

Marginal analysis

Throughout the text you will see references to the word “marginal,” meaning “change in.” This idea has its mathematical roots in the concept of the slope. For example, suppose that the benefit (B) you derive from your study of economics is proportional to the time (T) you spend studying: $B = a \times T$. Then the “marginal” benefit of your time is given by the change in B for a given change in T , or:

Marginal benefit = $\frac{\Delta B}{\Delta T} = a$, where a is the slope of the line relating B to T .

More generally, suppose that B is any positive function of time spent: $B = b(T)$. In this case, the marginal benefit is given by the derivative of B with respect to T : Marginal benefit = $\frac{dB}{dT} = b'(T)$. When evaluated at time T , $b'(T)$ is the slope of the line tangent to $b(T)$.