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Impact of climate change on food security of rice in Malaysia: An empirical investigation

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Abstract

Since rice is the staple food of the nation, the production of rice would strongly influence the country's food security. Thus, the objective of this study is to analyze the relationship between carbon dioxide emissions and rice yield in Malaysia that is, as a mean to assess the impact of climate change on the food security of the country. The results of the empirical analysis conducted using ARDL reveal that the impact of climate change as measured by carbon dioxide emissions does not significantly affect the rice yield in the shortrun but positively affect it in the long-run. Further analysis using OLS regression however shows the adverse impact of carbon dioxide emissions on rice yield is traced when interaction effects are incorporated in the regression. The positive impact of carbon dioxide emissions on rice yield occurs depending on the consumption of fertilizers and the harvested area utilized. The results postulate a long-run positive impact of carbon dioxide emissions on rice production in Malaysia despite the expectation of pure negativity. © 2021 Institute of Physics Publishing. All rights reserved.

Index Keywords

Food supply, Global warming; Carbon dioxide emissions, Empirical analysis, Empirical investigation, Food security, Interaction effect, Rice production, Rice yield, Staple food; Carbon dioxide

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