Improved Transportation Networks Facilitate Adaptation to Pollution and Temperature Extremes

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The social costs of pollution and climate change hinge critically on humans’ ability to adapt. Based on transaction records from the world’s largest payment network, this research compiles daily travel flows and documents that China's rapid expansion of high-speed railways (HSR) facilitates the use of intercity travel as an effective adaptation strategy. Access to HSR reduces travelers' exposure to extreme air pollution and temperature by 7% and 10%, leading to substantial health benefits. These reductions are attributed to both contemporaneous responses to unexpected adverse conditions and also longer-horizon changes in travel patterns.