

Climate Change and Migration in the Semi-arid Tropic and Eastern Regions of India: Exploring Alternative Adaptation Strategies

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Abstract : Contributing about 18% to India's Gross Domestic Product, the agricultural sector plays a significant role in the Indian rural economy. Despite being the primary source of livelihood for more than half of India's population, most of them are marginal and small farmers facing several challenges due to agro-climatic shocks. Climate change is expected to increase the risk in the regions that are highly agriculture dependent. With systematic and scientific evidence of changes in rainfall, temperature and other extreme climate events, migration started to emerge as a survival strategy for the farm households. In this backdrop, our present study aims to combine the two strands of literature and attempts to explore whether migration is the only adaptation strategy for the farmers once they experience crop failures due adverse climatic condition. Combining the temperature and rainfall information from the weather data provided by the Indian Meteorological Department with the household level panel data on Indian states belonging to the Eastern and Semi-Arid Tropics regions from the Village Dynamics in South Asia (VDSA) collected by the International Crop Research Institute for the Semi-arid Tropics, we form a rich panel data for the years 2010-2014. A Recursive Econometric Model is used to establish the three-way nexus between climate change-yield-migration while addressing the role of irrigation and local non-farm income diversification. Using Three Stage Least Squares Estimation method, we find that climate change induced yield loss is a major driver of farmers' migration. However, irrigation and local level non-farm income diversification are found to mitigate the adverse impact of climate change on migration. Based on our empirical results, we suggest for enhancing irrigation facilities and making local non-farm income diversification opportunities available to increase farm productivity and thereby reduce farmers' migration.

Keywords : climate change, migration, adaptation, mitigation

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