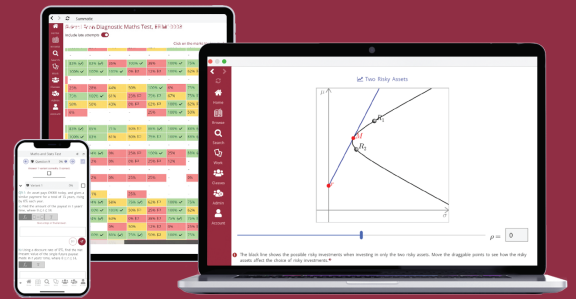


# Online Econometrics Assignments



Summative provides online questions and learning resources for **intermediate econometrics**. Our platform's **comprehensive and flexible assignments** can be used for a variety of purposes, including in-course assignments and diagnostic, formative, and summative assessments.

Our questions have been developed by econometricians at the **University of Cambridge** and are used by hundreds of students at the **National University of Singapore**.

## AUTHENTIC QUESTIONS

Ask questions that go beyond multiple-choice. Students attempt full worked problems, and our platform allows students to answer with **formulas, equations, matrices, and more**.

With access to **randomly generated datasets**, students can apply econometrics techniques to analyse data in their statistical package of choice.

### Full Worked Problems

Q1.1: Data on average test scores and average sleep duration  $S$  for a random sample of 190 sixth form students yields the following regression:

$$\widehat{\text{Test Score}} = 0.98S + 61, R^2 = 0.83, SER = 4.29$$

With standard error for slope, 0.03, and intercept, 5.07.

a) (Weight: 1) Construct a 95% confidence interval for the regression slope coefficient.

At 95% confidence level, we have the confidence interval  
 $(\hat{\beta} - SE(\hat{\beta})(1.96), \hat{\beta} + SE(\hat{\beta})(1.96)) = (0.92, 1.04)$

Attempt 1  
 $(0.98 - 0.03 \cdot 1.96, 0.98 + 0.03 \cdot 1.96)$  ✓...

Attempt 2  
 $(0.9212, 1.0388)$  ✓...

Attempt 3  
 $(0.92, 1.04)$  ✓ +100%

### Varied Question Types

a) (Weight: 1) Drag the points to specify a line which is close to minimizing the sum of squared residuals, where  $x$  is used to predict  $y$ . Your answer should be within 0.5 of the minimum possible sum.

### Generated Datasets

Variant 1 0% ?

Open Dataset

Q1.1: The dataset contains observations  $X_i$  and  $Y_i$ . We will test the hypothesis that  $Y$  is linearly dependent on  $X$  ( $Y_i = \beta_0 + \beta_1 X_i + u_i$ ) against the alternative that  $Y$  is a quadratic function of  $X$  ( $Y_i = \beta_0 + \beta_1 X_i + \beta_2 X_i^2 + u_i$ ).

a) (Weight: 1) Running a regression using the quadratic specification, what is the estimated coefficient on  $X^2$ ?

## AUTOMATIC MARKING

**Save time marking** and provide students with instant feedback to understand where they may have gone wrong approaching problems.

View student attempts and scores with our **detailed performance analytics** to identify areas of strength and weakness amongst your cohort. Marks can be synchronised to your **Learning Management System**.

**Question coverage** includes all common topics in intermediate econometrics to provide a full theoretical and practical grounding in concepts including:

Probability  
Statistics  
Linear Regression

Hypothesis Tests  
Confidence Intervals  
Panel Data

Binary Variables  
Instrumental Variables  
Time Series

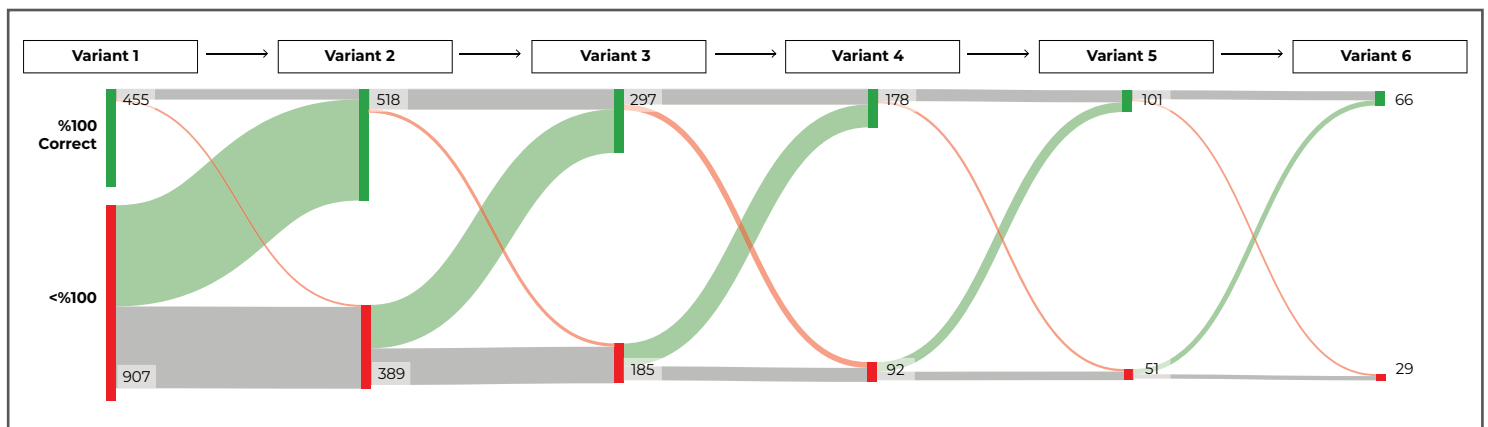
Questions are **textbook aligned** and can be organized and customized to match any course.

## IMPROVEMENT THROUGH RANDOMIZED PRACTICE

Summatic provides **instant feedback** on question attempts **along with worked solutions**, so students can deduce exactly where they went wrong and correct their answers. If students do not get a question completely right, they can also attempt **randomly generated question variants** until they have mastered the method.

The graph below shows **very strong learning** from one variant to another: the upwards diagonals represent students who failed to get a method right but were able to pick it up with the next variant.

**Randomized Variants and Student Progress**



## PROVEN STUDENT ENGAGEMENT

Students appreciate the ability to progress independently using question variants and learning resources with Summatic.

For example, in our support of **Cambridge Judge Business School**, an average of **391 question attempts per student** demonstrated extremely high engagement with assessments and learning resources amongst the cohort.

Students attempted **63% of these questions** on learning resources **outside their assigned assessment**, reporting that Summatic served as a value-enhancing tool for supporting their independent learning process.