

## Analyzing the Climate Change Impact and Farmer's Adaptability Strategies in Khyber Pakhtunkhwa, Pakistan

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**Abstract :** The agriculture sector is deemed more vulnerable to climate change as its variation can directly affect the crop's productivity, but farmers' adaptation strategies play a vital role in climate change-agriculture relationship. Therefore, this research has been undertaken to assess the Climate Change impact on wheat productivity and farmers' adaptability strategies in Khyber Pakhtunkhwa province, Pakistan. The panel dataset was analyzed to gauge the impact of changing climate variables (i.e., temperature, rainfall, and humidity) on wheat productivity from 1985 to 2015. Amid the study period, the fixed effect estimates confirmed an inverse relationship of temperature and rainfall on the wheat yield. The impact of temperature is observed to be detrimental as compared to the rainfall, causing 0.07 units reduction in the production of wheat with 1°C upsurge in temperature. On the flip side, humidity revealed a positive association with the wheat productivity by confirming that high humidity could be beneficial to the production of the crop over time. Thus, this study ensures significant nexus between agricultural production and climatic parameters. However, the farming community in the underlying study area has limited knowledge about the adaptation strategies to lessen the detrimental impact of changing climate on crop yield. It is recommended that farmers should be well equipped with training and advanced agricultural management practices under the realm of climate change. Moreover, innovative technologies pertinent to the agriculture system should be encouraged to handle the challenges arising due to variations in climate factors.

**Keywords :** climate change, fixed effect model, panel data, wheat productivity

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