

Climate Change, Food Security and Child Nutrition in India: Vulnerability and Resilience to Short-Term Climate Variability

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Background: Climate variability is expected to negatively impact India's agricultural production, thereby posing a risk to household food security and economic resilience, and household members' health.

Objective: This study will describe population sensitivities to climate variability and adaptive capacities in India using nationally-representative household data. It will also empirically test the associations between climate-related stressors and outcomes of interest: linking household data to geo-referenced climate and agricultural productivity data, as well as satellite remote sensing on land cover (Vegetation Continuous Fields), we will examine the impact of climate variation on agricultural production, child nutrition and household economic outcomes. Included in the analysis will be an examination of the role that access to forest resources may play in mitigating the outcomes of interest.

Data & Methods: This study will use data from two geo-referenced waves of the India Human Development Survey (IHDS 2005 and 2012) to describe household-level sensitivities to climate change and adaptive capacities, and change over time in these indicators.

The IHDS is a nationally representative multi-topic household panel survey that covers issues related to health, education, gender, agriculture, employment and village infrastructure, asset ownership, and indebtedness. Two waves of the survey have been implemented to date, the first in 2004-2005 and the second in 2011-2012. The IHDS is geo-referenced at the household level, allowing for spatial analyses and linking to climate and land cover datasets.

This analysis will also use remotely-sensed climate data and the Vegetation Continuous Fields (VCF) product. The VCF product contains proportional estimates for vegetative cover types: woody vegetation, herbaceous vegetation, and bare ground.

Multivariate logistic regressions will be used to model the impact of climate on agricultural, child nutrition, and household economic outcomes. The models will control for confounding factors.

Results: The results are expected to: (1) provide a description of population sensitivities and adaptive capacities, and how these may change over time; and 2) contribute insight into the impact of short-term climate variability on key human development outcomes.