ARE 231 Paper: Panel Estimates of Climate Change Effects

In the paper "The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather." (American Economic Review, 2007), Olivier Deschenes and Michael Greenstone (DG) estimate that climate change will increase agricultural profits by a small amount. In a 2012 comment, Tony Fisher, Michael Hanemann, Mike Roberts and Wolfram Schlenker (FHRS) argue that this result arises from using fixed effects that are too granular.

Getting Started
You can complete this assignment using a subset of the FHRS files. Here are links to the required files
1. README.pdf
2. Table1.do
3. yieldProfitRegress.do
4. DATA1.dta
5. panelNew.dta

The complete FHRS data and Stata code are available here. Please read the file "README.pdf" for details. You may use different software (e.g., R or Matlab) if you prefer.

Assignment
Your task is to extend the analysis in some direction. Here are some possibilities:
(i)   *Heterogeneity over space*. Do the estimated effects differ by state/region?
(ii)   *Spatial controls*. DG use state-year fixed effects and FHRS use year fixed effects. Can you give insights about what features of the data make the two models give such different results? What about other controls or fixed effects that are more or less coarse?
(iii)   *Different weights.* Does weighting the counties by acreage matter? What weighting schemes make sense?
(iv)   *Stability over time.* The data have four observations in the time series dimension (1987, 1992, 1997, 2002). Do the estimated effects change over time?
(v)   *Value of panel.* The two-way fixed effects models are like weighted difference-in-difference estimates. How different are the estimates if you focus only on cross-sectional variation (exclude the county fixed effects) or only on time series variation (exclude the time fixed effects)? Why?

You do not have to choose one of these topics. You may pursue a different idea.

If you wish, you may update the data to include the three more recent censuses (2007, 2012, 2017), although I suspect you won't have enough time to do that.

Write up your results in the form of a mini-paper. Your paper should not be more than five single-spaced pages (including tables and figures) and should be written as though you aim to publish this work in an academic journal. I do not want your paper to read like a diary, i.e. "first I did this, then I did that". Rather, I would like you to tell a story. Include an outline of the question you are asking, a discussion of the empirical method, the results, and a

conclusion. Be sure that a reader could duplicate your analysis. Don't try to cover all possible topics. Instead, pick one and write a coherent story.

Here are some points to keep in mind as you write:

1. Could non-expert readers replicate your results? If not, then they probably also will not clearly understand what you have done. Don't scatter the required steps throughout the paper. Try to consolidate it.
2. Could a reader understand your tables without scouring the text? Include enough detail in the tables and figures (and notes to the tables) for readers to understand them without reading every word of your paper. So, avoid using acronyms, state precisely what the statistic is, state what test produced the p-value etc.
3. State your findings in your introduction. By the end of the intro, you want readers to know what you do and what you find.
4. Don't use excessive digits in your tables. A t-stat of 1.45 is sufficient. Don't write 1.45376. The more digits, the harder it is to read and distill the results.
5. State clearly whether you were using real or nominal prices.

You may write your papers with a co-author, but I expect it to be joint work. I may ask you to revise and re-submit your paper if there are improvements you could make.

Feel free to be creative, both in your analysis and your writing. Writing is an important and understated component of economic research, and I would like to use this class to help you improve your writing. **Adhere to Cochrane's "[Writing Tips for Ph.D. Students](#)," which I placed on the class website.**

AER link for the R&S paper, data, and code: https://www.aeaweb.org/articles?id=10.1257/aer.102.7.3749

DUE DATE: Friday November 6 at 5:00pm (upload code and pdf of paper to canvas)