

# Report details high costs of Philippine typhoons for families, baby girls

November 20 2013, by Kathleen Maclay

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Credit: AI-generated image ([disclaimer](#))

Tropical cyclones hitting the Philippines inflict more and longer-lasting economic loss than generally recognized, and are linked to dramatic increases in mortality rates for infant girls for up to 24 months after a typhoon, according to a study co-authored by a UC Berkeley assistant professor of public policy.

The research examines the aftermath of typhoons that have struck the Philippines over the last 25 years and was conducted by economists Solomon Hsiang at UC Berkeley and Jesse Anttila-Hughes of the University of San Francisco. The results may offer guidance for a wide range of post-disaster recovery efforts in the spotlight since the record-strength Typhoon Haiyan struck the islands on Nov. 8.

The economists found that while officials report roughly 740 deaths on average every year due to [typhoon](#) exposure in the Philippines, post-typhoon mortality among baby girls is approximately 15 times higher than that, likely due to the indirect poverty-worsening effects of the storm. Because the Philippines is so hard hit by typhoons every year, the authors estimate that these delayed infant deaths account for approximately 13 percent of the country's overall infant mortality rate.

The risk of a baby girl dying after a typhoon doubles if she has older sisters in the home, and the risk doubles again if she has older brothers – suggesting that the competition for resources among siblings may play a key role in these deaths. The researchers did not find a spike in the [mortality rates](#) for baby boys, but they uncovered an elevated mortality risk among baby girls that lasts up to two years after a typhoon.

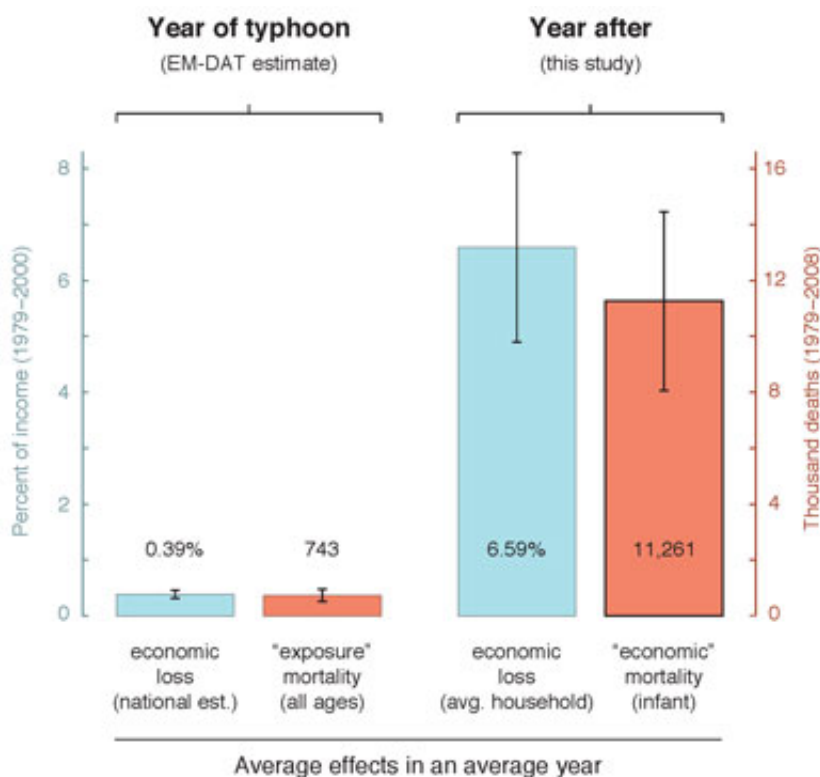
"It seems unlikely that the households in which female infants die are intentionally allowing these infants to perish," the researchers report. "It is more plausible that parents believe their newborn can cope with higher-than-average levels of neglect, and that there will be limited permanent damage. Unfortunately, for a small number of unlucky families, the assumption proves false."

The authors also speculate that parents may provide more or different food or care to baby boys than girls, perhaps unconsciously.

Hsiang and Anttila-Hughes said that the high death rate for baby girls is

probably the specific result of the economic aftermath that follows a typhoon's destruction and the coping strategies used by families that struggle economically for months or years after a typhoon. The researchers document how families dramatically reduce spending on healthcare, education and nutritious foods for years after they lose their homes, property, infrastructure and income.

"Infants are more fragile than other family members, and some can't handle it when families cut back. Their health deteriorates gradually, and then one day, they just don't pull through," said Hsiang. "We think that economic factors are key, because roughly half of the baby girls who die weren't even born or conceived when the various storms hit."



The graph above compares average annual economic and human losses to typhoons experienced by Filipinos the year of — and the year after — a typhoon. It shows that losses suffered after the storm passes are roughly 15 times

larger than official estimates that are primarily based on damage incurred during a storm.

The spike in female infant deaths underscores the huge economic adjustments for typhoon survivors. The study found that in an average year, the income of Filipino households in typhoon-hit areas is depressed 6.6 percent due to typhoons that occurred the year before, leading to a 7.1 percent reduction in average household spending.

However, when particularly strong storms strike, incomes may fall more than 15 percent the following year – compounding loss from damage to a family's home and belongings. And although or maybe partially because typhoons are a regular weather feature in the Philippines, families don't seem to save in advance or borrow much money for recovery expenses.

Instead, Hsiang and Anttila-Hughes said, during a difficult year families reduce spending, primarily on medicine and education by about 25 percent, transport and communication by about 35 percent, and high-nutrient foods that include meat, dairy products, eggs and fruit by about 30 percent.

The researchers used a physical model that Hsiang developed in 2010 to replicate and record typhoon exposure in individual provinces. To measure household impacts, they matched their reconstructed storm data with economic information collected every three years by the Filipino government on family income, consumption and physical assets. They then linked both datasets to a third data set on births and infant mortality.

This triad of data sets allowed the researchers to characterize the multi-dimensional household responses presented in the working

paper, "Destruction, Disinvestment and Death: Economic and Human Losses Following Environmental Disaster" and provide an alarming look at climate adaptation and mitigation practices.

"The fact that we continue to observe large typhoon impacts in one of the world's most intense typhoon climates where populations have already adapted," Hsiang said, "suggests that costs are so high that populations think that they are better off suffering typhoon losses rather than investing in additional protection"

This indicates, he said, that a central challenge for policy makers is to convince people to spend on costly investments that will protect them in the future. "It's a bit like trying to convince people to wear a seat belt while driving a car or a helmet while riding a bike," Hsiang said.

The researchers suggest several policies to help improve the post-storm situation for Filipinos:

- Develop credit subsidies for low-income families
- Expand insurance networks over larger regions, to reduce risk
- Educate parents about the risks of post-typhoon child neglect
- Tax goods like tobacco and alcohol to finance subsidies for children
- Enhance enforcement of building codes
- Increase typhoon-related research and development funding

**More information:** Anttila-Hughes, Jesse Keith and Hsiang, Solomon M., Destruction, Disinvestment, and Death: Economic and Human Losses Following Environmental Disaster (February 18, 2013). Available at SSRN: [ssrn.com/abstract=2220501](https://ssrn.com/abstract=2220501) or [dx.doi.org/10.2139/ssrn.2220501](https://dx.doi.org/10.2139/ssrn.2220501)

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