

STORM PROTECTION SERVICES OF COASTAL WETLANDS ON ECONOMIC GROWTH AND INFANT MORTALITY

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Coastal wetlands (e.g., salt marsh and mangroves), and other natural features such as barrier islands, are known to reduce the damaging effects of hurricanes, mainly through their ability to attenuate storm surge waves or buffer winds. Consequently, wetlands and other natural barriers could also mitigate any resulting impacts on income per capita and poverty in affected coastal communities. An emerging literature has sought to quantify the coastal effects of hurricane exposure on economic activity (e.g., wages and income) but has not captured if these adverse effects are attenuated by the presence of coastal wetlands. We conduct a global analysis of economic growth and infant mortality effects from cyclone exposure between 2000 and 2012. A novel dataset is constructed that connects mangroves with corresponding coastal lowest level administrative units (LLAs). We estimate that cyclone exposure increases infant mortality by approximately seven deaths per 1,000 live births while the presence of mangroves mitigates this effect by 50%.

We also measure the intensity of cyclone exposure by stratifying our sample into groups of varying distances from cyclone paths. Measuring cyclone exposure in this way lends insight into how storm protection services from mangroves dissipate across space. Further, we examine the share of each LLA's residents located in particularly low-elevation areas. Residents in low- elevation areas tend to be more vulnerable to storm effects, which also renders more valuable the storm protection services from mangroves in these areas. Further work with this dataset will examine whether individuals with a high level of exposure to cyclones are able to relocate to higher elevations as a form of adaptive behavior.