COMET: Developing interactive learning modules for hands-on-econometrics skills

Introduction

Applied statistical methods for economics (econometrics) are important skills for the Vancouver School of Economics’ students. However, many students struggle with econometrics, particularly when using these skills with real-world data. This creates problems for them following graduation or in more advanced courses.

Surveys of students showed that, prior to our project, among students completing our econometrics courses:

- Few felt ready to do applied research.
- A majority lacked confidence using applied tools and modelling.
- A large minority had no experience using statistical software or applying econometrics.

These results agreed with faculty members who reported that students struggled to apply econometric skills in later courses.

Module Design

Each module covers a specific topic applied topic from econometrics or a related field. They include:

- A Jupyter Notebook which outlines the topic and guides students through an application using open-source data.
- A set of interactive exercises which provide feedback or provoke deeper thinking.

JupyterNotebooks

Our approach uses Jupyter notebooks, which are a proven pedagogical tool for teaching applied statistics. Notebooks have several benefits:

- They are cross-language, which lets us teach several statistical languages in the same framework.
- They support “literate computing” skills which combine discussion, reflection, and computation.
- They can be run via the cloud, in a web-browser, so students don’t need special software or a good computer to use the notebooks.

The web-based framework also means the tool is easier to use with assistive technologies which make it easier to use and maintain.

Next Steps

In our final year, we are planning to:

- Get students more involved in developing and improving notebooks by making the code more accessible.
- Developing notebooks on selected advanced topics, like using AI models.
- Creating a “Teaching with Jupyter” series to help new faculty use these tools.
- Improving and automating our development process to make it easier to use and maintain.

We are also doing a Universal Design for Learning project with these notebooks to make them more accessible.

Interested? Get Involved!

As part of our project we are interested in helping students and faculty learn more about these kinds of frameworks, and their use in classrooms. We are happy to help support you!

- We offer workshops, advice, and development support for new notebooks.
- Get in touch via comet.project@ubc.ca

Try it out at comet.arts.ubc.ca

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