Final Research Project

AFRE 991 SS 25 Michigan State University

Project Description

Through the second half of the semester, students will work on an independent research project. Prior to Spring Break, students will submit a brief prospectus outlining the proposed project and how it relates to both the course content (covered and/or planned) and your graduate research portfolio. This can take the form of developing a novel dataset, replicating a paper in your field and extending it with the addition of new data or empirical techniques, or using covered course methods to tackle a desired research question. Consider this an opportunity to incubate one of your ideas for a potential third-year paper, or make progress on a new research question.

At the end of the semester, students will give an 8 to 10-minute, conference-style presentation on your research project. Each presenter will be assigned a discussant, who will review the final project submission and provide a brief 3-minute oral feedback following the project's presentation.

While the final presentation is structured to mimic the format of an economics conference, I will only be grading on the portion of content that is relevant to our course content (I enjoy separating hyperplanes as much as the next person, but the emphasis of your presentation should be on the empirical work).

In addition to the final research presentation, students will submit **replication packages** (code and utilized data) that will allow for the replication of all figures and tables presented in the research presentation. If there are privacy or data sharing concerns regarding your data, students should make arrangements with me in advance of the final presentation.

Note: I am not expecting this to be a completed research project. Rather, consider this an opportunity to trial an idea that you have and see if you are able to acquire the data or perform a preliminary version of the desired analyses.

Prospectus

Due end of day Friday, February 28

Paragraph 1: Introduction

- Brief motivating background
- Introduce planned project
  - If the project is an **empirical analysis** project, briefly state the intended question and proposed methodological approach
  - If the project is a **data acquisition** project, give a brief overview of the desired final dataset
  - If the project is a **replication/extension** project, briefly state the setting/research questions of the paper

Paragraph 2: The Big Picture

- your project's question/goal
  - If the project is an **empirical analysis** project, state the research questions
  - If the project is a **data acquisition** project, state the motivation for compiling the proposed dataset

  - If the project is a **replication/extension** project, then state the paper that you plan to replicate and the ways in which you hope to extend it
- why the question is important/interesting
- how it relates to the course content

Paragraph 3 (if Data Project): Project Description

- If this is an **original data** project, discuss
  - sources
  - (expected) acquisition steps
  - (expected) cleaning steps
  - The future econometric, machine learning, or descriptive analyses the dataset will make possible in the future

Paragraph 3 (if Empirical Analysis Project): Project Description

- If this is an **empirical analysis** project that will use **secondary data**, briefly discuss
  - data sources and how the data are being acquired
  - (expected) cleaning steps
  - Proposed empirical method and parameter estimate/object of interest
    * If you have an idea for an estimating equation or inputs to a machine learning method, feel free to include them

Paragraph 3 (if Replication/Extension Project): Project Description

- If this is a **replication/extension** project, briefly discuss
  - Where the paper is published and where the replication package is located
  - The necessary components (tables, figures) to replicate
  - What additional data/methods you will need to conduct your planned extensions

Paragraph 4: Conclusion

Replication Package Material Submission

Due end of day Sunday, April 20

Prior to the final presentations, students must submit a **replication** package that includes all datasets and R scripts used to complete the project.

If this is an **replication** project, this should include

- The underlying data used for the project
- R Scripts/RMarkdown files used to produce all output that will be presented during the final presentation
- Readme Markdown or RMarkdown file that provides an overview of the folder structure, and states the tasks completed by each included R script and the order in which included scripts should be run to replicate output (if only one single script, discuss where to find the portions of code that produce the figure/table)
- A copy of or link to the paper you're replicating

If this is an **original data** project, this should include

- All R Scripts/RMarkdown files used to produce the dataset
- Readme Markdown or RMarkdown file that provides an overview of the folder structure, and states the tasks completed by each included R script and the order in which included scripts should be run to replicate output (if only one single script, discuss where to find the portions of code that produce the figure/table) Make sure your scripts/RMarkdown files are appropriately commented, all necessary packages are identified/loaded, and all filepaths are defined relative to the main project folder.

Discussant

Due end of day Friday, April 27

Prior to the final presentations, discussants should make sure to do the following:

1. Attempt full replication. - Try to run all included scripts and see if you are able to replicate the project. For data projects that involve web scraping, you do not need to perform complete replication - just make sure that you are able to obtain at least a row or two of data using the supplied code. For replication projects, attempt to replicate all output (tables, estimates, and figures)
2. Prepare a 3 minute discussion (slides or no slides, your choice) to present to the class following the main project presentation - Comment on the overall project and what you liked about it (the idea, the ease of replication, etc.) - Whether or not you were able to successfully replicate the project, and if not at what steps you failed to fully replicate - Any ideas for future extensions or considerations

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Presentations

Final Timing TBD (during Finals Week)

Finally, prepare an 8 to 10-minute, conference-style presentation on your project. This presentation should follow the standard progression of a conference talk, providing motivation, describing the project goals or research questions, give an overview of the approach to data collection or replication, and discussion of challenges/takeaways (replication) or planned next steps (data project).

8-10 minute presentations are a difficult length, as they require you to efficiently communicate what you're doing, why you're doing it, and why it's exciting. I recommend keeping your deck small (aim for no more than 1 slide per minute) and focusing on what's new and interesting about what you're doing. You can take as given knowledge on anything that we've covered in class, so to the extent that you're paralleling lecture content you can give a brief mention and expand into more detail on anything that goes beyond what we've specifically covered.