

Poverty, institutions, and tropical cyclone deaths in the Philippines

Elizabeth J. Tennant*

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Abstract

The Philippines is highly exposed to natural hazards, including tropical storms and cyclones. Between 2006 and 2016, eighty-five storms caused over eleven thousand fatalities in the country. Many of the areas affected by tropical cyclones also suffer from chronic poverty and weak institutional capacity. The disproportionate vulnerability of the poor to natural hazards amplifies concerns that the people and communities most in need of adaptation lack the financial resources and institutional capacity to address the risks associated with climate change. In this paper, I investigate whether short-term changes in local poverty rates and government fiscal capacity impact tropical cyclone mortality in the Philippines. I construct and analyze a new panel dataset of tropical cyclone mortality, poverty rates, and local government financial flows for 78 provinces from 2005-2016 and 1,468 municipalities from 2007-2016. I also control for hazard exposure using high-resolution parametrically modeled wind speeds and population data. This improves precision of the estimates and corrects for biases that would otherwise be introduced by the correlation of poverty and cyclone exposure in the data. I demonstrate that aggregate statistics at the national and even provincial scales can obscure large heterogeneities in socioeconomically produced vulnerabilities. I find evidence that short-term changes in the share of people living in poverty impact tropical cyclone mortality risk at the municipal level.

*Department of Economics, Cornell University, Ithaca, NY 14850. Contact: ejt58@cornell.edu. I am grateful for the advice and guidance of Elisabeth Gilmore and Anand Patwardhan on this work. I also thank Anna Alberini, Brooke Anderson, Deniece Krizia Ballesteros Manding, Christopher Barrett, Christopher Foreman, John Hoddinott, Richard Moss, Emma Porio, Julie Silva, Robert Sprinkle, and Catherine Warsnop.