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## Building resilience or missing specification? Crop and labour diversification in Southeast Asia

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### Abstract

Poverty and climate change are just two major problems among others the global south faces with severe impacts on wellbeing. According to the Global Climate Risk index, Vietnam and Thailand rank 6<sup>th</sup> and 9<sup>th</sup> respectively for the period from 1999–2018. Higher temperatures, greater variability in rainfall patterns and altered growing seasons negatively affect agricultural production and, thus, farmers' income. Poverty comes with multiple faces. Not only is it defined by a scarcity of monetary values like income but it also captures other aspects of life. To capture access to health services, education, and participation as basic features of a dignified life, researchers developed the multi-dimensional poverty index.

Researchers have investigated measures to mitigate the effect of weather shocks like droughts or unusual heavy rainfall. Results show that diversification in livelihoods and crops can help to alleviate the negative effect of weather shocks. However, most of the literature measures the impact of diversification strategies on income. There is a research gap measuring the impact of diversification, particularly crop diversification, on multi-dimensional poverty.

With this analysis we try to close this research gap by using a uniquely large socio-economic panel data set from Thailand and Vietnam capturing ten years from 2007 until 2017. It allows for the calculation of a multi-dimensional poverty index and the Simpson's index of diversification for crops and off-farm labour. In addition, the data set also allows to measure self-reported weather shocks. To capture the bias introduced by self-reported weather shocks and its connection to diversification, we use precipitation from the NASA.

Our results, using fixed-effects panel-regressions, show that heavy rainfall increases multi-dimensional poverty in Vietnam. This effect is mitigated by labour diversification. While crop income and labour diversification reduce poverty in Thailand, crop diversification increases poverty in Vietnam. Self-reported environmental shocks increase poverty in both countries while the effects are mitigated by crop diversification in Thailand but not in Vietnam. Interestingly, labour diversification reduces poverty in both countries, Thailand and Vietnam. Our results indicate that the risk management features of diversification must be cautiously weight against possible efficiency losses due to forgone specialisation benefits.

**Keywords:** Crop diversification, income poverty, multidimensional poverty, panel data, precipitation, shocks