

Impact of farm level adaptation to climate change on agricultural productivity and farmers' wellbeing: Empirical evidence from Pakistan

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Abstract:

Climate change is projected to adversely affect the agricultural sector and attached rural livelihoods, particularly in the developing countries. Hence adaptation to climate change is crucial to support agricultural productivity and rural livelihoods. The current study is based on comprehensive cross sectional data collected through 450 face-to-face interviews with farmers from three agro-ecological zones of Punjab province, Pakistan. This paper aims to examine the factors that influence the farmers' adaptation decisions and to assess the impact of farm level adaptation on crop productivity and farmers' wellbeing. The paper uses correlation analysis, binary logistic regression and propensity score matching techniques in order to explore the study objectives. The results of the study indicate that education, age, land holdings, farmer-to-farmer interaction, access to weather forecasting information and location in agro-ecological zone does have significant impact on farmers' decision to adapt to climate change. Major adaptation measures adopted by farmers were changing planting dates, changing cropping varieties, planting shaded trees and changing input-mix. Moreover the study found a positive and significant impact of adaptation on productivity of all major crops (wheat, sugarcane, maize and rice) and on farmers' wellbeing in term of farm income. Furthermore, the study also found that the extent of adaptation benefits increases with the number of adaptation measures. The findings of the study suggest to focus on farmers' education and easy access to climate-specific information for better adaptation at farm level and improved farm wellbeing.

Key words: Climate change; Farm level adaptation; crop productivity; farmers' wellbeing; Pakistan