

Nexus between Agricultural Carbon Footprints, Arable Land and Food Security in South Africa: An Empirical Analysis

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Abstract

This study employed an econometric technique to investigate the relationship between arable land, agricultural carbon footprints and food security in South Africa within periods of 1990 and 2023. The collected data was estimated with the aid of the relevant technique, leading to the following conclusion. The relationship between arable land and food security is negative and significant, which implies that arable land does not support food security. Whereas agricultural footprints and food production index have a positive and significant relationship. This shows that agricultural carbon footprints are not inimical to food security in South Africa. Also, population growth and food production index have an insignificant negative relationship. And trade openness and food production possess a positive relationship which is not significant. Therefore, in view of these findings, this study makes the following recommendations to the policymakers in South Africa. Firstly, policymakers should embark on policy measures that will drive full utilization of the country's arable land in the direction of agricultural practices that will ensure a sustainable food security in the country. In the same vein, all hands must be on deck by the country's policymakers in building resilient agricultural sector that is insulated from the adverse threats of future agricultural carbon footprints on food security in the country. And import of sufficient food supply from outside the shores of South Africa, especially neighboring countries could also be an option that could aid sustainable food security in the country.

Keywords

Arable Land, Carbon Footprints, Food Security, Trade Openness, South Africa.