Climate Change Risk Evaluation and its Effects on Individual's Concern: The case of Italian Municipalities

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Overview

Measuring climate risk is of fundamental importance for the design of adaptation policies at local level. Similarly, identifying whether those who are mostly affected by climate risk are actually concerned about it is important since the propensity to take actions to reduce personal vulnerability and enhance adaptive capacity is correlated with the level of concern [1]. In this project we will shed light on the relationship between these two variables, namely the climatic risk to which an individual is exposed, and how concerned he/she is about climate change.

Methods

To the best of our knowledge, no paper has analyzed the problem at local scale. Herein, we will use survey data from ISTAT on the Daily Aspects of Life of Italians for the years 2013 to 2021 which are available at municipality level [5]. This will allow us to merge, on the one hand, a vast set of individual socioeconomic and survey variables with, on the other hand, very downscaled climate data. For the selection of variables that characterize vulnerability, we will follow the literature and in particular the paper by Marzi et Al 2019 [6] which defines a disaster resilience indicator for Italian municipalities. For the measure of climate change hazards, we will use the E-OBS data from Copernicus [7] . This allows us to generate both variables that look at the trends in temperature and precipitation averages, and variables that determine the number of extreme weather events at municipality level.

The different levels of aggregations of data (individual and municipal) will naturally lead to a multilevel regression analysis. Moreover, a Bayesian Model Averaging, where both linear and quadratic functions are allowed, will also be considered.

Results

We expect our results to contribute to de design of local policy actions. Moreover, the fact that we will use both local climate events and more general trends, is likely to generate new results for the impact of exposure to climate change on climate concern. Finally, using individual level data for most of the socioeconomic characteristics will give us the possibility to differentiate results across different population groups and not only on a geographical basis.

Conclusions

Since extreme climate events have important impacts at local level, being able to capture their influence on opinions towards climate change at the municipality level is of crucial importance. Moreover, adaptation investments, such as improving building's energy efficiency and implementing smart grids, will also be needed to be allocated at the local level to be more effective. Conclusively, our study will allow policymakers to understand the social acceptability of climate adaptation policies and, at the same time, to target the most vulnerable.

References

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