Econometrics (Econ 452) • Fall 2009

Term Paper: Replication of an empirical econometrics paper

The term paper assignment is to replicate the relevant tables from one empirical econometric paper that interests you. Replication can be an illuminating experience, especially if you choose a paper that really interests you.

I emphasize now, and will continue to do so during the term, the need to work steadily throughout the semester on this project. Some of the homework assignments will involve submitting preliminary materials and updates on your progress.

Date Submit
Wednesday, October 28 Choice of paper
Please submit (1) “12 Steps to Understanding a Quantitative Research Report” for the paper that you are replicating; and (2) a copy of the tables that you plan to replicate. You need not replicate every table in the paper. Choose two or three tables that provide evidence for the main point of the paper.

Wednesday, November 18 Summary statistics for the paper
This assignment insures that you have gathered, input, and cleaned the data for the replication. You should submit the published table of summary statistics and your best effort at replicating them. Please submit one or two paragraphs explaining how you are progressing.

Wednesday, December 2 Detailed results for the paper
You should now have completed the data analysis for the replication. Only the interpretation, write-up, and optional extension remain. Please submit one or two paragraphs explaining how you are progressing.

Friday, December 11 Final paper

Specifications for choosing a paper to replicate

• The paper must be published in a peer-reviewed journal. If you want to replicate an unpublished paper or a working paper, you must have specific permission from me.

• The paper must have empirical econometric or statistical content. (For example of what you cannot do: An examination of the federal budget, while quantitative and empirical, is not statistical because there is no sample representing a population or examination of data to illuminate relationships among variables.) Some markers of empirical econometrics are the terms econometrics, regression, anova, mean, variance, standard deviation, correlation, covariance, summary statistics, or evaluation.

• You should understand the main point, and the paper should interest you.

• The data should be available and the methods accessible to students in a first course in econometrics.
Suggestions for the replication paper

Here are some suggestions for how to approach your term paper. You need not address all of these questions, and you must write a well-argued term paper rather than a bullet-pointed responses to these items. I will not accept the submission of raw output from statistics applications, and I welcome creative and elegant visual displays of results or data.

- Explain the economic problem or question that the original paper addresses. Can you explain the paper in plain English to a non-economist? What is the dependent variable? What is the key independent variable? What is the proposed causal process? What are some confounding factors (e.g., other independent variables, reverse causality, or selection) that the original paper addresses? How big is the estimated effect?

- What is the unit of observation (e.g., countries, calendar quarters for a single country, country-years for a panel of countries, sub-national regions such as states of the United States, persons, or households)? What are other relevant dimensions of the data (e.g., frequency of the data or time or geographic span)?

- How did you gather the data, for example, downloaded the cleaned data from the author’s or journal’s website or reconstructed the data from the description in the paper? **Do not contact the author of the paper unless you have specific permission from me.**

- Compare your attempt at pure replication to the results (e.g., summary statistics and regression output) in the original paper. Do your results differ in sign, size, or significance from those of the original paper? If so, can you explain the difference (e.g., data source, data construction, estimation procedure)?

- Explain your extension of the original paper. You might consider overlooked confounding factors, shortcomings in the estimation procedure, outliers and leverage points, or limited external validity of the model. Compare the sign, size, and significance of the results in the extension to those in the original paper.
12 Steps to Understanding Quantitative Research

Adapted from Lisa Keller, UMass School of Ed

Fit your answers into 2 pages (except for Step 6). Use abbreviations and diagrams, and carefully select what is essential to the study. Answer in enough detail to permit comprehension without reading the original document.

1. Citation. Give the full citation for the study.

2. Purpose and general rationale. In broad terms, what is the purpose of the study, and how does the author(s) make a case for its importance?

3. Fit and specific rationale. How does the topic of the study fit into the existing research literature, and how does the author justify the investigation in the paper? What are the key independent variable and the main dependent variable?

4. Participants. What is the unit of observation. Describe what or who was studied (give number and characteristics) and how the sample was selected.

5. Context. Where did the study take place? Describe important characteristics.

6. Steps in sequence. What were the main procedures in the study? Describe or diagram in a flowchart, showing order and any important relationships among the steps.

7. Data. What constitutes data (e.g., test scores, administrative data, survey or questionnaire responses) and how were the data collected.

8. Analysis. What form of analysis of data was used? What statistical methods were employed? How did the method address the specific questions it was designed to answer?

9. Results. What does the paper identify as the main results (products or findings produced by the analysis of data)?

10. Conclusions. What does the paper assert about how the results in Step 9 respond to the purpose(s) established in Step 2? How did the events and experiences of the entire study contributed to that conclusion?

11. Cautions. What cautions does the author(s) raise about the study itself or about interpreting the results? Add here any of your own reservations.

12. Discussion. What interesting facts or ideas did you learn from reading the report? Include here anything that was of value, including: results, research designs and methods, references, instruments, history, useful arguments, or personal inspiration.