

# ***THE IMPACT OF NATURAL DIASERS ON WILLINGNESS TO SACRIFICE ECONOMIC GROWTH FOR ENVIRONMENTAL PROTECTION***

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## **Overview**

The United Nations Office for Disaster Risk Reduction reports that since 1995 extreme weather events have killed 606,000 people, affected more than 4 billion individuals in total and have caused damage to property and infrastructure to the amount of 1.8 trillion euros (*UNISDR, 2015*).

There is scientific evidence that climate change is responsible for an increase in weather-related natural disasters and climate change has been, and continues to be, driven by economic growth and GHG emissions, respectively.

Facing this development, individuals might opt for sustainable growth or even sacrifice economic growth for the sake of a better environmental quality. Thus, the purpose of this study is to investigate the effect of weather-related natural disasters on individual's willingness to sacrifice economic growth to reduce environmental degradation.

According to *Brody et al. (2008)*, natural disasters may contribute to heightened awareness of climate change risks. Following the value-belief-norm theory developed by *Stern (2000)*, awareness of climate change risks might activate "good intentions" such as willingness to change actual behaviour.

However, *Klomp and Valckx (2014)* argue that there is a negative effect of natural disasters on economic growth. Based on this, natural disasters might decrease the individual's willingness to sacrifice economic growth to reduce environmental degradation.

Following the tradition among sociologists and economists of associating an individual's concern for the environment with their willingness to make an economic or financial sacrifice to reduce environmental degradation, to the author's best knowledge there are no studies focusing on the effects of natural disasters on the environmental concern. The contribution to the literature is in empirically testing the following hypotheses:

**H1:** Natural disasters have a negative impact on the individual's willingness to sacrifice economic growth to reduce environmental degradation.

**H2:** Natural disasters increase the strength of the relationship between environmental attitude and willingness to reduce environmental degradation.

## **Methods**

The 2010-2014 wave of the World Value Survey (WVS) is used for 46 countries and combined with data on weather-related natural disasters. Environmental attitudes, the individual's willingness to sacrifice economic growth to reduce environmental degradation as well as several individual-level characteristics are constructed from the responses to the corresponding questions from the WVS. Data on natural disasters stem from the International Disaster Database. The focus is on climatological, hydrological and meteorological disasters at the regional level.

Since the corresponding dependent variable is binary, common binary probit models are applied on the pooled sample of individual responses.

In order to test for the corresponding hypotheses, the Attitude-Behaviour-Context model (A-B-C) by *Stern et al (1995)* is used. To investigate the first hypothesis (*H1*), weather-related natural disasters are considered as a contextual factor and their impact on the willingness to sacrifice economic growth to reduce environmental degradation is to be tested. For empirical examination of the second hypothesis (*H2*), the effect of natural disasters on the relationship between environmental attitude and willingness to sacrifice economic growth for the sake of environment is considered by constructing an interaction term between environmental attitude and natural disasters. A positive interaction effect would indicate that an increase in the number of natural disasters contributes to a closer relationship between environmental attitudes and willingness to sacrifice economic growth.

Given the large heterogeneity between countries in the total sample, the sample is split into high- and low-income countries using the IMF classification.

## **Results**

Based on the results of the probit estimations, there is clear evidence for the H1 and H2 hypotheses regarding the effect of natural disasters for the full sample and the high-income sub-sample. The effect of natural disasters and the interaction effect remain significant and have hypothesized positive signs across all specifications both for the full sample and the high-income sub-sample. Based on this result it can be concluded that for these samples natural disasters have a negative impact on the individual's willingness to sacrifice economic growth and increase the strength

of the relationship between environmental attitude and willingness to sacrifice economic growth for the sake of environment.

As for the low-income sub-sample, weather-related natural disasters have no significant effect on either the willingness to sacrifice economic growth nor on the relationship between pro-environmental attitude and willingness to sacrifice economic growth. Thus, H1 and H2 hypotheses can be rejected for the low-income sub-sample.

## Conclusions

Whereas H1 and H2 hypotheses regarding the effect of natural disasters get clear empirical evidence for the full sample and the high-income sub-sample, natural disasters seem to have no significant effect on individuals in the low-income sub-sample. Based on these results, it can be supposed that individuals in the low-income sub-sample do not see climate change as being responsible for an increase in natural disasters or do not believe in the existence of global warming. One possible reason for this might be a lack of knowledge and information in the low-income sub-sample.

## References

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