

# Extensive and intensive growth

Production (Y) is possible thanks to the factors of production: labor (L) and capital (K). If we want to increase production so that there is growth, it suffices to increase the quantity of factors of production. To increase the **quantity of work**, it is necessary to act on the **number of active workers** and / or on the **duration of work**. To increase the amount of **capital**, companies must make **investments**. When the increase in GDP is explained by the increase in factors of production, growth is said to be "**extensive**".

However in 1957, Robert Solow shows that the use of the aid of labor and capital do not explain most of the growth (in France, during the Glorious Thirty, labor and capital only explained growth up to 50%). In this case, it is **intensive** growth: the increase in GDP is more than proportional to the increase in factors of production.

There would therefore be a residual factor (r) to explain the growth. R. Solow identifies the latter as **technical progress**. It can come from new, more efficient production methods or from **innovations** that help create new products. But for R. Solow, technical progress is exogenous, it is a "manna falling from the sky", that is to say which does not depend on the decision of the economic agents. This third factor is called total factor productivity (TFP). It measures the gain in efficiency in the use of an economy's resources.

$$\Delta Y = f(K, L, r)$$

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