Beating the Heat: Temperature and Spatial Reallocation over the Short and Long-run

Christos Andreas Makridis and Tyler Ransom*

December 31, 2018

PRELIMINARY AND INCOMPLETE, click here for updates.

Abstract

Does temperature affect real economic activity? Using the annual Current Population Survey between 1963 and 2015, we show that there is no association between temperature and earnings, hours, or output after controlling for time-invariant spatial heterogeneity and time-varying demographic factors. These results are robust to five separate sources of micro-data, different sampling horizons, functional forms, spatial measures of temperature, and subsets of the data. This paper studies the relationship between temperature and productivity across space and time. Motivated by these null results, we develop a spatial equilibrium model where temperature can affect not only firm productivity, but also individual locational choice. After estimating the model, we use it to disentangle the role of reallocation versus actual productivity losses in the U.S. economy between 1980 and 2015. Nearly all of the variation is driven by reallocation. We subsequently use the model to evaluate a counterfactual climate scenario and recover a new spatial equilibrium for the U.S. economy by 2050.

JEL: O44, J31, Q51, Q54, R11

Keywords: Climate, productivity, reallocation, weather, growth.

*Christos: MIT Sloan, makridis@mit.edu, www.christosmakridis.com. These views are mine only and do not represent those of affiliated institutions or the United States. Tyler: University of Oklahoma, 158 CCD1, 308 Cate Center Drive, Norman, OK, 73072, ransom@ou.edu. PRELIMINARY AND INCOMPLETE, do not cite. Partially funded by the NSF Graduate Research Fellowship and the Shultz Fellowship for Economic Policy. Thank you to Patrick Baylis, Judson Boomhower, Marshall Burke, Tatyana Deryugina, Rebecca Diamond, Lawrence Goulder, and Charles Kolstad for comments. We thank Dominik Gabinski for excellent research assistance in assembling the temperature data using geospatial software. We take ownership over any errors.