Geographical disparities in temperature related deaths in Europe

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Exploring Population Heterogeneities

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Abstract

Europe is considered as one of the contexts where extreme temperature is determining one the highest number of excess deaths and climate change is expected to exacerbate this public health threat in the future. Importantly, European countries widely differ in their exposure and preparedness to extreme cold and extreme heat events. In this study, we explore how extreme temperatures affect mortality in Europe and geographical heterogeneities in the effect of extreme cold and heat. For this purpose, we leverage Eurostat register data on weekly deaths at the NUTS3 level on 29 countries from 2014 to 2020 and combine it with precise meteorological observations provided by E-OBS. We use a Poisson fixed effects approach widely used in the literature to estimate the effect of temperature on mortality. Our findings show cold and heat exposure to increase mortality in the pooled sample of European countries. When looking at heterogeneities we observe Southern European regions to be the most susceptible to the exposure to heat. Conversely, Inland Hinterlands are the most vulnerable to cold exposure. In conclusion, extreme heat and cold pose a public health challenge for Europe, but substantive differences exist between European regions in the vulnerability to these health risks.