Peer Feedback in Econometrics II

March 13, 2019

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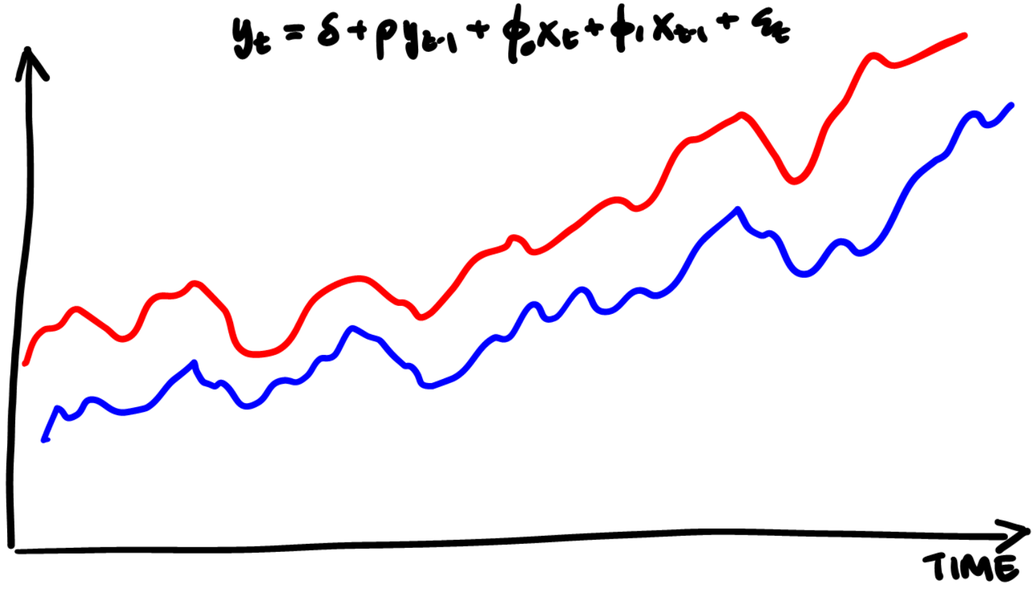
From 2015 to 2018, I taught Econometrics II,
a third-year BA course with 80/250 students.
The course teaches statistical methods
to Economics students.



I completely restructured how the course was taught

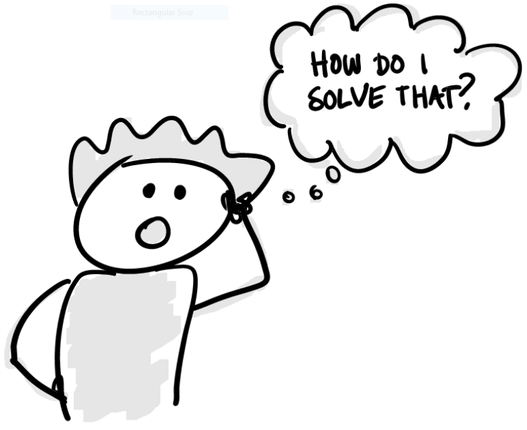
Focus on case-based assignments, active learning, and extensive feedback

“Learning results from what the student does and thinks,
and only from what the student does and thinks.

The teacher can advance learning
only by influencing the student to learn.”

— Herbert Simon

The “Deliberate Practice” Loop

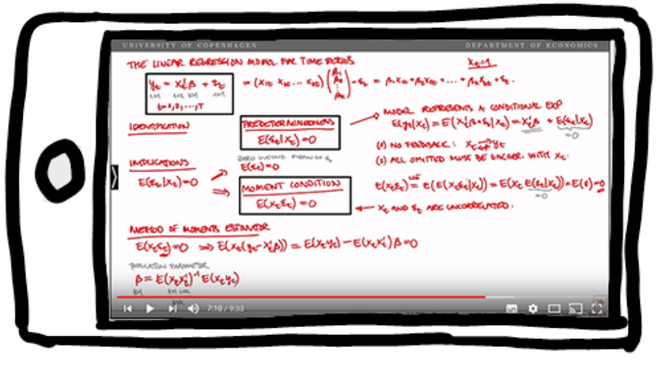


Student activity
Quiz, exercise, discussion, assignment.

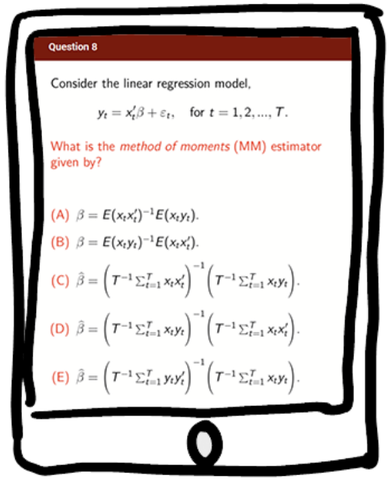
Feedback
Automatic feedback, peer feedback, teacher feedback.

Revise and Improve
Re-do quiz or exercise in new context.
Revise assignment.

Students must prepare for lectures



Read 10 pages in lecture note and watch a 10-minute video explaining the topic.



Complete an online review quiz with 5-10 multiple choice questions.

Submit questions and comments on hard parts on online discussion forum.

Review Quiz 1-02: The Linear Regression Model and the Method of Moments Estimator (9 questions)

Due Sep 6, 2018 at 1:15pm **Points** 9 **Questions** 9
Time Limit None **Allowed Attempts** Unlimited

Instructions

This quiz reviews the introduction to the linear regression model, identification in the model, and the derivation of the method of moments estimator. The content is covered in:

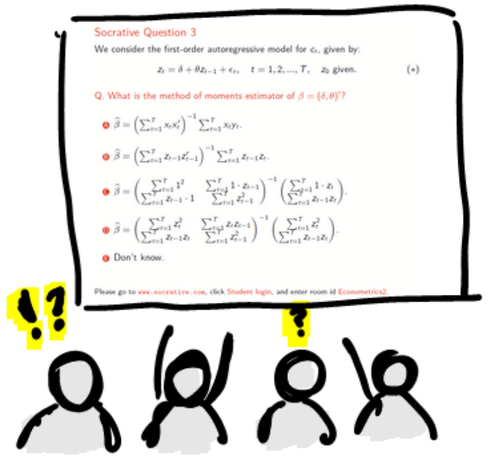
- Lecture Note 2, Linear Regression with Time Series Data, sections 1-3.2, p. 1-8.
- Video: The Linear Regression Model and the Method of Moments Estimator (10 minutes).

Quiz Summary

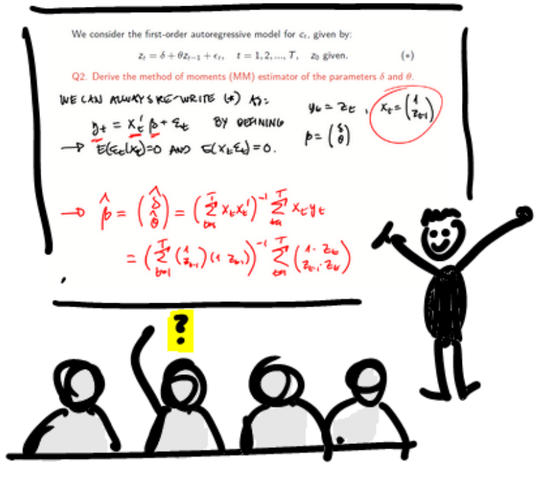
Section Filter ▾ | Student Analysis | Item Analysis

Average Score	High Score	Low Score	Standard Deviation	Average Time
75%	100%	0%	1.91	03:57:39

Students are activated during “lectures”



Complete Socrative quizzes with peer discussion reviewing key concepts covered in video.



Work on mini-exercises guiding them through theoretical problems, while I give feedback.

Listen to my answers to questions, follow-ups on quizzes and exercises, and mini-lectures.

Socrative Question 3

We consider the first-order autoregressive model for c_t, given by:

$$z_t = \delta + \theta z_{t-1} + \epsilon_t, \quad t = 1, 2, ..., T, \quad z_0 \text{ given.} \qquad (*)$$

Q. What is the method of moments estimator of $\beta = (\delta, \theta)'$?

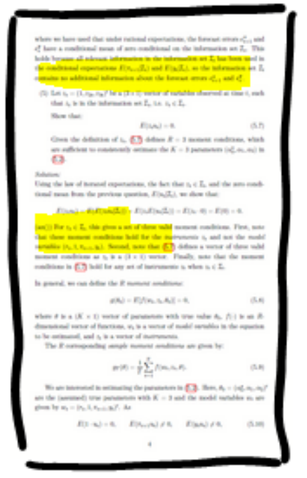
- (A) $\widehat{\beta} = \left(\sum_{t=1}^{T} x_t x_t'\right)^{-1} \sum_{t=1}^{T} x_t y_t.$
- (B) $\widehat{\beta} = \left(\sum_{t=1}^{T} z_{t-1} z_{t-1}'\right)^{-1} \sum_{t=1}^{T} z_{t-1} z_t.$
- (C) $\widehat{\beta} = \begin{pmatrix} \sum_{t=1}^{T} 1^2 & \sum_{t=1}^{T} 1 \cdot z_{t-1} \\ \sum_{t=1}^{T} z_{t-1} \cdot 1 & \sum_{t=1}^{T} z_{t-1}^2 \end{pmatrix}^{-1} \begin{pmatrix} \sum_{t=1}^{T} 1 \cdot z_t \\ \sum_{t=1}^{T} z_{t-1} z_t \end{pmatrix}.$
- (D) $\widehat{\beta} = \begin{pmatrix} \sum_{t=1}^{T} z_t^2 & \sum_{t=1}^{T} z_t z_{t-1} \\ \sum_{t=1}^{T} z_{t-1} z_t & \sum_{t=1}^{T} z_{t-1}^2 \end{pmatrix}^{-1} \begin{pmatrix} \sum_{t=1}^{T} z_t^2 \\ \sum_{t=1}^{T} z_{t-1} z_t \end{pmatrix}.$
- (E) Don't know.

Please go to www.socrative.com, click Student login, and enter room id Econometrics2.

Students solve theoretical problems during exercises

Videos explain general principles, but typically in a slightly different context.

I and the teaching assistants provide feedback and review solution to key steps.



Detailed written solution provided afterwards.

Home
Modules
Announcements
Assignments
Quizzes
Discussions
People
Peer feedback

Schedule

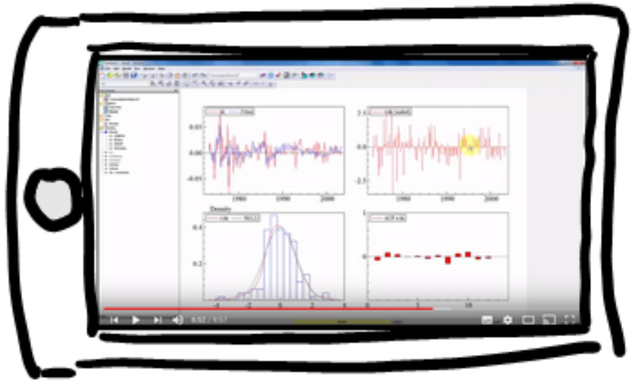
Show/hide Topic 1 | Show/hide Topic 2 | Show/hide Topic 3
Show/hide Topic 4 | Show/hide Topic 5

TUESDAY, OCTOBER 9 | 8:15 TO 10:00 | CSS 35.01.05

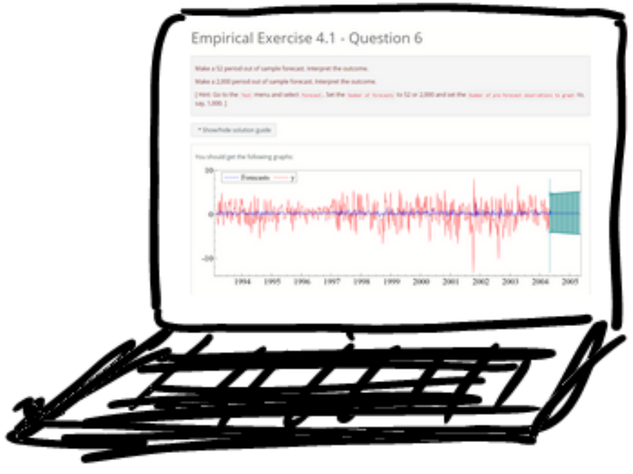
Theoretical Exercise 6: Unit Roots in Autoregressive Models

All students and teachers meet in CSS 35.01.05 in the basement of

Students solve empirical problems during exercises



Screencast videos explain how to use the statistical software.



Online tutorials guide students through the steps of empirical analyses.

Teaching assistants provide focused feedback on the difficult steps.

Empirical Exercises 3B: Cointegration

The empirical exercises in this course are created to help you carry out the empirical analyses required for the assignments. The exercises provide step-by-step instructions on how to estimate the various models in OxMetrics, how to interpret the results, etc.

If you find that you don't need to complete the empirical exercise, spend your time wisely and just work directly with the assignment.

Below, you can download a pdf-document with the empirical exercise.

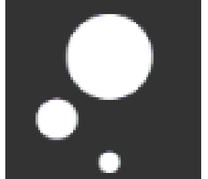
Empirical Exercises 3B.pdf.

Data and OxMetrics Program

Five case-based assignments with peer feedback

Five case-based assignments with peer feedback

Portfolio exam based on three of the assignments



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2200-E18;Econometrics II > Assignments

Search for Assignment

SHOW BY DATE | SHOW BY TYPE

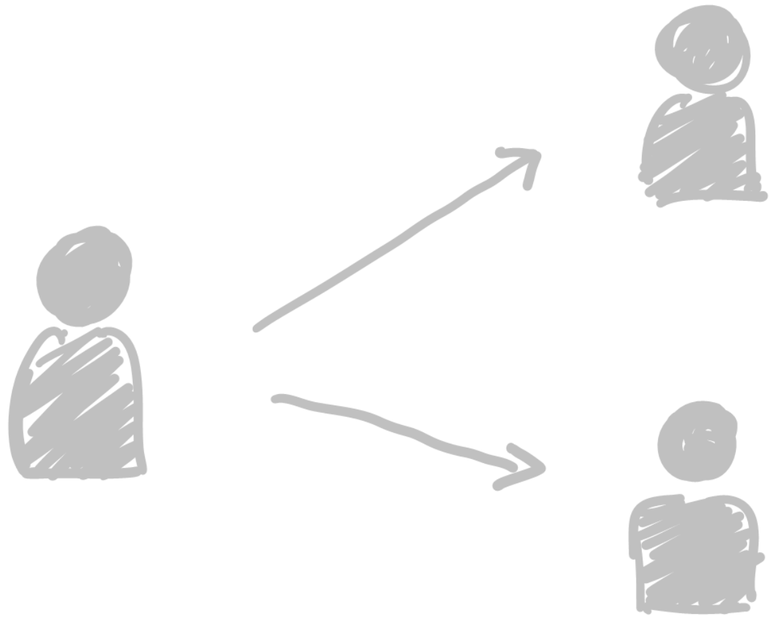
Assignments

Assignment 1: Nominal Wage Growth
Due Sep 22, 2018 at 11pm

Assignment 2: Forecasting GDP Growth
Due Oct 6, 2018 at 11pm

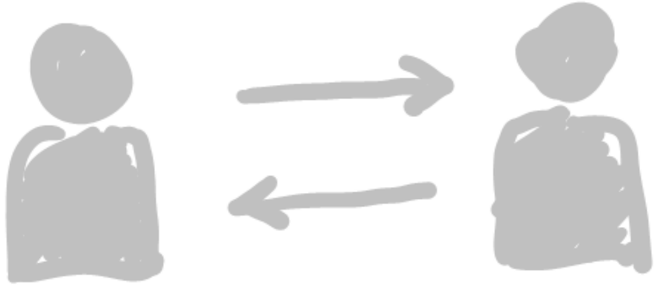
Assignment 3: The Effects of Housing and Financial Wealth on Consumption
Due Nov 3, 2018 at 11pm

Assignment 4: Surprise Trading Volume and Heteroskedasticity in Equity Market Returns
Due Nov 17, 2018 at 11pm

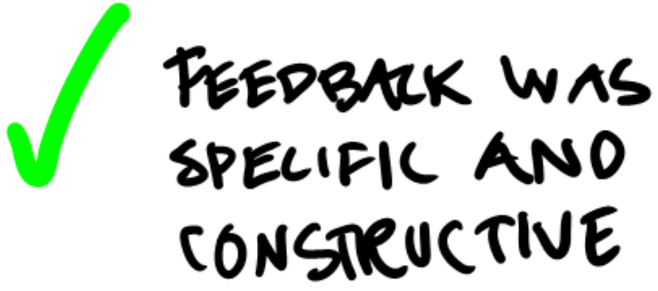


After handing in an assignment, each student must provide written feedback to two peers.

peergrade



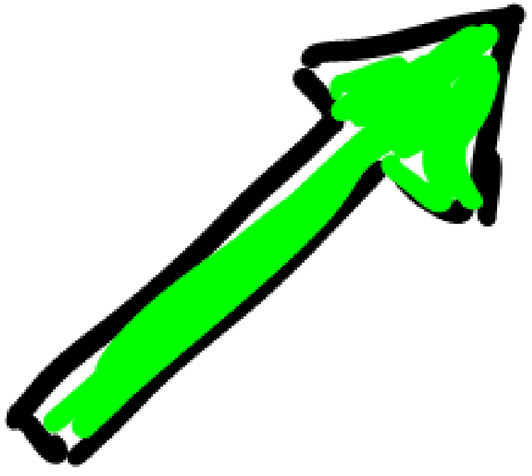
Anonymous feedback.



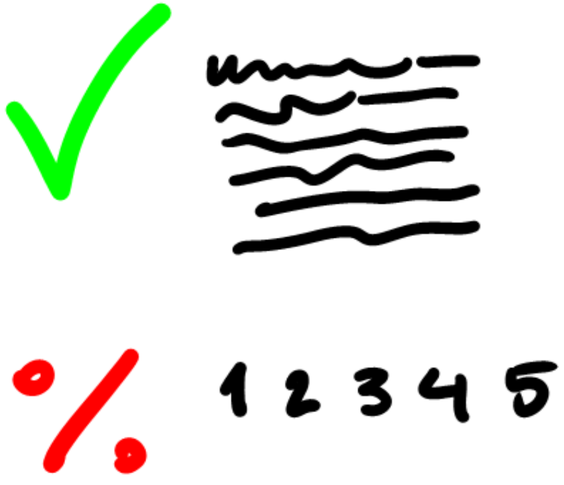
Students must rate the quality of the feedback they receive.

Students can “flag” problematic feedback for the teacher to comment.

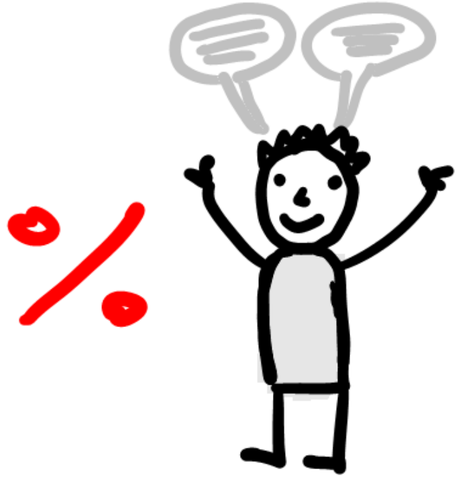
Written feedback based on rubrics linked to the assessment criteria



Focus on what can be improved.



Only comments.
No grading or scores.



No individual feedback from teachers.

Problem | Download

Submission #1 | COMPLETED 2 / 2

Assignment 3: The Effects of Housing, Income, and Financial Wealth on Consumption

November 3, 2018

1 Introduction

In this paper, we estimate the cointegration relation between consumption, income, housing wealth, and financial wealth using an ADL model approach. Macroeconomic theory suggests that private consumption is closely linked to financial and housing wealth aswell as disposable income. As private consumption is the largest demand component, we wish to test this relationship. The analysis is based on quarterly data for private consumption, income, financial and housing wealth for the US from 1975(3)-2011(4). We conclude that the variables cointegrate, and a rise in income and housing/financial wealth implies a rise in consumption. A rise in income is concluded to have by far the largest effect on long run consumption levels. We estimate that a 1% increase in income results in a 0.92% increase in consumption while housing wealth will only contribute to a 0.01% [illegible]tion seems to converge towards an equilibrium, correcting 15.[illegible] each period.

What To Include in the Econometric Theory Section?

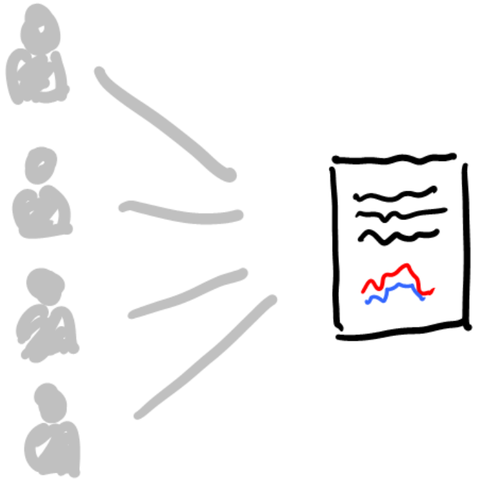
The presentation of the econometric theory should include:

1) A precise definition and interpretation of the model considered and its properties.

2) A precise description of the estimator used. In particular, a precise account for the assumptions used to derive the estimator should be given.

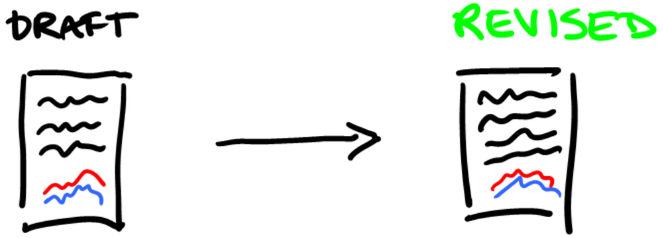
3) A precise presentation of the necessary assumptions for consistent estimation and valid inference. This includes a precise presentation of the null hypotheses, test statistics, and asymptotic distribution used to test relevant hypotheses.

Students receive feedback and can use it to improve their assignments



Each assignment receives feedback from four peers.

I follow up with collective feedback based on representative examples.



The feedback can be used to improve the assignments for the exam.

“To me peer feedback was great in terms of reflecting
over both the assignments which I gave feedback to,
but also over my own assignments because it gave me
other perspective to how the given assignment could be solved.”

— Comment from student in end-of-semester evaluation, December 2018

What did we achieve?

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Much higher student motivation and engagement.

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Students train critical thinking and ability to write an academic paper.

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Much higher learning outcome self-reported by students.

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Much higher student motivation and engagement.

Students train critical thinking and ability to write an academic paper.

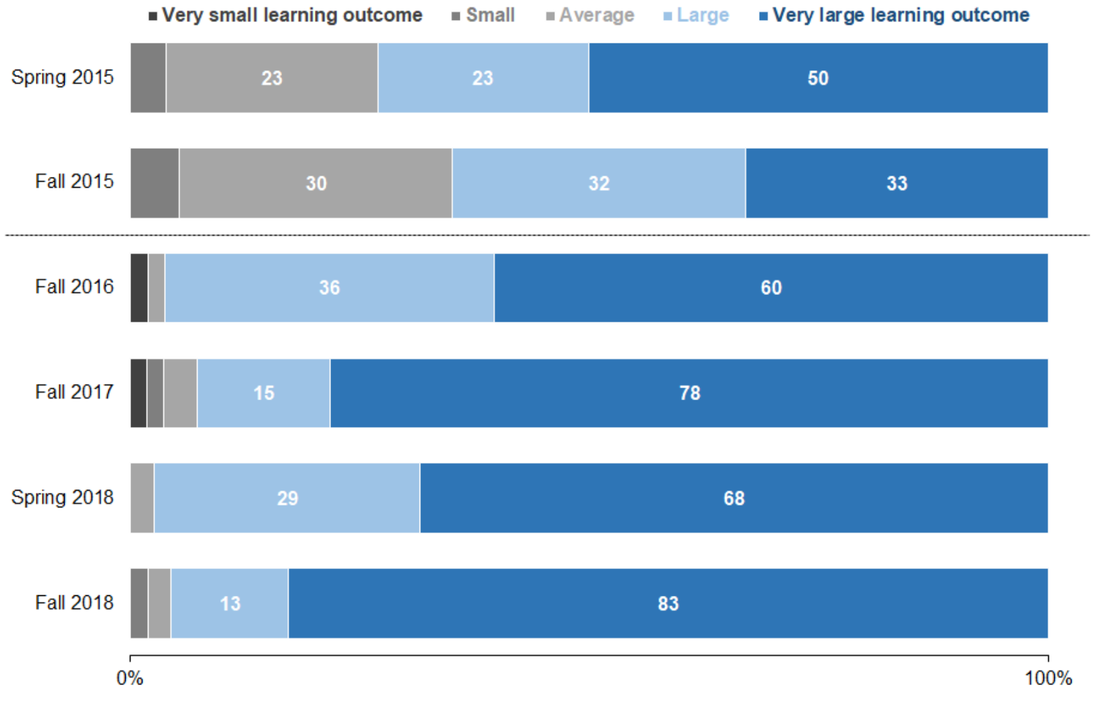
Much higher learning outcome self-reported by students.

Higher grades and lower failure rate despite assessment at a higher taxonomy.

“I have never learned as much from a course as Econometrics II.
While it was sometimes theory heavy, I have learned to apply
the theory with a critical mindset and to write academically.
The course structure facilitated the learning in an excellent way,
and it was always clear what we were expected to do.”

— Comment from student in end-of-semester evaluation, December 2018

The students' learning outcome increased



Three tips for making peer feedback work

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Clearly explain students why you use peer feedback
(extensive meta-communication) and follow up with collective feedback.

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Use comments-only rubrics linked to assessment criteria and
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Use comments-only rubrics linked to assessment criteria and
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Embed peer feedback in the course structure and
ensure students re-submit after peer feedback (e.g. portfolio exam).

Thanks for your time!