# Review of: "Weathering changes – livelihood adaptation to weather shocks in rural India by disadvantaged social groups"

Bernardo Bolaños Guerra[1]

1 Universidad Autónoma Metropolitana

Potential competing interests: No potential competing interests to declare.

As far as I can understand in the complex subject of climate migration, the decision to use first-difference regression in the research that tries to establish the causality of climate change on household migration behavior using the Indian Human Development Survey (IHDS) has its merits, especially given the context and limitations of the available data.

Using first-difference regression can be a suitable approach in this case for two reasons:

Examining Causality: First-difference regression allows for exploring causal relationships between variables. This can be particularly important when studying the relationship between climate change and household migration behavior, where causality is a central question.

Available Data: the IHDS data is an extensive dataset. In the absence of a specialized survey on migration, the IHDS may be the most suitable data source for the research.

While machine learning and trees of regressions can offer greater flexibility and potentially capture more complex relationships [cf. Molina, M. D., Chau, N., Rodewald, A. D., & Garip, F. (2023). “How to model the weather-migration link: a machine-learning approach to variable selection in the Mexico-US context”. *Journal of Ethnic and Migration Studies*, 49(2), 465-491], using these approaches would require careful consideration of data quality, variable selection, and generalizability, especially given the indirect identification of migrants in the IHDS.

It is correct that the author acknowledges the limitations of the data and justifies the use of the non-resident files for identifying migrants due to the absence of a more specialized survey.

It seems to me that the figure 4 is mistaken. The title is “Number of dry and wet months by district based on SPEI6 and SPEI18 (Wave I)”. However both images refer to dry months. It is in clear contrast to figure 3.

First-difference regression may introduce researcher bias or exclude potentially important variables, but the conclusions are plausible and coherent with other studies. I think that the findings are consistent with other studies, not puzzling. The limitations of the methodology would be worrisome if the findings diverged radically from other studies.