Technische Universität Braunschweig

Institut für Volkswirtschaftslehre

Master's Seminar in Economics: Climate Econometrics

Prof. Dr. Markus Ludwig

1 Topic

Global warming is one of the major challenges of our time. Quantifying the effect of climate on our society is important to manage future climate change and to design appropriate polices. Climate econometrics is a new field that aims to estimate the effects of increasing temperatures, precipitation changes, and extreme weather events on socio-economic outcomes.

2 Requirements for seminar participants

In order to participate in the seminar, interest and some background in empirical economics is expected. In detail the following requirements for seminar participants exist:

- Reading of the required literature before participating in the seminar.
- Active seminar participation (including attendance at the compulsory introduction).
- Presentation (around 35 minutes) including a discussion of around 10 minutes.
- Written assignment (not exceeding 15 pages).

3 Organisation

- Registration is possible beginning 20.03.2020 and ends 20.04.2020. Please sign up with Markus Ludwig via email to markus.ludwig@tu-braunschweig.de and join the the StudIP course. The registration is binding.
- With registration please indicate: Name, student ID ("Matrikelnummer"), three topic suggestions, ranked according to preference.
- Participation is limited to 14 students, based on the sequence of registration.
- The **compulsory** introduction to the seminar will be on April 27th, 10.00h (c.t.), 2020 (Institute VWL, Spielmannstraße 9), in which the topics will be assigned as well as the course content and open questions will be discussed.
- Presentations are scheduled on May 18th, 9.30h (c.t.), 2020 (Institute VWL, Spielmannstraße 9). The slides for your presentation have to be handed in two days in advance.
- After the presentations students have the opportunity to incorporate the suggestions that they have collected during their presentation into their term paper.
- The date of submission of the term paper will be June 30th, 2020 (of course an earlier submission is possible at any time).
- The language of the course is English, hence your slides and your presentation should be in English. The assignment can be written in German or in English, respectively (the literature is in English).
- For more details concerning the formal requirements of the written assignments please see the stylesheet available in German (Leitfaden Wissenschaftliches Arbeiten) at the webpage of the Institute VWL.

4 Required Reading

The following papers provides an introduction to the topic. Every participant is **expected to read these papers** to build a common ground for discussions at the seminar.

Dell, M., B. F. Jones, and B. A. Olken (2014): "What Do We Learn from the Weather? The New Climate-Economy Literature," Journal of Economic Literature, 52(3), 740–798.

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

5 Topic Suggestions

Students are free to find and propose any papers related to the topic climate econometrics!
In the following, we provide a list of topics suitable for the seminar. Each respective paper will be the focus of one seminar presentation.

For the **written assignment**, we expect the students to **find, read and discuss additional literature** that fits the main paper and the topic. Students are expected to integrate the main paper into the additional literature and discuss findings and empirical methodology.

1. Park, R. Jisung, J. Goodman, M. Hurwitz, and J. Smith (forthcoming): "Heat and Learning", American Economic Journal: Economic Policy.

2. Blakeslee, D., R. Fishman and V. Srinivasan (2020) :"Way Down in the Hole: Adaptation to Long-Term Water Loss in Rural India", American Economic Review, 110 (1), 200-224.

3. Kocornik-Mina, A., T. K.J. McDermott, G. Michaels and F. Rauch (forthcoming): "Flooded Cities", American Economic Journal: Applied Economics.

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

5. 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.

6. Barreca, A., K. Clay , O. Deschenes, M. Greenstone and J. Shapiro (2016): Ädapting to Climate Change: The Remarkable Decline in the US Temperature-Mortality Relationship over the Twentieth Century", Journal of Political Economy, 124(1), 105-159.

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

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

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

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

11. Deschenes, 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.

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

13. 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.

14. Addoum, J., D. T. Ng, A. Ortiz-Bobea (2020) :"Temperature Shocks and Establishment Sales", The Review of Financial Studies, 33(3), 1331-1366.