

Economic growth and natural capital maintenance – dynamic model

Marta Kornafel

We consider the growth model in relation to natural capital dynamics to identify the existence of stable equilibria with positive natural capital stock. The main question is whether sustainable economic growth is possible with the increasing consumption of materials. To the best of our knowledge, this is the first work that implicitly considers investments in natural capital within growth theory framework and points to their key role in maintaining a constant stock of natural capital. We use ‘back to basics’ approach. We examine the dynamics of Solow growth model extended by the presence of natural capital being modelled in the form of an aggregated renewable resource. It occurs that even if the efficiency of investments in natural capital is relatively low, it is possible to maintain natural capital at a constant level, but this requires a slowdown in the accumulation of man-made capital.

References

- [1] M. Kornafel, I. Telega *Dynamics of natural capital in neoclassical growth model*, International Journal of Sustainable Economy 12(1):1–24, <https://doi.org/10.1504/IJSE.2020.107862>

Author: Marta Kornafel
Affiliation: *Department of Mathematics, Krakow University of Economics
St. Rakowicka 27, 31-510 Krakow, Poland*
e-mail: `marta.kornafel@uek.krakow.pl`