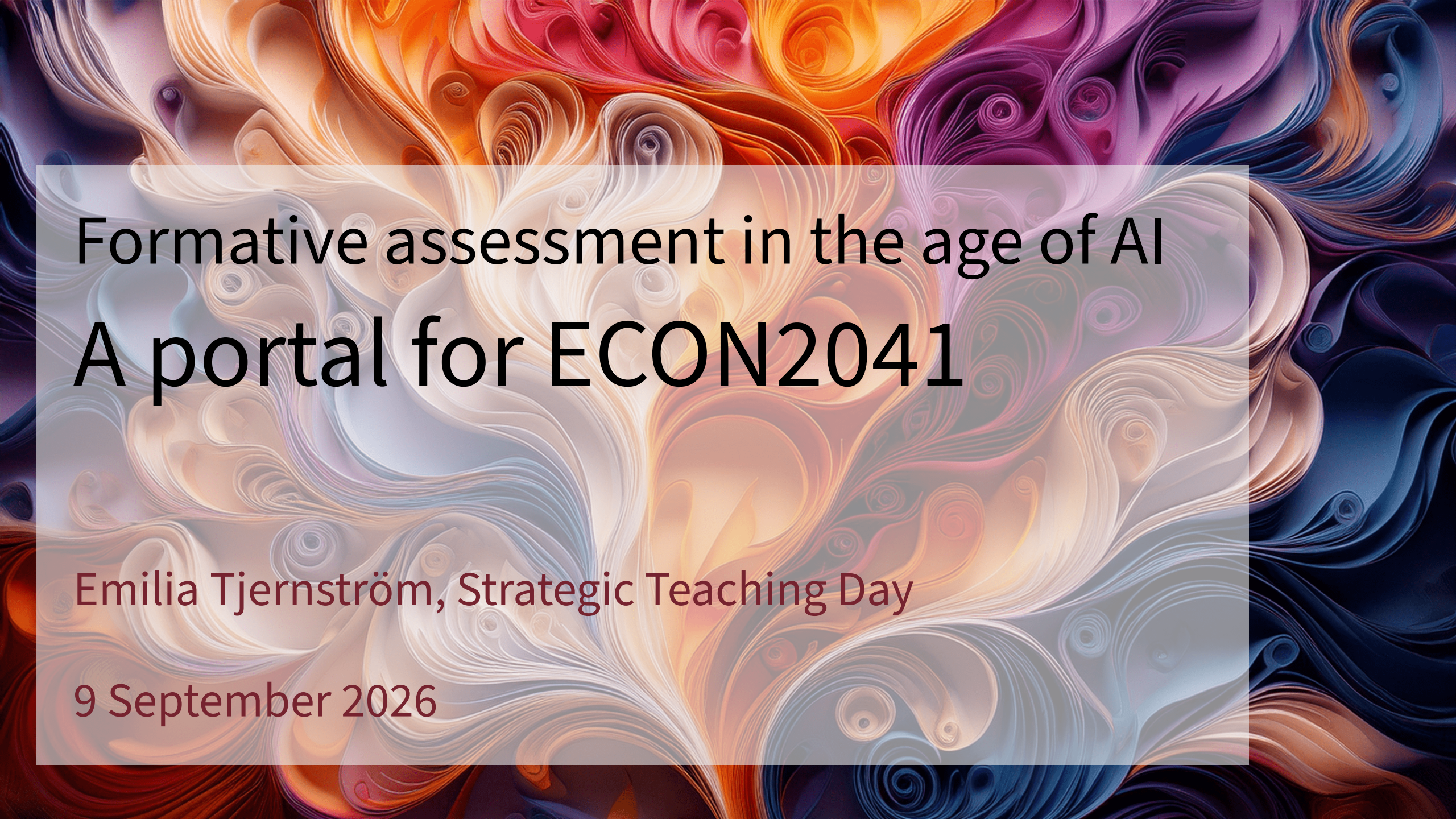




Formative assessment in the age of AI

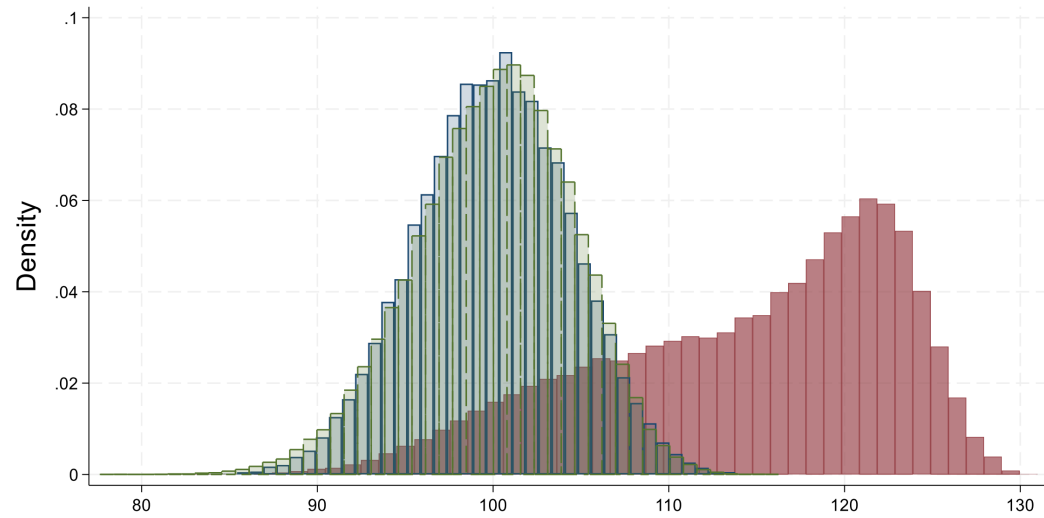
A portal for ECON2041

Emilia Tjernström, Strategic Teaching Day

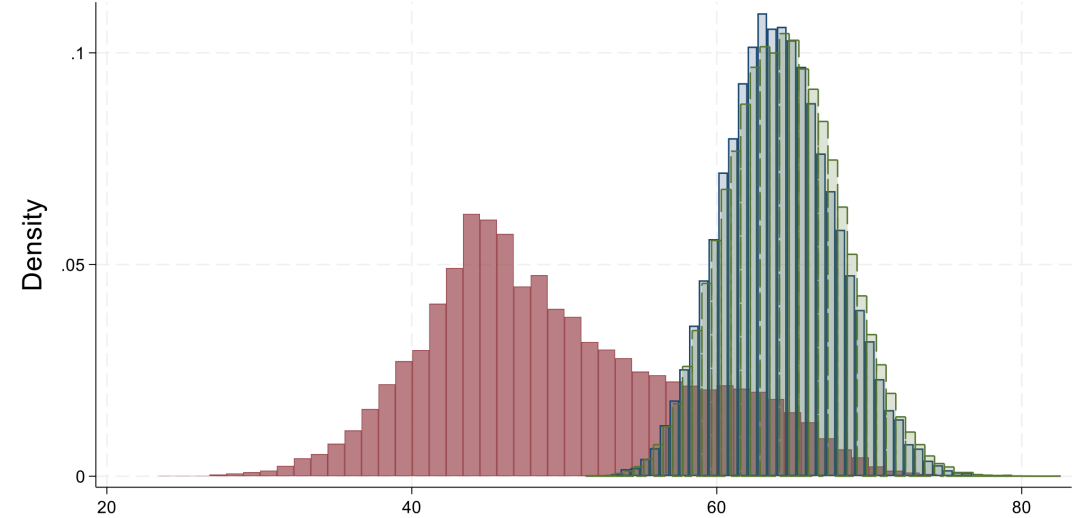
9 September 2026

The case for low stakes

AI: homework marks $\uparrow$, exam marks $\downarrow$



Homework score (100 = sample mean)



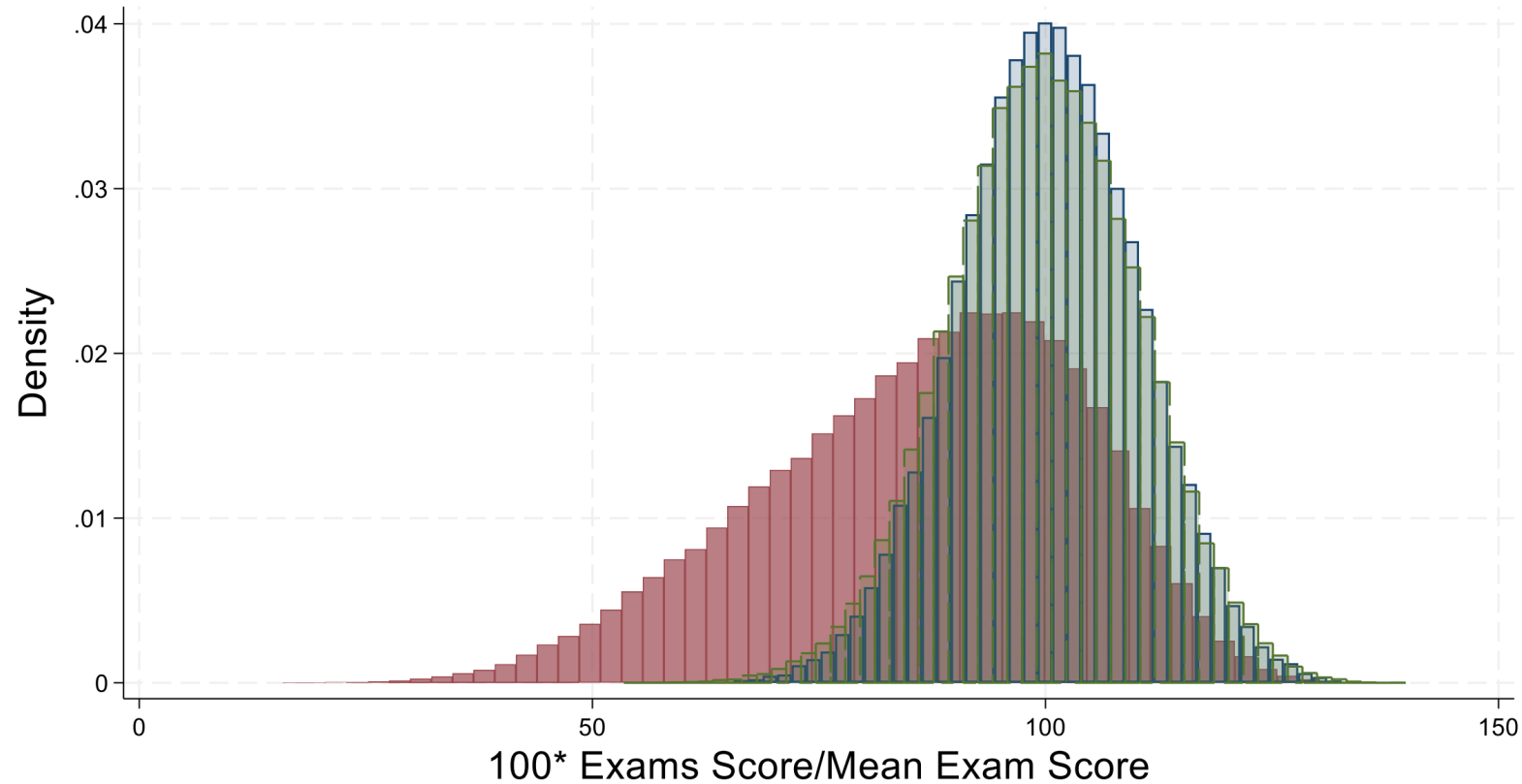
Homework completion time (minutes)

Red: after adoption

Green: adopters before adoption

Blue: never-adopters

AI: homework marks $\uparrow$, exam marks $\downarrow$



4 in 5 AI users look like they're "outsourcing"

Removing the incentive to outsource

I built a portal with lecture activities & practice questions

Without grades, students have less of an incentive to "outsource"

A wrong answer costs the student nothing (but tells me what they're struggling with!)

Design choices: "login" with a persistent pseudonymous code (no account)

Retrieval practice with feedback

Low-stakes formative assessment with feedback, spread out over time > re-reading notes

My practice bank replicates this: ungraded, feedback on every answer, open all semester

Not "assessment of learning," so "Open" vs. "Observed" is moot

What it looks like & your turn

What students see: lecture & practice

ECON2041 portal

CALM-SHREW

LecturePractice

REVEALED

W6 pokies predictions

Data from the Victorian Gambling Commission: 79 Victorian LGAs. What do you think the data will tell us?

How strong do you think the correlation is between pokie density and per-adult gambling losses?: **0.63**

Which variable would you guess correlates most strongly with per-adult gambling losses across the 79 LGAs?: **Unemployment rate**

If we compare LGAs with different levels of unemployment, do you think gambling losses in the higher-unemployment areas will be...: **Higher**

See the result

REVEALED

Theme vote

[illegible]

Practice questions

ECON2041 portal

CALM-SHREW

Lecture

Practice

← All topics

PRACTICE Research questions and data

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Draw three questions

ECON2041 portal

CALM-SHREW

LecturePractice

[← All topics](#)

PRACTICE Research questions and data

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What kind of data?

The OECD's PISA study tests 15-year-old students, and a file contains Australian students from the 2012, 2018, and 2022 rounds, one row per student.

Time series

Cross-sectional

Pooled cross-section

Panel

What kind of research question is this?

"How many students will enroll at Macquarie next year?"

Descriptive

Forecasting

ECON2041 portal

CALM-SHREW

Lecture

Practice

← All topics

PRACTICE Research questions and data

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You got 2 of 3.

What kind of data?

The OECD's PISA study tests 15-year-old students, and a file contains Australian students from the 2012, 2018, and 2022 rounds, one row per student.

Correct. Pooled cross-section

Several rounds are stacked, but PISA tests 15-year-olds, so a student from 2012 is 25 by 2022 and cannot appear twice. Multiple years alone do not make a panel; a panel needs the very same units observed repeatedly.

What kind of research question is this?

"How many students will enroll at Macquarie next year?"

Correct. Forecasting

It asks about a future value with nobody intervening, so the job is to predict rather than to explain.

What kind of data?

Your turn: guess some stats



emiliatjernstrom.com/econ2041/td/portal.html?guest=1

Use the sliders to guess

- the total number of questions attempted
- the time spent on the portal (unconditional & conditional)

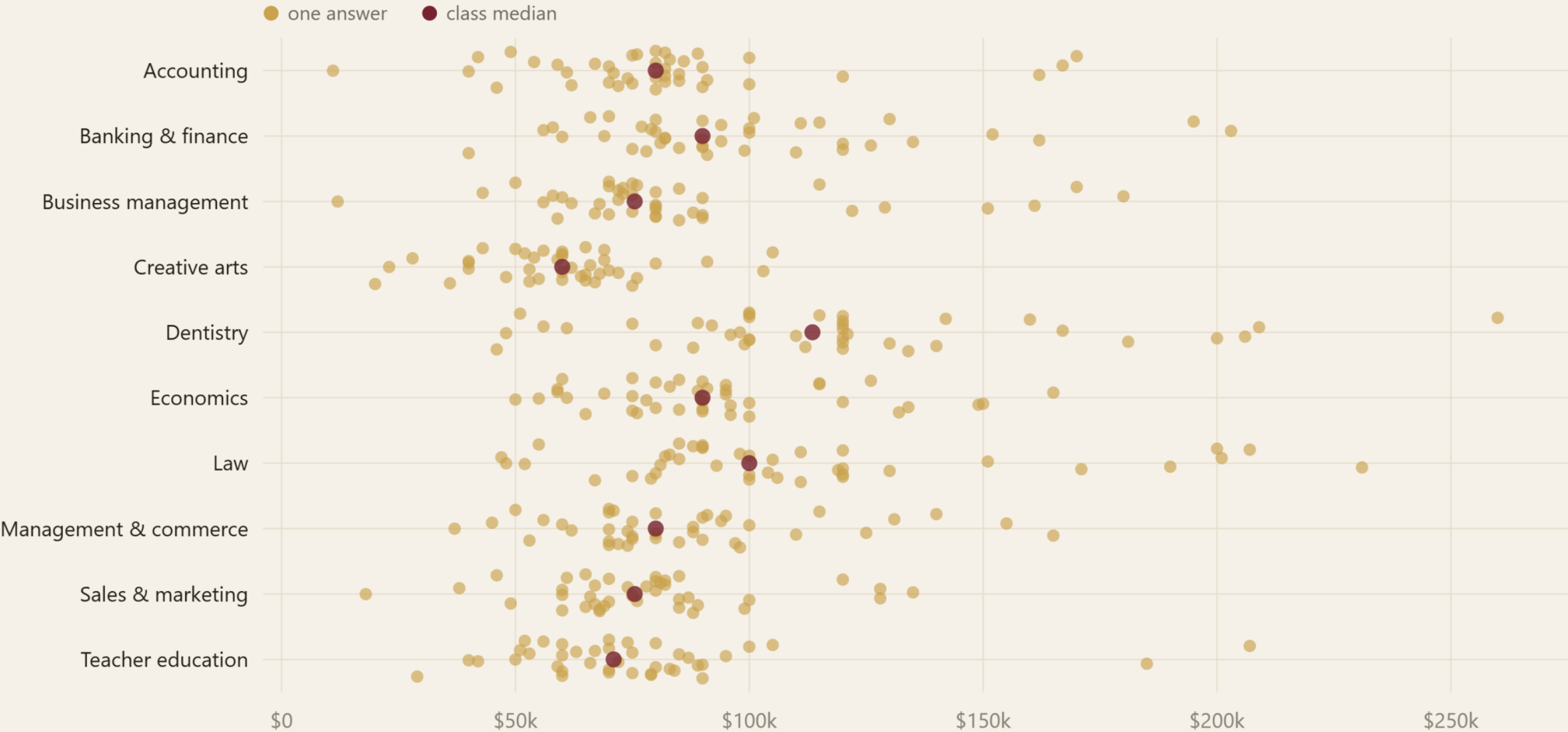
About 270 students in the unit

Practice questions open for 2 weeks before quiz

Student activity

Class aggregate Salary prediction game N = 40

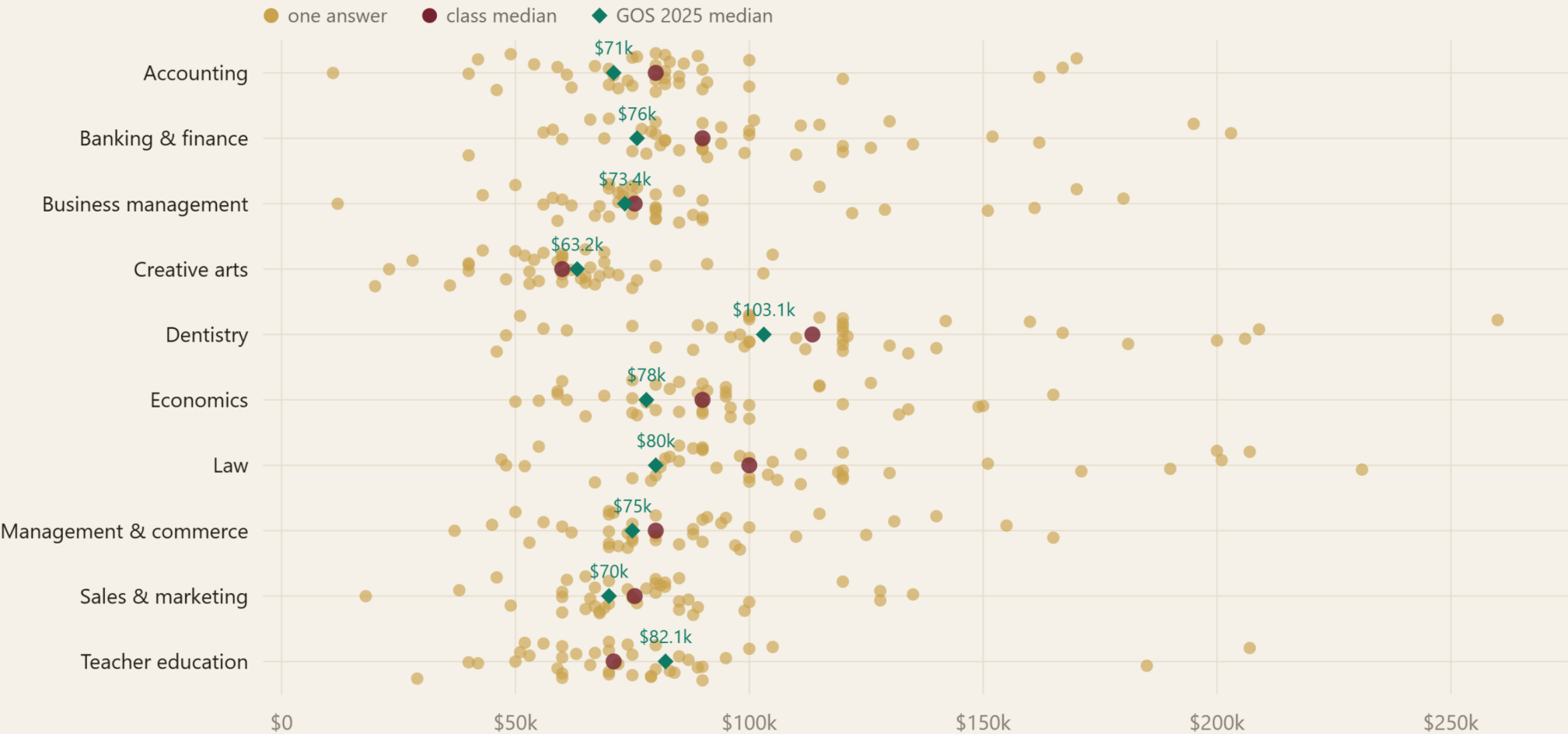
What does the median new graduate earn? For each of the below majors, use the sliders to enter your best guess for a 2025 graduate's yearly salary about five months after they finished their degree.



Reveal the real numbers

Class aggregate Salary prediction game N = 40

What does the median new graduate earn? For each of the below majors, use the sliders to enter your best guess for a 2025 graduate's yearly salary about five months after they finished their degree.



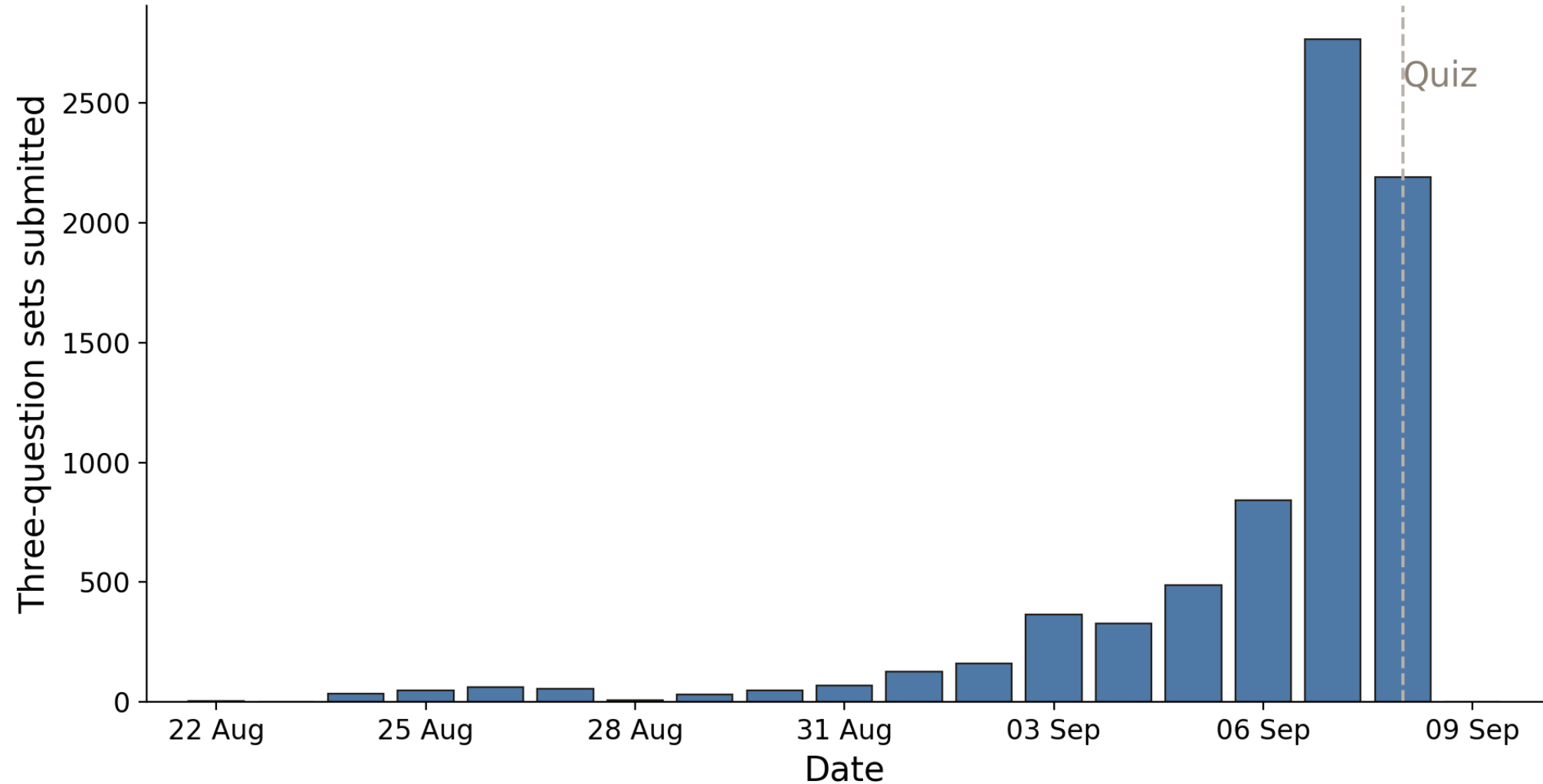
Hide the real numbers

- Biggest overestimate: **Law** (class median \$100k, real \$80k)
- Biggest underestimate: **Teacher education** (class median \$71k, real \$82.1k)
- Real spread across fields: **\$39.9k**

Wage data: Graduate Outcomes Survey 2025 medians

Two weeks of practice data

Two weeks of use



Portal dashboard as of 9 September; each set is 3 questions

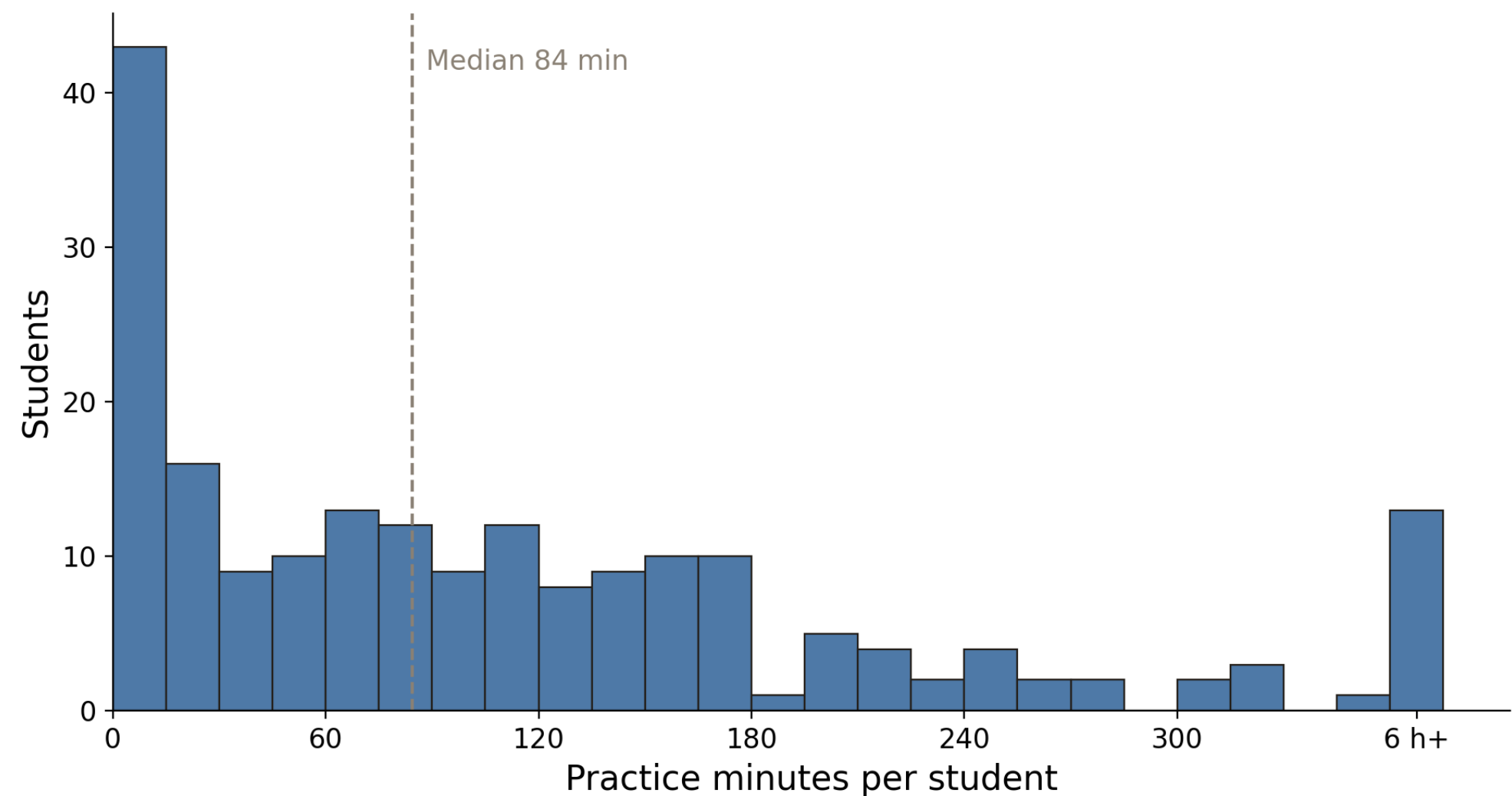
Use skyrocketed before the quiz

201 students (codes) have submitted practice, answering 16,460 questions between them

194 of those codes were active in the past 7 days

7,142 of the 7,633 sets were drawn in the past 7 days

Practice time, conditional on use



Gaps between a code's submissions, minus minutes with the tab hidden, a new sitting after 30 idle minutes; 200 codes as of 9 September

What I've learned so far

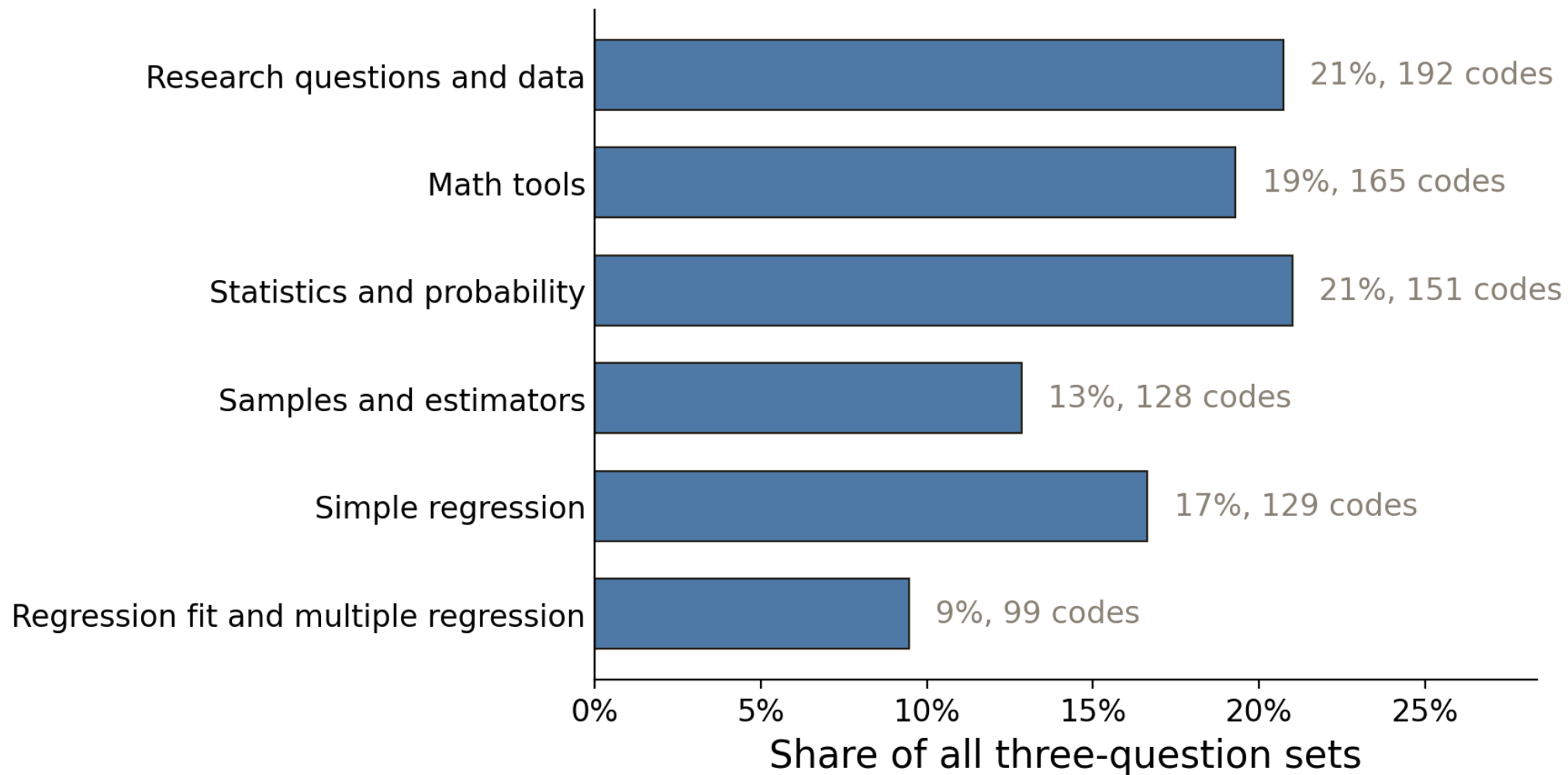
Engagement beyond attendance

About 45 of 270 students come to the live lecture

201 students have engaged with the practice questions

I see how much, when, and on which topic (whether or not the student attends)

Which topics students choose



Portal dashboard as of 9 September; the last 3 topics opened later than the first 3

Which questions students get wrong

Topic	Codes	Right first try
Research questions and data	192	70%
Math tools	165	74%
Statistics and probability	151	68%
Samples and estimators	128	72%
Simple regression	129	69%
Regression fit and multiple regression	99	63%

I explained the questions with the lowest first-try success in a mini-recording

Student feedback

“*The practice questions have been extremely helpful; I have made my way through some today and will continue to do so whilst reviewing this week's lecture.*”

“*The questions have definitely highlighted some spots where I need to do some extra revision, which is helpful to know now 2 weeks before the quiz, rather than the night before!*”

What I don't know yet

Have the practice questions changed how students prepare for the quiz?

Will students return after the quiz, and for how long?

Are the students who practice the ones who needed to?