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## Floods in Bangladesh: Does Crop Diversification Mitigate Vulnerability of Rural Households?

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### Abstract

The frequent occurrence of disastrous flooding causes heavy loss of human lives and crop damage in Bangladesh. This study is set forth to examine vulnerability to floods and to investigate how households cope with different kinds of floods in rural areas of Bangladesh. Vulnerability estimates focus on households who rely on different income sources, and deal with the question to what extent crop diversification is an option for mitigating flood risk for farmers. It is hypothesised that more vulnerable farming households are more likely to choose traditional crops over riskier but more profitable new varieties. The analysis is based on primary data from a cross sectional household survey, being conducted just two weeks after monsoon and flash floods had occurred in the rural areas of four districts of Bangladesh in 2005. A two stage stratified random sampling technique was applied both in flooded and non-flooded areas and 1050 rural households were selected and interviewed. We first estimate vulnerability based on the expected poverty method by Chaudhuri, Jalan and Suryahadi (2002). For these estimates on (idiosyncratic and covariate) vulnerability, demographic, socio-economic, shock (flood), coping and community factors were regressed on the monthly income and consumption (per capita and adult equivalence scale by Townsend 1994) of the sample households. The results show that in overall sample, 55% of the households are observed to be poor but 62% are estimated to be vulnerable, while among the non-poor households, 7% count as highly vulnerable. For flooded households, the risk of falling below the poverty line, is significantly higher compared with the non-flooded households. The flash flood causes 1.28 times higher covariate vulnerability than idiosyncratic risk. In addition, the monsoon flood causes more damage in cash crop (jute) whereas flash flood is risky for staple crop (paddy).

**Keywords:** Covariate risk, crop diversification, Flood, Idiosyncratic risk, Vulnerability