

Accepted Manuscript

Temperature Shocks and Welfare Costs

M. Donadelli, M. Jüppner, M. Riedel, C. Schlag

PII: S0165-1889(17)30148-3
DOI: [10.1016/j.jedc.2017.07.003](https://doi.org/10.1016/j.jedc.2017.07.003)
Reference: DYNCON 3454

To appear in: *Journal of Economic Dynamics & Control*

Received date: 10 November 2016
Revised date: 23 June 2017
Accepted date: 6 July 2017

Please cite this article as: M. Donadelli, M. Jüppner, M. Riedel, C. Schlag, Temperature Shocks and Welfare Costs, *Journal of Economic Dynamics & Control* (2017), doi: [10.1016/j.jedc.2017.07.003](https://doi.org/10.1016/j.jedc.2017.07.003)



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Temperature Shocks and Welfare Costs*

M. DONADELLI, M. JÜPPNER, M. RIEDEL and C. SCHLAG†

Abstract

This paper examines the welfare implications of rising temperatures. Using a standard VAR, we empirically show that a temperature shock has a sizable, negative and statistically significant impact on TFP, output, and labor productivity. We rationalize these findings within a production economy featuring long-run temperature risk. In the model, macro-aggregates drop in response to a temperature shock, consistent with the novel evidence in the data. Such adverse effects are long-lasting. Over a 50-year horizon, a one-standard deviation temperature shock lowers both cumulative output and labor productivity growth by 1.4 percentage points. Based on the model, we also show that temperature risk is associated with non-negligible welfare costs which amount to 18.4% of the agent's lifetime utility and grow exponentially with the size of the impact of temperature on TFP. Finally, we show that faster adaptation to temperature shocks results in lower welfare costs. These welfare benefits become substantially higher in the presence of permanent improvements in the speed of adaptation.

JEL classification: E30, G12, Q0

Keywords: Temperature shocks, long-run growth, asset prices, welfare costs, adaptation

*An earlier version of this paper circulated under the title “How Costly is Global Warming? Implications for Welfare, Business Cycles, and Asset Prices”

†Michael Donadelli (e-mail: donadelli@safe.uni-frankfurt.de, phone: +49 69 798 33882), Marcus Jüppner (e-mail: jueppe@safe.uni-frankfurt.de), Max Riedel (e-mail: riedel@safe.uni-frankfurt.de, phone: +49 69 798 30069) and Christian Schlag (email: schlag@finance.uni-frankfurt.de, phone: +49 69 798-33699) are all affiliated with the Faculty of Economics and Business Administration and Research Center SAFE at Goethe University Frankfurt. The authors would like to thank B. Ravikumar (co-editor), an associate editor, and two anonymous referees for detailed comments and suggestions. Furthermore our thanks go to Sandra Batten (discussant), Giuliano Curatola, Fulvio Corsi, Patrick Grüning, Scott Kelly, Renatas Kizys, and Antonio Paradiso for their helpful input. We would also like to thank conference/seminar participants at the University of Milan, Bank of Lithuania, CEP-BoE Workshop on Central Banking, Climate Change and Environmental Sustainability, 9th Biennial Conference of the Czech Economic Society, 2017 Royal Economic Society Conference, and University College of Dublin. We gratefully acknowledge research and financial support from SAFE, funded by the State of Hessen initiative for research LOEWE. All errors are ours.

Download English Version:

<https://daneshyari.com/en/article/5097989>

Download Persian Version:

<https://daneshyari.com/article/5097989>

[Daneshyari.com](https://daneshyari.com)