

EGU24-16105, updated on 19 May 2024

<https://doi.org/10.5194/egusphere-egu24-16105>

EGU General Assembly 2024

© Author(s) 2024. This work is distributed under the Creative Commons Attribution 4.0 License.



Increasing climate change changes household medical expenditures

Dianyu Zhu¹, Miaomiao Liu¹, Ruoqi Li^{1,2}, Yuli Shan², Haofan Zhang¹, Jun Bi¹, and Klaus Hubacek³

¹State Key Laboratory of Pollution Control and Resource Reuse, School of the Environment, Nanjing University, People's Republic of China

²School of Geography, Earth and Environmental Sciences, University of Birmingham, U.K.

³Integrated Research on Energy, Environment and Society (IREES), Energy and Sustainability Research Institute Groningen (ESRIG), University of Groningen, The Netherlands

Climate change is exacerbating global disease risks, which will change household medical expenditures. Employing machine learning techniques and fine-scale bank transaction data, this study explores the changing household medical expenditures in 290 Chinese cities under four SSP scenarios (SSP1-2.6–SSP2-4.5–SSP3-7.0–SSP5-8.5) and further evaluates the adaptive impacts from socio-economic and physiological adaptations. The results show that the increasing temperature is projected to decrease future medical expenses in China by 5.24% (SSP1-2.6) to 5.60% (SSP5-8.5) in 2060. Cities exhibit differentiated sensitivity to increasing temperatures. Richer cities have enhanced resilience to high temperatures, and cold regions demonstrate less vulnerability to extreme cold weather. Physiological adaptation to climate change can significantly reduce medical expenditures by 27.6% by 2060. Meanwhile, socio-economic adaptation is expected to amplify national total medical expenses by 22.5% in 2060 under the SSP5-8.5 scenario. Our study incorporates adaptation into the prediction of future medical expenditures in China, aiming to assist cities in devising tailored climate adaptation strategies to alleviate the household economic strain induced by climate change.