

ECO 625: Milestone Two Guidelines and Rubric

Overview: The final project for this course is designed to guide you through the process of applying the key components of econometrics. In the previous econometrics course (ECO 620), you practiced using regression analysis, which is useful but has some serious limitations and is not appropriate in many settings. As an economist, you will often be asked to analyze data that has serious nonlinearity or is not normally distributed, and you must be able to rise to this challenge. In order to practice the skills involved, you will create a final project in which you will prepare an econometric analysis of a business, policy, or economic issue of your choice, utilizing advanced methods studied in this course (forecasting, nonparametric analysis, maximum likelihood, and so on).

You should choose a topic of personal or professional interest to you. You may revisit the topic you selected in ECO 620 or choose a new topic. A literature review of peer-reviewed publications will be necessary in order to familiarize yourself with possible ways to address the issue empirically, using advanced econometric methods. You will build an empirical model to analyze the issue and use the data to conduct econometric analysis. You will then explain your findings to both technical and nontechnical audiences.

Prompt: Submit a two- to three-page paper that addresses the following questions: What are the quantitative implications and actionable insights of the chosen business, policy, or economic issue? Also, what is the benefit of using *advanced* econometric techniques relative to simpler ones, such as regression? Specifically, the following **critical elements** must be addressed:

I. Data

- A. What **limitations** could your data impose on the choice of empirical method? What are the effects of these limitations?

II. Empirical Approach

- A. What empirical **method(s)** do you propose and why? Why is this method most appropriate and preferable to simpler models, such as regression?
- B. What are the **limitations** of your proposed empirical method? What are possible alternative advanced methods that can be used? Be sure to address causes for these limitations, such as problems with the data or with interactions between variables.
- C. What is your model **specification**? What functional form of data do you use and why?

III. Results and Robustness

- A. What are your **preliminary results** from baseline estimations in the statistical software? What is their relationship with the original hypothesis and research question? Is there a difference between the baseline estimation and the ultimate choice of the model? Discuss.
- B. Which **violations** of the chosen model's assumptions do you anticipate? Which diagnostic tests do you employ to check for presence of violations of model assumptions?
- C. What are your **secondary results** from your test run through the statistical software? Interpret these test results and determine the presence or absence of problems.
- D. Are your results **affected** by the corrections? Are they affected in a significant way (e.g., change of sign of coefficients or change in statistical significance)?

ECO 625: Milestone One Guidelines and Rubric

Overview: The final project for this course is designed to guide you through the process of applying the key components of econometrics. In the previous econometrics course (ECO 620), you practiced using regression analysis, which is useful but has some serious limitations and is not appropriate in many settings. As an economist, you will often be asked to analyze data that has serious nonlinearity or is not normally distributed, and you must be able to rise to this challenge. In order to practice the skills involved, you will create a final project in which you will prepare an econometric analysis of a business, policy, or economic issue of your choice, utilizing advanced methods studied in this course (forecasting, nonparametric analysis, maximum likelihood, and so on).

You should choose a topic of personal or professional interest to you. You may revisit the topic you selected in ECO 620 or choose a new topic. A literature review of peer-reviewed publications will be necessary in order to familiarize yourself with possible ways to address the issue empirically, using advanced econometric methods. You will build an empirical model to analyze the issue and use the data to conduct econometric analysis. You will then explain your findings to both technical and nontechnical audiences.

Prompt: Submit a two- to three-page paper that addresses the following questions: What are the quantitative implications and actionable insights of the chosen business, policy, or economic issue? Also, what is the benefit of using *advanced* econometric techniques relative to simpler ones, such as regression? Specifically, the following **critical elements** must be addressed:

- I. **Description**
 - A. What issue are you addressing? Why is your research question **relevant** to the study of economics?
 - B. Identify the **target audience(s)** for your paper. Is each audience technical or nontechnical? (For example, are they general readers, managers, or political decision makers?) Why would your research be relevant for the audience(s)?
- II. **Literature Review**
 - A. What economic **methods and techniques** have been used to study this issue or a similar one? How has the issue been addressed econometrically? Were these methods and techniques the most appropriate ones for this study? Why is regression unsuitable for this task?
 - B. What are the **hypotheses** you plan to test? How do they translate to empirical models?
- III. **Data**
 - A. What data will you use in your empirical work? What is the **source** of your data? Why is this particular data set appropriate for the study?
 - B. What does your data look like (e.g., summary statistics, scatter plots, etc.)? What **relationships** can be gleaned by simple data screening? What are the implications of these relationships?