economic state, in which the student does not buy the football. The sporting goods store still has the football, and the student has his dollar. Otherwise the alternative state is identical to the initial state.

What has happened to saving and investment?

The saving of the student has increased \$1.

Investment has also increased by \$1. The store has extra inventory of \$1, and inventory accumulation counts as investment.

Perishable Good

Consider a second example, like the first, except that the good is perishable.

In the initial state the student buys lettuce for \$1.

In the alternative state, the student does not buy the lettuce, so the lettuce rots and is thrown out.

What has happened to saving and investment?

As in the first example, the saving of the student has increased \$1.

There is no change in the inventory of the store, so investment has not increased but is unchanged.

The income of the storekeeper has fallen by \$1. Hence his saving has fallen by \$1.

Overall total saving is unchanged, as the reduced saving of the storekeeper offsets the extra saving by the student.

Investment is unchanged.

Saving Versus Savings

Saving is a flow, a rate of saving per unit time, such as saving per year.

Savings is a stock, the result of the flow of saving. Savings rise gradually as saving occurs.