T407016 // AUTUMN 2026 // UNIVERSITÉ DE GENÈVE

COMPARATIVE POLITICS

Complement 02. Reading regression tables.

TUE 17 NOV 2026 | UNI MAIL M2170 | DR. JIHYE PARK

NO READING TODAY

Four tables you have already met

SESSION 02 · HANSON AND SIGMAN

Tables 4 and 5 test whether Capacity predicts development outcomes once wealth is held constant.

SESSION 05 · CHEIBUB AND LIMONGI

Table 3 gives the yearly chance that a democracy breaks down, by regime, party system and coalition.

SESSION 06 · CAREY AND HIX

Tables 1 and 2 relate district magnitude to four outcomes, with and without country fixed effects.

SESSION 08 · GILENS AND PAGE

Table 3 sets average citizens, economic elites and interest groups against each other.

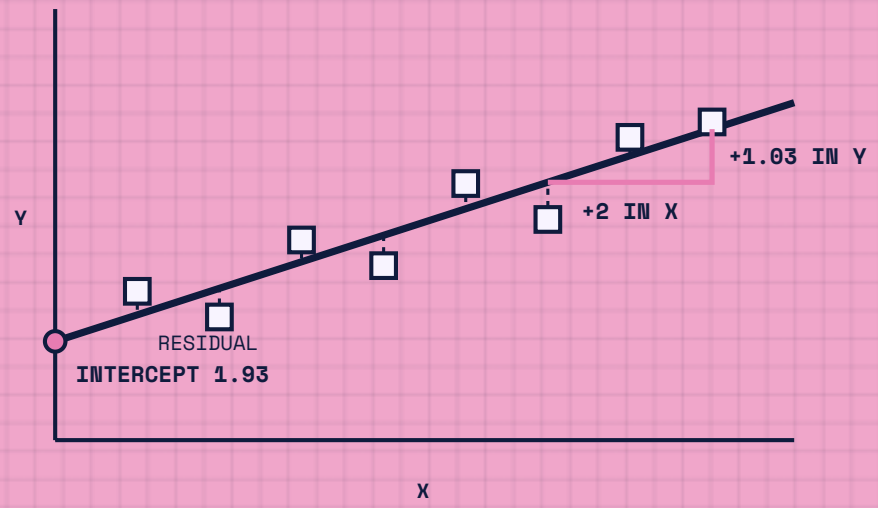
Session 08 kept the coefficients rough. **Today we read every line.**

ORDINARY LEAST SQUARES

What a regression does

$$Y = a + bX + error$$

The points are invented



01 OLS draws the straight line that makes the squared vertical gaps between points and line, the residuals, as small as possible.

02 The slope is the coefficient. Here one more unit of X goes with about .52 more units of Y. The intercept is the constant, the predicted Y where X is zero.

03 With several predictors, OLS fits all the slopes at once. Each coefficient is then the slope of its own X with the other predictors held constant.

Hanson and Sigman's and Carey and Hix's tables come from OLS. **Every coefficient in them is a slope of this kind.**

HANSON AND SIGMAN · TABLE 5, COLUMN 1

Anatomy of a table

	01 INFANT MORTALITY, 2010
Capacity, 1960	02 **-12.15**** 03 (3.13)
ln GDP per capita, 1960	**-7.27**** (1.69)
Democracy, 1960 to 2010	**-9.40** (7.39)
Tax revenue, 1960 to 2010	**-.26** (.28)
Constant	**95.29**** (14.32)
05 N	**148**
R^2	**.53**

04 ^ p < .10 · * p < .05 · ** p < .01

01 The column names the outcome, here infant deaths per 1,000 births.

02 The coefficient. How much the outcome moves with one more unit of the predictor, the other rows held constant.

03 The standard error. How far the estimate would typically wander in another sample.

04 Stars mark p-value cut-offs. Only the note says which ones.

05 N counts the countries. R^2 is the share of the outcome's variation the model accounts for.

Star keys differ by journal. Two stars mean p ≤ .05 in Carey and Hix and p < .01 here. **Read the note before the numbers.**

COEFFICIENTS

Say it as a sentence

One more unit of X goes with β more units of Y, the other predictors held constant

HANSON AND SIGMAN · -12.15

One more point of Capacity in 1960, about one standard deviation, goes with about 12 fewer infant deaths per 1,000 births in 2010.

CAREY AND HIX · .01

"A jump from a median magnitude of 1 to 10 is expected to boost the fragmentation index by one-tenth of a unit."

GILENS AND PAGE · .76

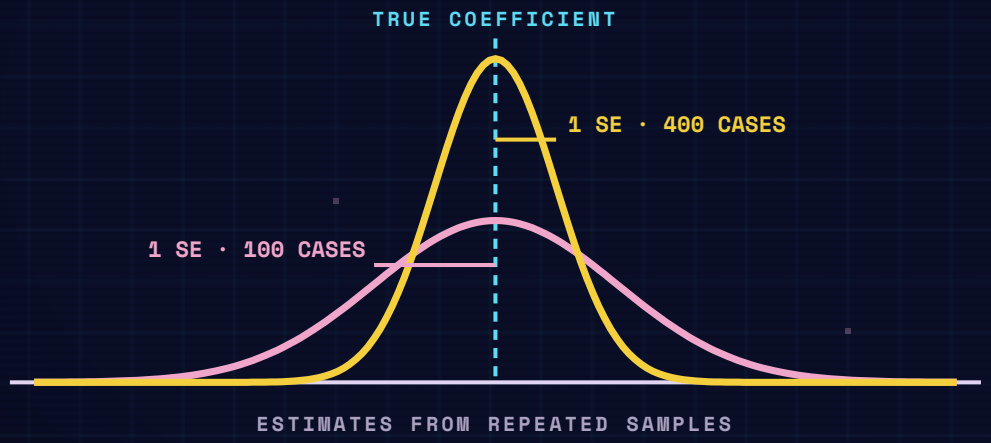
The predictors are transformed and squeezed into a 0 to 1 range. The authors call the magnitudes "difficult to interpret" and report predicted probabilities instead.

Check the units on both sides before you translate. **When the units are opaque, look for predicted values.**

STANDARD ERRORS

One sample, one estimate

INVENTED SAMPLING DISTRIBUTIONS OF ONE COEFFICIENT



01 A table reports the slope from one sample. Another sample of countries or years would give a somewhat different slope.

02 Repeat the draw many times and the estimates form a curve around the true value. The standard error is the typical distance from its center.

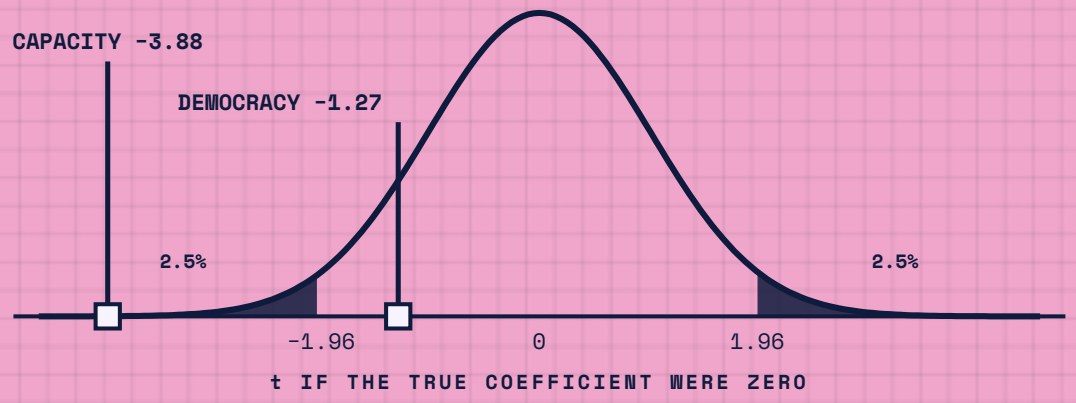
03 More cases and less scatter around the line narrow the curve. Four times the cases halves the standard error.

Carey and Hix's magnitude coefficient has a standard error of .004 across countries and .03 within them. **Fewer useful comparisons make a wider curve.**

HYPOTHESIS TESTS

Is the coefficient far from zero?

HANSON AND SIGMAN, TABLE 5, COLUMN 1



01 Start from the null hypothesis that the true coefficient is zero.

02 Divide the coefficient by its standard error. The result, t, counts how many standard errors the estimate sits from zero.

03 The p-value is the chance of a t at least this far out if the null were true. Below .05, the null is rejected and the table adds a star.

Capacity sits 3.88 standard errors from zero, Democracy only 1.27 ($p \approx .2$). **The p-value says how surprising the estimate would be under the null.**

TWO WAYS TO BE WRONG

Type I and Type II errors

	NO REAL EFFECT	A REAL EFFECT
STAR, NULL REJECTED	**Type I error · false positive**	Correct
NO STAR	Correct	**Type II error · false negative**

TYPE I

The cut-off, called α, sets its rate. At .05, one test in twenty of a true null earns a star by chance. Hanson and Sigman's Table 5 runs 24 tests.

TYPE II

Its rate, called β, rises with smaller effects, noisier data and fewer cases. Power, 1 – β, is the chance of catching an effect that is there.

THE TRADE-OFF

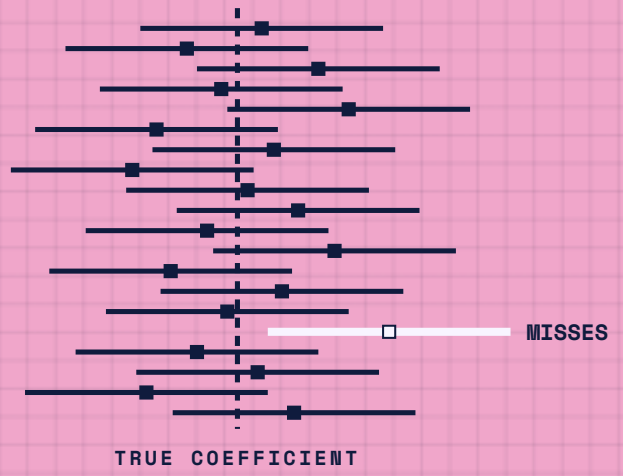
A stricter cut-off such as .01 buys fewer false positives with more false negatives. With 1,779 cases, Gilens and Page have the power to star a correlation of .12.

Democracy's –9.40 across 148 countries could be a real effect the test was too weak to detect. **A missing star is weak evidence when power is low.**

CONFIDENCE INTERVALS

What 95 percent means

20 INVENTED SAMPLES, ONE INTERVAL EACH



01 Go 1.96 standard errors either side of the coefficient. Two is close enough for reading in your head.

02 The 95 percent describes the method. Across repeated samples, 19 of every 20 intervals built this way contain the true coefficient.

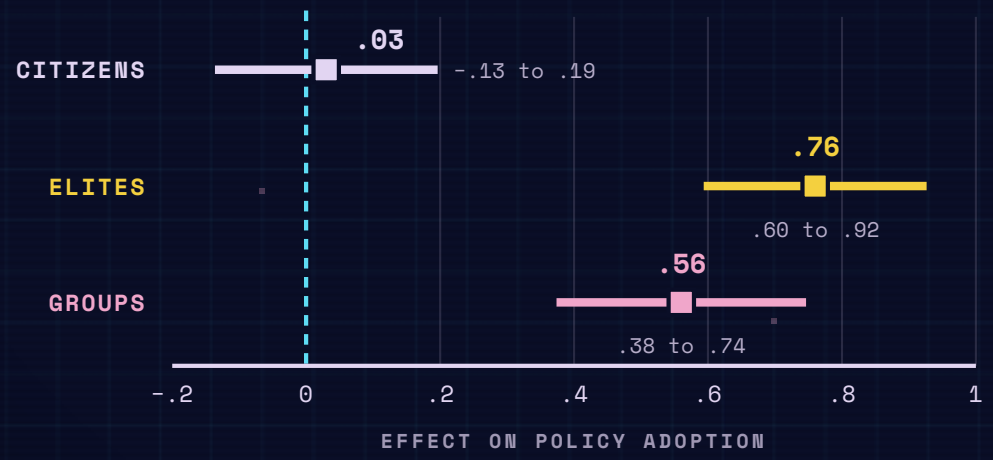
03 Interval and test agree. A 95 percent interval that excludes zero means $p < .05$ for that coefficient.

Hanson and Sigman's Capacity runs from about −18 to −6 deaths per 1,000. **An interval shows the size and the precision of an effect at once.**

GILENS AND PAGE · TABLE 3

Reading intervals side by side

GILENS AND PAGE, TABLE 3, MODEL 4 · COEFFICIENT ± 2 STANDARD ERRORS



01 Elites' interval sits far from zero. Their influence is large and precisely estimated.

02 Citizens' interval includes zero, so no star. It also stops at .19, well short of the elites' .60.

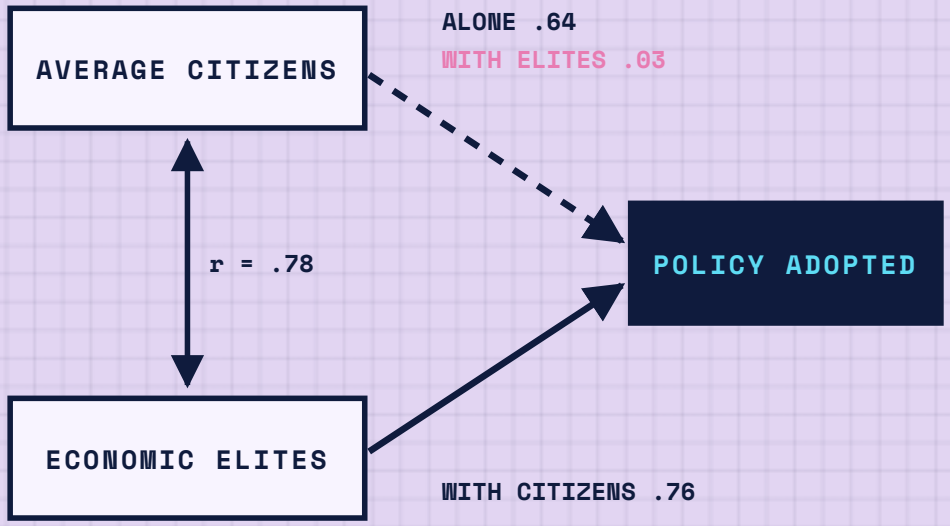
03 The intervals for groups and elites overlap. Ranking the two would need a direct test of their difference, which the table does not report.

Gilens and Page call the citizens' estimate "non-significant, near-zero." **The interval shows how near.**

CONTROL VARIABLES

What holding constant does

GILENS AND PAGE, TABLES 2 AND 3



01 Model 1 asks whether policies citizens favor pass more often. Model 4 asks whether citizens' views still matter among policies that the affluent and the groups rate the same.

02 Leaving out a variable that shapes both the predictor and the outcome biases the coefficient. Model 1 credits citizens with the pull of the affluent, who agree with them and drive adoption.

03 A control that is itself a result of the predictor soaks up part of its effect. Ask when each control was measured.

Hanson and Sigman call their controls for wealth, democracy and taxes "a very challenging test." **Ask what each control takes away.**

GROUP EXERCISE 01 · BRIEF THE MINISTER

A development minister asks your group to read one table

Does state capacity pay off in health and infrastructure decades later?

Hanson and Sigman regress 2010 outcomes on Capacity in 1960 and three controls, one country per case (Table 5).

	(1) INFANT MORTALITY	(3) ROADS	(5) HOSPITAL BEDS
Capacity, 1960	-12.15** (3.13)	.41* (.18)	1.52** (.41)
ln GDP per capita, 1960	-7.27** (1.69)	.18^ (.10)	.26 (.21)
Democracy, 1960 to 2010	-9.40 (7.39)	-.02 (.40)	-1.90* (.95)
Tax revenue, 1960 to 2010	-.26 (.28)	-.01 (.02)	.12** (.04)
N · R^2	148 · .53	106 · .22	112 · .39

Deaths per 1,000 infants · km of road per 100 km² · hospital beds per 1,000 people. Democracy runs from 0 to 1 and tax revenue is a percent of GDP. ^ p < .10 · * p < .05 · ** p < .01

01 Turn Capacity in column 1 into one sentence for the minister, with the units of both variables.

02 Build a rough 95 percent interval for Capacity in columns 1 and 3 and for Democracy in column 1. Which include zero? Could Democracy's missing star in column 1 be a Type II error?

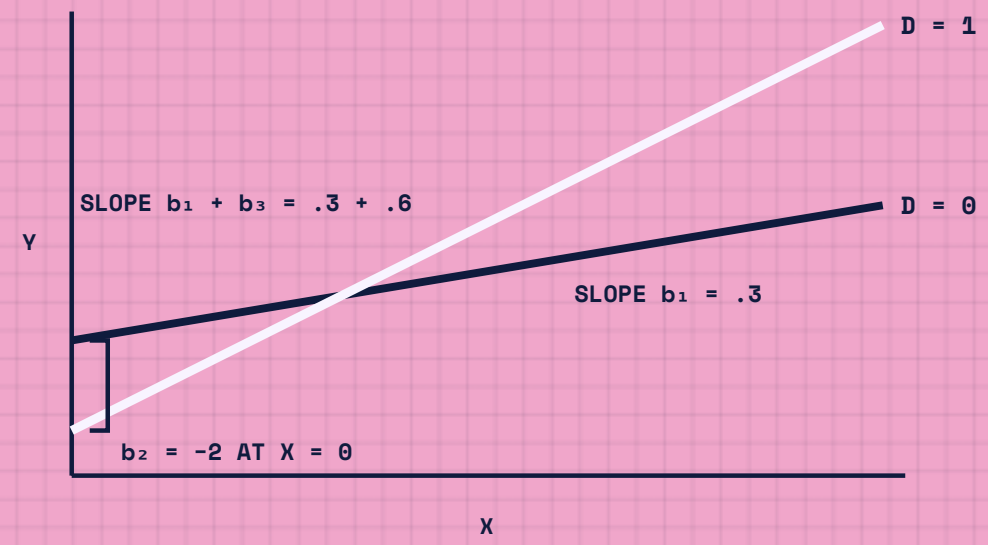
03 Democracy and tax revenue are averaged over 1960 to 2010, after Capacity was measured. Should they be held constant if the question is what capacity in 1960 did?

INTERACTION TERMS

When slopes differ by group

$$Y = a + b_1X + b_2D + b_3X{\times}D$$

Invented example · $Y = 3 + .3X - 2D + .6X{\times}D$



01 Without the product term, OLS gives both groups the same slope and the lines run parallel.

02 With it, b_1 is the slope of X where D = 0, and $b_1 + b_3$ is the slope where D = 1.

03 b_2 is the gap between the groups at X = 0. Here D = 1 starts 2 lower and ends higher, so b_2 alone misleads.

D could be a regime type and X a level of party fragmentation. **Read b_1 and b_3 together.**

CHEIBUB AND LIMONGI · INTERACTION TERMS

When does a coalition help?

PRESIDENTIAL DEMOCRACIES · YEARLY CHANCE OF BREAKDOWN, PERCENT

EFFECTIVE PARTIES	NO COALITION	COALITION	DIFFERENCE
3.5 to 4.5	3.85	11.32	+7.47
Above 4.5	5.55	3.39	-2.16

Breakdown = 3.85 + 7.47 C + 1.70 H − 9.63 C×H

C = coalition government · H = more than 4.5 effective parties

01 "It seems to be the level of party fractionalization that determines the effect of coalition formation on the survival of presidential democracies."

02 The interaction term, −9.63, is the gap between the two differences, the b_3 of the last slide.

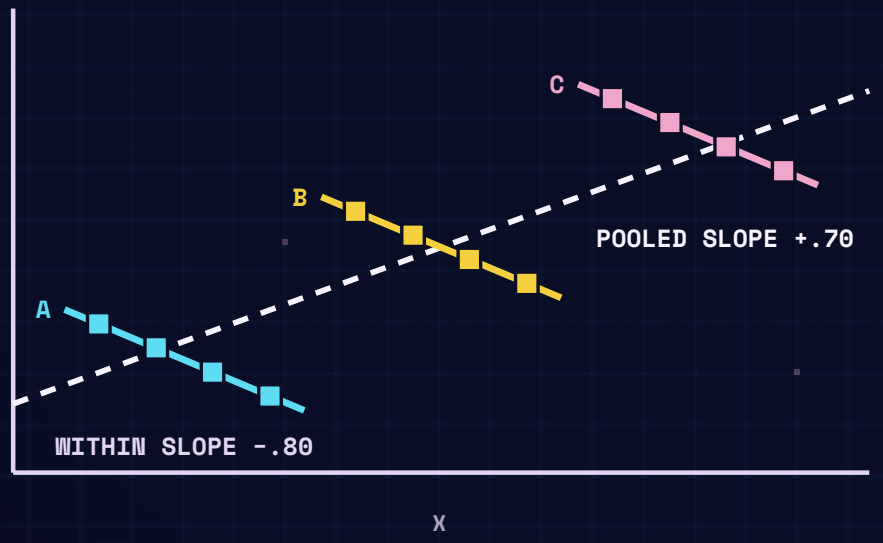
03 With an interaction in the model, +7.47 is the effect of a coalition only where H is zero. Where H is one, the effect is 7.47 − 9.63 = −2.16.

The regression line is our arithmetic on Table 3. **With an interaction, read the main effects together with it.**

FIXED EFFECTS

Between countries or within them

INVENTED DATA · THREE COUNTRIES, FOUR ELECTIONS EACH



01 A pooled regression compares every case with every other, so differences between countries drive the slope.

02 Country fixed effects give each country its own intercept. The slope then comes only from changes inside each country.

03 Every stable trait of a country, measured or not, drops out. The price is that only countries that change contribute.

Here the two slopes point in opposite directions. **Fixed effects keep only the solid lines.**

CAREY AND HIX · TABLE 2

Fixed effects in Carey and Hix

OUTCOME · EFFECTIVE NUMBER OF PARTIES BY SEATS

	(9) POOLED	(11) COUNTRY FIXED EFFECTS
Median district magnitude	.01*** (.002)	.003 (.006)
Legal threshold, percent	−.02 (.03)	−.34*** (.09)
Mixed-member compensatory	.44*** (.14)	1.62*** (.34)
Latitude, colonial past, region	Controlled	Absorbed
R^2	.31	.18 within

01 Model 9 compares countries with each other. Model 11 compares each country with itself, so only electoral reforms count.

02 Latitude, colonial past and region never change inside a country, so they drop out of Model 11.

03 Reforms are rare, so standard errors grow. Magnitude shrinks and loses its stars, and legal thresholds gain theirs.

Legal thresholds show no link across countries and a clear one within them. **Ask which comparison answers your policy question.**

GROUP EXERCISE 02 · PRICE THE REFORM

A reform commission plans to replace single-member districts with five-seat districts

By how much would disproportionality fall?

Carey and Hix, Table 1. The outcome is Gallagher's index of disproportionality, in points, for 609 elections in 81 countries.

	(1)	(2)	(3)	(4)
Median district magnitude	−.05*** (.004)	−.01** (.003)	−.10*** (.03)	−.02 (.03)
1 / median district magnitude		10.05*** (.96)		8.38*** (1.72)
Mixed-member parallel	3.63** (1.36)	−2.68** (1.30)	4.25** (1.68)	−.86 (1.96)
Country fixed effects · R^2	No · .43	No · .56	Yes · .12	Yes · .16

Every model also carries controls and two more electoral rows. R^2 is within countries in Models 3 and 4. * p ≤ .1 · ** p ≤ .05 · *** p ≤ .01

01 Predict the fall from Model 1, then from Model 2, where 1/1 = 1 and 1/5 = .2. Why do the two answers differ so much?

02 Mixed-member parallel is +3.63 in Model 1 and −2.68 in Model 2. What changed between the models, and what does that say about reading one row alone?

03 Redo the prediction with Model 4. Which countries does it learn from, and what number and range would you give the commission?

TAKE-AWAY

Six questions for any table

01 What is the outcome, and in what units?

02 What does one unit of each predictor mean?

03 How wide is the interval, and does it include zero?

04 Could a star be a false positive, or a missing star a false negative?

05 What is held constant, and was any control measured after the predictor?

06 Does the comparison run across cases, within them, or only under some condition?

Complement 01 asked whether a number measures what it claims. **Today's questions assume it does.**

NEXT UP

Before Thursday 19 November

Week 10. Welfare states and redistribution.

READ

Iversen, Torben, and David Soskice. 2006. "Electoral Institutions and the Politics of Coalitions: Why Some Democracies Redistribute More Than Others." *American Political Science Review* 100(2), 165-181.

READ · NEW

Lupu, Noam, and Jonas Pontusson. 2011. "The Structure of Inequality and the Politics of Redistribution." *American Political Science Review* 105(2), 316-336.

- **Thu 19 Nov** — **Quiz 4 opens the class. It covers Weeks 07 and 09.**
- **Tue 1 Dec** — **Complement on exam review** M2170
- **Tue 15 Dec** — **Complement on hypotheses and how they are evaluated** M2170

PROGRESS SAVED

QUESTIONS?

Office hours Thursdays 14:30 to 16:00 in M4328

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