

ECON 374 – Econometrics

Empirical Research Project

Prompt:

The goal of this project is for you to develop an understanding of how economists conduct applied empirical research. To this end, you should:

- (1) demonstrate an understanding of Stata syntax, data management skills, and best coding and documentation practices for reproducibility;
- (2) demonstrate the ability to place a research question in the context of existing scholarly discourse through an effective literature review; and
- (3) demonstrate an understanding of the necessary components of a well-written empirical research paper and the economics discipline formatting and style conventions.

You are to choose your own topic and develop a well-defined, innovative research question. This question, should, in general, have some implied causality. That is, based on expectations derived from economic theory and existing empirical research you should explore whether changes in X lead to changes in Y , *ceteris paribus*. Your paper should examine an issue related to current macroeconomic or microeconomic discourse, broadly defined. Papers that simply rehash class material will receive poor grades; good papers will apply the empirical tools in a rigorous and thoughtful manner. Your chosen econometric methodology need not be groundbreaking, just well done and complete, but you should be identifying and filling a gap in the literature and/or contributing to a scholarly discussion.

The reader should be able to easily recognize the role or purpose, audience, format, and task (RAFT) of your paper. The audience of your essay should be an informed reader, colleague, or peer. You should be a participant in a scholarly conversation. As such, your writing should be academic, technical, maintain a critical distance from the examination, and refrain from personal narratives. Your task should be framed as an interesting problem (TIP). Econometricians are concerned with analyzing data to test the plausibility of economic theory or develop new understandings of human behavior and its consequences for social well-being. Often, econometricians use their analyses to provide policy prescriptions and suggestions for improving welfare. As such, your essay should explain to the reader why the topic is important and the motivation for the analysis.

The other guiding principle of this project is the belief that providing comprehensive replication documentation for research involving statistical data should be as ubiquitous and routine as providing a list of references. Thus, over the course of the semester, you will be required to produce detailed replication documentation for your project, based on the TIER protocol developed by [Project TIER](#) at Haverford College. You should view this documentation as an essential component of how econometricians communicate their research to other scholars. This workflow should be an integral part of your research throughout the entire process – not a discrete task that you postpone until the end. You should begin constructing your documentation before you even start working with data and add to it incrementally as your research progresses. More information regarding this documentation will be distributed early in the semester.

There will be several deadlines throughout the semester, as outlined on the course schedule and presented below. On the day the prompt is administered, you will be given a complete description of the assignment. A rubric will be administered after the prompt to ensure that students do not “write to the rubric.” Instead, the rubric should be a final checking point to confirm that all the relevant information is included.

Table 1: Assignment Due Dates

Task	Prompt Administered	Due Date
Final Paper	January 26, 2017	May 11, 2017 at 2:00 pm.
Research Question & Annotated Bibliography	February 2, 2017	February 14, 2017 at 10:30 am.
Proposal	February 16, 2017	March 2, 2017 at 10:30 am.
Data Collection & Metadata Guide*	March 9, 2017	March 23, 2017 at 10:30 am.
Literature Review	March 23, 2017	April 4, 2017 at 10:30 am.
Data, Methods, & Data Appendix*	March 30, 2017	April 13, 2017 at 10:30 am.
Results & Discussion*	April 13, 2017	April 27, 2017 at 10:30 am.
Research Paper Compilation & Replication Documentation*	April 27, 2017	May 11, 2017 at 2:00 pm.

Cells highlighted in red represent components of the final grade.

Cells highlighted in gray are components of the final paper.

Cells highlighted in blue are NOT components of the final paper but are counted in the project grade.

*denotes that data (.xlsx or .dta) files and/or command (.do or log) files are due at this stage also.

Details and Formatting Guidelines:

- Each written component of the project must be submitted by saving it in your OneDrive Documents folder in Word (.docx) format prior to the deadline.
- Please title each document “Proposal – Last Name” or “Final Research Paper – Last Name” (where “Last Name” is replaced with your last name).
- The final research paper must be submitted by saving it in your OneDrive Documents folder in Word (.docx) format and in your main project folder in *pdf* format prior to the deadline.
 - The maximum page limit is 16 pages, not including a title page or references. Figures and tables should be embedded in the document.
- All documents should be formatted as follows:
 - 12 pt. Times New Roman font
 - 1-inch margins
 - 1.5 spacing (not double spacing)
 - Page numbers in lower right-hand corner
 - Title and name on first page (or title page)
 - APA or Chicago style citations (using author-date for in-text citations)

Additional Information:

Here are some points to keep in mind:

- When in doubt, narrow your topic. It is far easier to extend a seemingly small subject than to adequately summarize a vast subject.

- Good papers may be either normative (advocating a particular position/policy) or positive (describing an issue).
- Your grade will largely depend on the contribution that your paper makes beyond what was discussed in class or in the existing literature.
- Do not neglect your other coursework. If your training in other economics courses or other disciplines provides insight to your topic, then include it in your paper.
- The quality of your writing may affect your paper grade. Keep in mind that this assignment is due during a very busy time of the year. I make no apologies for the fact that a clearly presented paper is likely to score better than a poorly written paper, even if the underlying quality of the econometric analysis is the same. Please utilize campus resources including the ones listed below.
- Remember that your final empirical paper should constitute professional writing.

Evaluation Criterion:

A separate prompt and rubric will be given for each task in the empirical research project. Your project grade is distributed as follows, according to the syllabus:

Table 2: Point Distribution

Task	Points	Percentage of Grade
Final Paper	225	45%
Research Question & Annotated Bibliography	30	13% (of project) 6% (of final grade)
Proposal	20	9% (of project) 4% (of final grade)
Data Collection & Metadata Guide*	35	16% (of project) 7% (of final grade)
Literature Review	30	13% (of project) 6% (of final grade)
Data, Methods, & Data Appendix*	35	16% (of project) 7% (of final grade)
Results & Discussion*	30	13% (of project) 6% (of final grade)
Research Paper Compilation & Replication Documentation*	45	20% (of project) 9% (of final grade)

Cells highlighted in red represent components of the final grade.

Cells highlighted in gray are components of the final paper.

Cells highlighted in blue are NOT components of the final paper but are counted in the project grade

*denotes that data (.xlsx or .dta) files and/or command (.do) files are due at this stage also.

I will provide feedback on each component using track changes in Microsoft word. If you are unacquainted with this resource, please familiarize yourself with the track changes tool: <https://support.office.com/en-us/article/Track-changes-in-Word-197ba630-0f5f-4a8e-9a77-3712475e806a>.

Writing Resources:

In addition, please take full advantage of the writing and research resources available to you at Dickinson College, including the following website:

- http://www.dickinson.edu/info/20158/writing_program/868/resources_for_writers.

Theresa Arndt (arndtt@dickinson.edu) is the economics department contact in Library and Information services. For help with research, finding sources, collecting data, etc., please see:

- <http://libguides.dickinson.edu/c.php?g=56059&p=360030>

Individual sessions at the Writing Center are provided throughout the semester. See the following link for information on how to make an appointment, among other things:

- http://www.dickinson.edu/info/20158/writing_program/567/norman_m_eberly_writing_center

A guide to citing sources is available at:

- <http://libguides.dickinson.edu/citing>

Usually, economists use Chicago or APA citation style. However, if you are familiar with another style that is a common format (i.e. ASA, GSA, and MLA), please talk with me outside of class.

You likely have read several academic articles this semester in economics, either as required readings for other courses or in collecting literature for the annotated bibliography/literature review. These should give you a good idea of how economists write and the format that I expect for this assignment. Of course, you will have to tailor your style and sections to your paper topic. I will also take this time to direct you to several writing guides that I have found to be useful. The following are links to a Guide to Scientific Writing, a Guide to Writing in Economics, and writing tips for economics research papers respectively:

- http://www.aacc.org/publications/clin_chem/ccgsw/Pages/default.aspx#
- <http://lupus.econ.duke.edu/ecoteach/undergrad/manual.pdf>
- <http://www.people.fas.harvard.edu/~pnikolov/resources/writingtips.pdf>

In addition, these two books may be of use:

- McCloskey, Deirdre N. The writing of economics. No. E10-1470. 1987.
- Thomson, William. A guide for the young economist. MIT Press, 2001.

Academic Integrity:

All papers will be electronically analyzed to verify that they constitute original work. I reserve the right to submit your paper to electronic databases that will check for academic misconduct both during this term and in the future. You are required to use appropriate (in-text) citations. This includes giving credit whenever you quote or paraphrase another person's work, or when you borrow their ideas. Restating a sentence does not absolve you of your obligation to give credit. If you need help or have questions, then ask. Failing to properly cite is a common form of unintentional plagiarism and will adversely affect your grade.

Intentional plagiarism is the deliberate or unreasonably careless representation of another's work as your own, either as a portion of your paper or as its entirety. This includes, but is not limited to, purchasing a paper that someone else wrote, using a friend's paper, downloading a paper from the Internet, or knowingly aiding in another student's intentional plagiarism. Intentional plagiarism represents academic misconduct, and I intend to fully pursue all instances.

If you are planning on using a paper from another class as the basis for this assignment, you must clear it with me beforehand. I am not entirely opposed to your doing this, provided that there is a

substantial and new contribution to the paper that is related to this course. Failing to clear this with me, however, may adversely affect your grade. Extreme cases (e.g. handing in exactly the same paper from another class) may be treated as intentional plagiarism.

Academic Integrity and Citation Consultations

The following is from an email sent by Theresa Arndt on 1/16/17:

Librarians are available to consult with students about maintaining academic integrity and avoiding plagiarism while engaging in research projects. Librarians will also help students understand the general principles and basic formatting rules of the citation styles used most commonly on campus.

How Librarians Can Help

For questions regarding bibliographies/works cited lists, librarians will:

- Explain the general rules and logic of the citation format and teach students how to apply a required style to their papers.
- Point out important and unique elements of each citation style.
- Search for patterns of error in a bibliography or works cited list and explain the correct formatting when repeated errors are detected.
- Help students construct a citation for items that don't fit into predetermined categories.
- Provide samples of the style, manuals, or links to further information.

For questions regarding appropriate attribution, librarians will:

- Explain the principles of academic integrity and plagiarism avoidance.
- Explain the general rules of attribution when quoting and paraphrasing (e.g. how and when to apply and format in-text notes vs. footnotes vs. endnotes).
- Search for patterns of inadequate attribution in a paper and explain the importance of academic integrity when evidence of plagiarism is detected.
- Provide samples of appropriate attribution and manuals or links to further information.

Student Responsibilities

Students are expected to uphold Dickinson College's Community Standards. When seeking help from a librarian for citation and attribution, students should be aware of the following expectations:

- Students are ultimately responsible for constructing their own bibliographies/works cited lists and for giving proper attribution to all sources consulted.
- Students must proofread their own work for accuracy and adherence to the correct citation style. Librarians cannot engage in line-by-line editing of a bibliography/works cited list or research paper.
- Students must know what citation style they are required to use for each paper as this will change depending upon the subject and professor. Librarians cannot offer accurate advice

without this information. If in doubt, verify with your professor before meeting with a librarian. This information is often found on your syllabus or assignment prompt.

- Students must keep track of their own research and know what sources they are quoting or paraphrasing, as well as when another's work is consulted in the body of a research paper.

This information is also available on the Citing Sources Guide, found here: <http://libguides.dickinson.edu/citing>.

Project Timeline and Data Workflow

Just as good writing requires forethought and planning, so, too, does effective data workflow and construction of replication documentation. Thus, you should view this project as two interrelated projects happening simultaneously: the writing process AND data workflow. This workflow is designed to help you keep organized and enhance your own understanding of the data processing and analysis you do.

Table 3: Project Timeline and Data Workflow

Dates/Due Dates	Writing Process	Data Workflow
January 23 – February 14	Brainstorm Research Questions/Topics related to your interests.	Explore potential data sources related to these topics. Which variables do you need?
	Find sources. Read them. Engage with them. How can your research contribute to this conversation?	Complete “Pre-Data” work. Construct a hierarchy of empty folders in One Drive and create three blank documents: <ul style="list-style-type: none"> • A ReadMe file • A Metadata Guide • A Data Appendix
	Write Annotated Bibliography and Research Question. Refine the focus of your paper.	Find data. Explore it. Based on the existing literature do you have all the variables you need? If not, find them.
February 14	Submit your Annotated Bibliography and Research Question	Begin “Data Work”
February 16 – March 2	Evolve your thesis statement. Narrow your focus.	Each time you obtain a new file containing data you will use for your project, you should save a copy in your Original Data folder, and record some information about it in your Metadata Guide and ReadMe file.

	Write your Proposal.	Begin writing your “Processing.do” command file as you obtain these original data files. Save this in your Command files folder.
March 2	Submit your Proposal	
March 2 – March 23	Further engage with the sources from your annotated bibliography and all other additional sources as you continue to narrow your focus. Where does your research question fit into the existing conversation? How does it contribute?	After receiving feedback on your proposal, verify you have all the data that you need to address your research question. Begin cleaning and processing in order to generate your base data file, which you should save in your Original Data folder.
	Begin writing your Literature Review. Read it. Does it achieve its goal? Are you engaging with the sources critically and meaningfully or just summarizing? Is it beginning to inform your empirical methodology?	Record information about any additional data in your Metadata Guide and your ReadMe file as necessary. Be sure to document any cleaning decisions that were made during the generation of the base data in your Metadata Guide.
March 23		Submit original data files, base data file, Processing.do command file, and Metadata Guide
March 23 – April 4	Revisit your Literature Review. Is it consistent with your thesis? Does your thesis need to evolve? Does your focus need to be further narrowed or refined?	Begin constructing your analysis data file(s) from your base data file. Document these commands in your Construction.do command file and save it in your Command Files folder. Any new variables, transformed variables, etc. should be generated during this phase.
	Again revisit your Literature Review. Does it motivate your empirical methodology? How is what you are doing different from what others have done? How is it the same? You should have a	Once you’ve completed data construction, save your analysis data file(s) in your Analysis Data folder and immediately begin working on your Data Appendix and compile these commands in

	clear sense of your model specification by this time.	the Summary.do command file and save in your Command files folder.
	Using information already compiled in your Metadata Guide, ReadMe file, and Data Appendix begin writing the Data section of your paper.	Get to know your data. What stands out? Which aspects of the composition of your sample are most relevant?
April 4	Submit your Literature Review	Give your documentation a “check-up”. Is everything there? Have you worked on your ReadMe file?
April 6 – April 13	Revisit the Data section of your paper. Which details about your data does your reader need to know to understand your methodology and the meaning of your results?	Complete your Data Appendix. Be sure that all commands necessary to generate the descriptive statistics, tables, and figures needed for the Data Appendix are included in the Summary.do file. What is most relevant in describing your data? Does your data make sense? Is it in line with expectations? Do you have outliers? What does your reader need to know?
	Develop your regression specification. Write out the equation using the equation editor in Word. What is your explanatory variable of interest? What are your expectations for your estimates? Why?	Which tables, charts, or graphics from your Data Appendix may be helpful to the reader in understanding your data? Which type of chart is most effective in making the point?
April 13	Submit Data & Methods	Submit analysis data files, Construction.do command file, Summary.do command file, and your Data Appendix
April 13 – April 27	After ensuring that you have estimated your model correctly and obtained results, begin interpreting your results. Are they in line with expectations? Are they	Begin analyzing your data. All commands used to generate descriptive statistics, graphics, regression results, and hypothesis testing should be compiled in the Analysis.do command file.

	statistically significant? Are there any surprises?	Every command that generates any of your results should be preceded by a comment that states which result the command generates.
	What can you say about your research question? Provide context for your reader. How should they understand the results?	Generate tables of your results using <code>outreg2</code> . Include these commands in your <code>Analysis.do</code> command file.
	Think big picture about your results. Revisit your results in the context of your research question and thesis statement. Have you answered the question? Likely, you have in some ways and not in others; discuss these. What limitations do you see in your analysis? Were you limited by your data? Did you need more variables? More observations? Are you concerned about unobserved heterogeneity and omitted variable bias? Were you able to effectively deal with problems of heteroskedasticity or serial correlation?	Finish your ReadMe file. You should already have recorded one part of the required information, namely notes explaining any modifications you made to the original data files when you made importable versions of them and generated the base data. To finish your Read Me file, you should add: (1) an overview of all the files included in the replication documentation and the structure of the folders in which they are stored and (2) Step-by-step instructions for using the replication documentation to replicate the study.
April 27	Submit Results & Discussion	Submit Analysis.do command file
April 27 – May 11	<p>Begin construction of your final paper. Most empirical papers include these sections:</p> <ul style="list-style-type: none"> • Introduction • Literature Review • Data & Methods • Results/Discussion • Conclusion • References 	<p>Edit all of your command files to be sure they are accurate, concise, and free of clutter.</p> <p>Have you provided sufficient comments in your command files? Could someone else follow what each command is doing?</p>

	<p>For the most part, you need to simply compile the work you've already done, but do <u>not</u> simply copy/paste them into one document. Your introduction is likely new, perhaps it draws from your proposal, but it should motivate your thesis statement. You'll need to add in transitions between these sections to make the paper more readable and cohesive.</p>	<p>Test your command files to be sure that they all run without error and that they successfully reproduce the results you report in your paper. Try following the instructions for replicating your project that you wrote in the ReadMe file to be sure that all your command files run without a hitch and produce the intended output.</p>
	<p>Check your citations and reference list. Be sure that all sources cited in the paper are listed in the reference list and vice versa. Check to be sure you are consistent with your citation style (Chicago or APA).</p>	<p>Check to be sure your replication documentation is complete. Are all the required files included in your replication documentation, and are they are stored in the correct folders? Finally, delete any extraneous files that are not required and unnecessary for replication.</p>
	<p>Read your paper. Read it again. Does it flow well? Have someone else read it. Do they agree? Revise. Revise. Revise.</p>	<p>Check all documents for accuracy and readability. The ReadMe file, Metadata Guide, and Data Appendix should be well-written, proofread, and formatted.</p>
May 11	Submit Final Paper	Submit Final Replication Documentation