Seminar in Climate Econometrics

Mario Larch & Joschka Wanner

Chair of Empirical Economics

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1 Outline

Anthropogenic climate change is one of the major challenges of our time. The urge to better understand its consequences has led to the emergence of a new field in economics, namely climate econometrics. Climate econometrics tries to estimate the effects of increasing temperatures, precipitation changes, and the more frequent occurrence of extreme weather events on social and economic outcomes. In this seminar, we want to jointly gain insights into this young field in economics.

2 General Issues

This course addresses master students of Business Administration, Economics, History & Economics, Internationale Wirtschaft und Governance, and Philosophy & Economics. Advanced interested bachelor students may also participate.

The course will focus on the reproduction and discussion of a selection of papers covering different aspects of climate econometrics. It consists of an introductory meeting on October 16th, 2019, some compulsory reading in preparation for the presentations, two days of student presentations on December 13th and 14th, 2019, and a marked term paper.

Interested students are asked to **sign up** by sending an email to Joschka Wanner (joschka.wanner@uni-bayreuth.de) before **October 14th, 2019**, indicating their previous knowledge in statistics and empirical economics. Further, please give three preferences for topics.
For further questions concerning course details, please contact Joschka Wanner (joschka.wanner@uni-bayreuth.de).

3 Requirements and Assessed Course Work

Requirements
In order to participate in the course, interest in and good knowledge of empirical economics is expected.

Assessed Course Work
The assessed course work consists of a term paper in which you reproduce and critically discuss the results of your topic. The student presentations in December will cover the same topics as the term papers.
The date of submission of the term paper will be March 31st, 2020 (of course, an earlier submission is possible at any time).

Language and Formal Requirements
The language of the course (and hence your presentation and presentation slides) is English. Also, all the literature is in English. Your term paper can be written in German or in English, even though we suggest to write it in English. For more details concerning the formal requirements of the written assignments, please see the style sheet available in German (Hinweis zur Formatierung von Seminar- und Abschlussarbeiten) and in English (Formal requirements for seminar papers and bachelor's/master's theses at the Chair of Economics VI: Empirical Economics).

4 Target Group

The course addresses students from the following degree courses:

- Betriebswirtschaftslehre (MA): as "Advanced Empirical Economics II" (as part of the bloc "B 1 Forschungsmethoden" or as part of the bloc "V Empirische Wirtschaftsforschung").
- Economics (MA): as "Advanced Empirical Economics II" (which is part of the specialization "Modelltheorie") or as "Individueller Schwerpunkt".
- Internationale Wirtschaft und Governance (MA): as "Advanced Empirical Economics II" (which is part of the specialization "Ökonomische Modellbildung und empirische Analyse") or as "Individueller Schwerpunkt".
- Philosophy and Economics (MA): as electives course.
- History and Economics (MA): as specialization.

Additionally, interested bachelor students may participate.

5 Reading List

In order to have a common base for discussion in class, all participants are required to read the following review papers:

- Dell, Jones, and Olken (2014),
- Hsiang (2016).

As further useful general background, we provide the following reading list:

- Auffhammer, Hsiang, Schlenker, and Sobel (2013),
- Carleton and Hsiang (2016),
- Blanc and Schlenker (2017).

6 Topics

1. Brückner and Ciccone (2011):
   "Rain and the Democratic Window of Opportunity"

   - Software: Stata

2. Buhaug, Benjaminsen, Sjaastad, and Theisen (2015):
   "Climate Variability, Food Production Shocks, and Violent Conflict in Sub-Saharan Africa"

   - Software: Stata

3. Burke, Dykema, Lobell, Miguel, and Satyanath (2015):
   "Incorporating Climate Uncertainty into Estimates of Climate Change Impacts"

   - Software: Stata, R

4. Burke and Emerick (2016):
   "Adaption to Climate Change: Evidence from US Agriculture"

   - Software: Stata, R

5. Burke, Hsiang, and Miguel (2015):
   "Global Non-linear Effect of Temperature on Economic Production"

   - Software: Stata, R

6. Dell, Jones, and Olken (2012):
   "Temperature Shocks and Economic Growth: Evidence from the Last Half Century"

   - Software: Stata

7. Deschênes and Greenstone (2011):
   "Climate Change, Mortality, and Adaptation: Evidence from Annual Fluctuations in Weather in the US"

- Software: Stata

8. Hendrix and Salehyan (2012)::
   "Climate Change, Rainfall, and Social Conflict in Africa"

   - Software: Stata

9. Jones and Olken (2010):
   "Climate Shocks and Exports"

   - Software: Stata

10. Koubi, Bernauer, Kalbhenn, and Spilker (2012):
    "Climate Variability, Economic Growth, and Civil Conflict"

    - Software: Stata

7 Overview of Important Dates

- October 14th, 2019: registration deadline.
- October 16th, 2019, 4 p.m. to 6 p.m.: compulsory introductory meeting, allocation of topics.
- December 11th, 2019: submission deadline for presentation slides.
- December 13th and 14th, 2019: student presentations.
- March 31st, 2020: submission deadline for seminar papers.

References

Auffhammer, M., S. M. Hsiang, W. Schlenker, and A. Sobel (2013): "Using Weather Data and Climate Model Output in Economic Analyses of Climate Change," *Review of Environmental Economics and Policy*, 7(2), 181–198.

Blanc, E., and W. Schlenker (2017): "The Use of Panel Models in Assessments of Climate Impacts on Agriculture," *Review of Environmental Economics and Policy*, 11(2), 258–279.

Brückner, M., and A. Ciccone (2011): "Rain and the Democratic Window of Opportunity," *Econometrica*, 79(3), 923–947.

Buhaug, H., T. A. Benjaminsen, E. Sjaastad, and O. M. Theisen (2015): "Climate Variability, Food Production Shocks, and Violent Conflict in Sub-Saharan Africa," *Environmental Research Letters*, 10.

Burke, M., J. Dykema, D. B. Lobell, E. Miguel, and S. Satyanath (2015): "Incorporating Climate Uncertainty into Estimates of Climate Change Impacts," *Review of Economics and Statistics*, 97(2), 461–471.

Burke, M., and K. Emerick (2016): "Adaptation to Climate Change: Evidence from US Agriculture," *American Economic Journal: Economic Policy*, 8(3), 106–140.

Burke, M., S. M. Hsiang, and E. Miguel (2015): "Global Non-Linear Effect of Temperature on Economic Production," *Nature*, 537, 235–239.

Carleton, T. A., and S. M. Hsiang (2016): "Social and Economic Impacts of Climate," *Science*, 353(6304), aad9837–1–aad9837–15.

Dell, M., B. F. Jones, and B. A. Olken (2012): "Temperature Shocks and Economic Growth: Evidence from the Last Half Century," *American Economic Journal: Macroeconomics*, 4(3), 66–95.

——— (2014): "What Do We Learn from the Weather? The New Climate-Economy Literature," *Journal of Economic Literature*, 52(3), 740–798.

Deschênes, O., and M. Greenstone (2011): "Climate Change, Mortality, and Adaptation: Evidence from Annual Fluctuations in Weather in the US," *American Economic Journal: Applied Economics*, 3(4), 152–185.

Hendrix, C. S., and I. Salehyan (2012): "Climate Change, Rainfall, and Social Conflict in Africa," *Journal of Peace Research*, 49(1), 35–50.

Hsiang, S. (2016): "Climate Econometrics," *Annual Review of Resource Economics*, 8(1), 43–75.

Jones, B. F., and B. A. Olken (2010): "Climate Shocks and Exports," *American Economic Review: Papers and Proceedings*, 100(2), 454–459.

Koubi, V., T. Bernauer, A. Kalbhenn, and G. Spilker (2012): "Climate Variability, Economic Growth, and Civil Conflict," *Journal of Peace Research*, 49(1), 113–127.