# Easy A's, Less Pay: The Long-Term Effects of Grade Inflation

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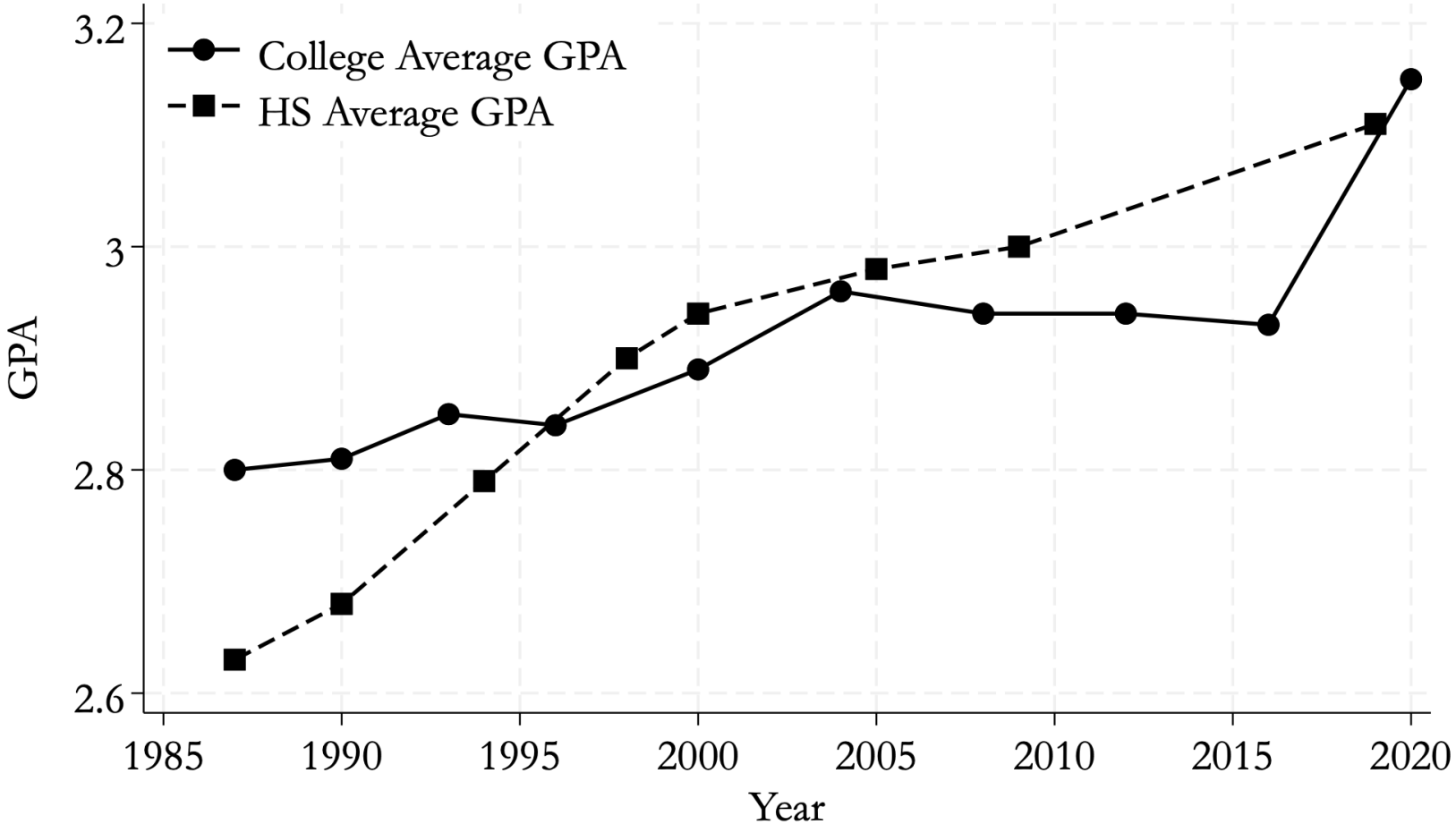
# Average Grades Have Risen Substantially




Sources: National Postsecondary Student Aid Study and High School Transcript Study from the NCES.

# Grade Inflation

- Stakeholders concerned about the impact of grade inflation
  - Recent high-profile reports at Harvard and UCSD
  - Similar discussions happening in K-12, sometimes called "equitable grading"
- Teachers typically have a lot of discretion over their grade distributions and grading policies
- What is the effect of grade inflation?
  - What is the effect of being assigned a high school class with a higher level of grade inflation?
  - How do students respond to relaxed grading standards?

# Grade Inflation Effects Are Ambiguous

- Grade inflation could take many forms because grades are a mapping of (continuous) performance to discrete grades.
  - e.g. generally easy, generally difficult, easy to pass but difficult to get an A, etc.
- Impact of grade inflation is theoretically ambiguous (Costrell, 1994):
  - High standards could incentivize effort from students to meet higher standards and increase human capital
  - High standards could discourage and deter students from more education (Kohn, 2002)
- The effects of grade inflation can depend on the type of inflation and student characteristics.
- Little empirical evidence of the long-term impact of grade inflation

# This Paper

1. Construct and validate two types of teacher grade inflation measures
    - Mean grade inflation: teachers give higher average grades
    - Passing grade inflation: teachers pass students more often
2. How does grade inflation relate to teacher value-added?
    - Construct measures of cognitive and noncognitive value-added using data from Los Angeles and Maryland
3. How does being assigned a high grade inflation teacher impact students?
    - Effects on future test scores, high school graduation, college attendance and graduation, and earlier career earnings

# Preview of Results

- Grade inflation is distinct from value-added
  - Grade inflating teachers have somewhat lower cognitive value-added, slightly higher noncognitive value-added
- Effect of mean grade inflation
  - Decreases future test scores, likelihood of graduating high school and taking the SAT
  - Reduces post-secondary enrollment, employment and earnings
- Effect of passing grade inflation
  - Decreases the likelihood of being held back, increases high school graduation
  - Increases enrollment in two-year colleges and decreases bachelor attainment

# Contributions to Related Literature

1. Measuring the effects of grade inflation (Betts and Grogger, 2003; Figlio and Lucas, 2004; Mozenter, 2019; Gershenson et al., 2022; Bowden et al., 2023; Insler et al., 2021)
   - New concept: passing grade inflation
   - Validate grade inflation measures
   - Effects of grade inflation on short-term (high school) and longer-term (college and labor market) outcomes
2. Another dimension of teacher effects beyond test score VA (Boardman and Murnane, 1979; Hanushek, 1979; Rockoff, 2004; Kane and Staiger, 2008; Chetty et al., 2014a,b; Gilraine and Pope, 2021; Petek and Pope, 2023)
   - Grade inflation is a margin teachers and schools have a lot of discretion over
   - Difficult to learn how to be a good teacher, may be much easier to choose a grade distribution

# Outline

**Data**

- Los Angeles and Maryland data

**Grade Inflation Measures**

- How they are constructed
- Validation of the measures
- Correlation between grade inflation and value-added measures

**Estimation and Results**

- Effect on high school outcomes in both locations
- Effect on college and labor market outcomes in Maryland

**Conclude**

# Data

1. Los Angeles Unified School District
    - Second largest school district in the nation
    - 72 percent of students are Hispanic (14 percent EL)
    - Graduation rates just over 50 percent
    - Tested annually through 11th grade
2. Maryland
    - Over 250,000 high school students
    - 41 percent White, 34 percent Black, 14 percent Hispanic (2 percent EL)
    - Graduation rates just over 90 percent
    - Limited annual testing in high school

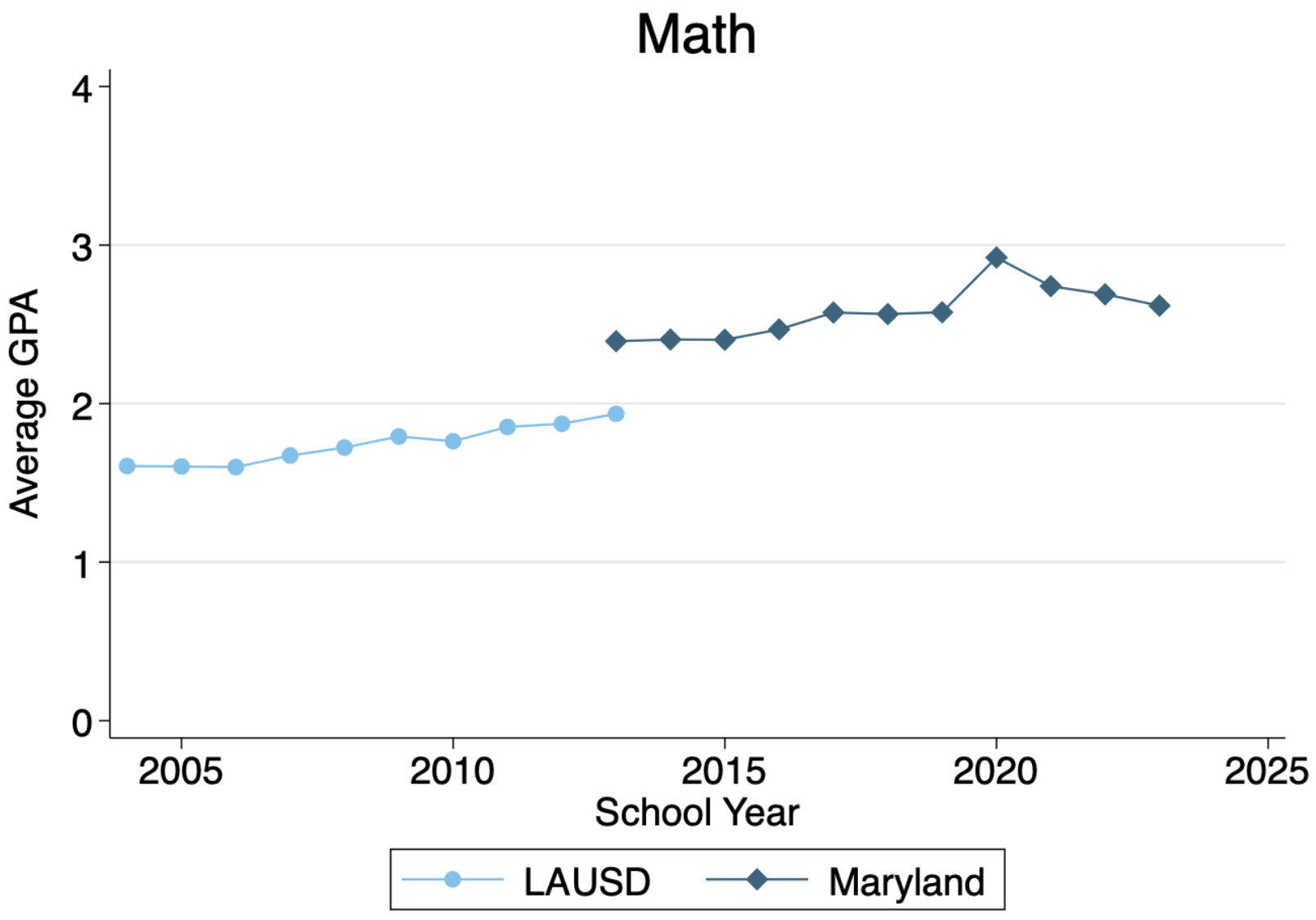
# Data

| | **Los Angeles** | **Maryland** |
|---|---|---|
| Years | 2004-2013 | 2013-2023 |
| Grades | 9-12 | 9-12 |
| HS Measures | Test Scores, GPA, Behavioral Outcomes | Test Scores, GPA, Behavioral Outcomes |
| HS Outcomes | Test Scores, SAT, Graduation | Test Scores, SAT, Graduation |
| Postsecondary Outcomes | | Enrollment, Graduation (NSC) |
| Labor Market Outcomes | | Quarterly Wages, employment (UI) |

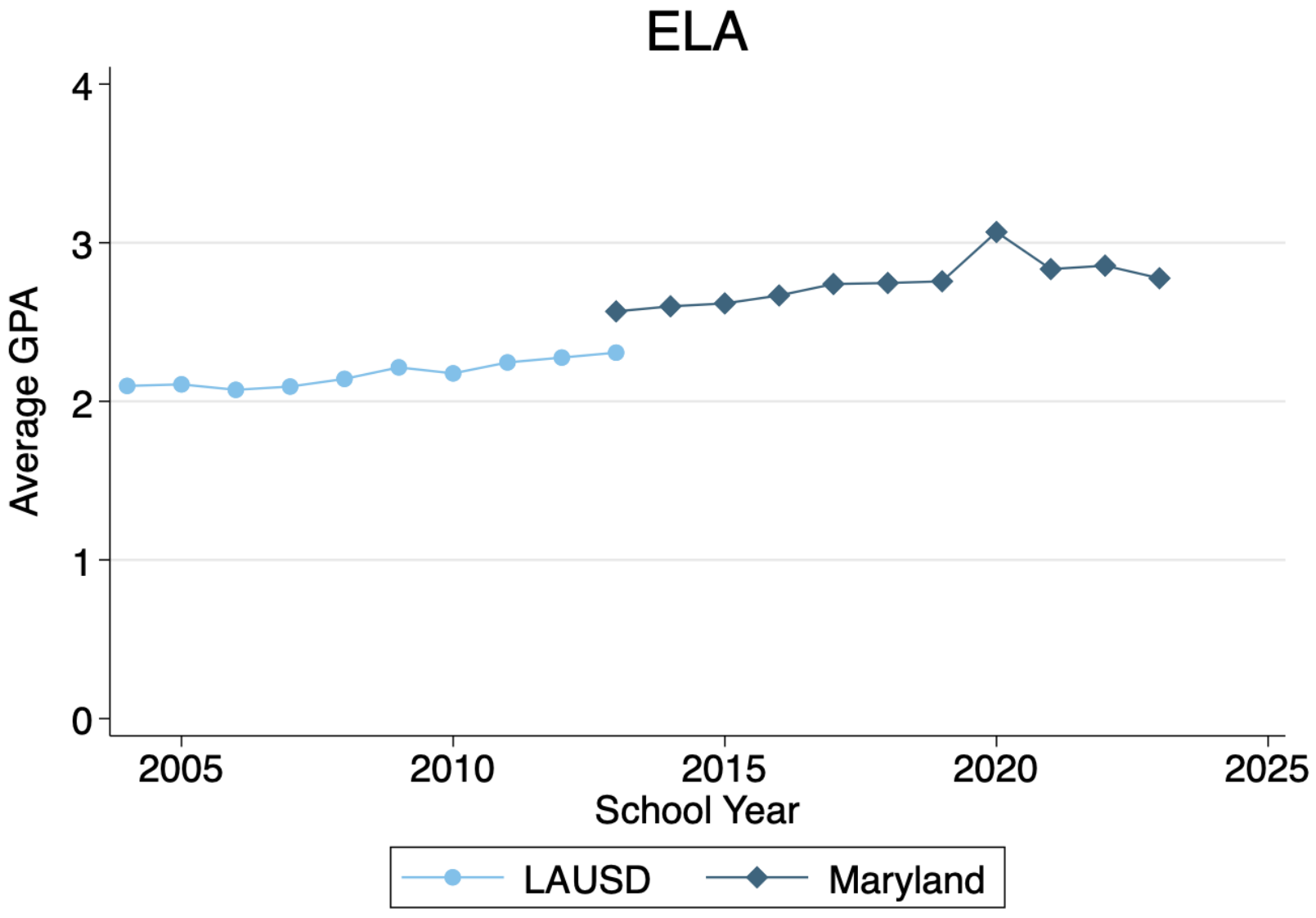
# Summary Statistics

| | Los Angeles | | Maryland | |
|---|---|---|---|---|
| | Mean | Obs | Mean | Obs |
| GPA | 2.29 | 985,020 | 2.89 | 1,647,988 |
| Failing Grade | 0.26 | 985,020 | 0.03 | 1,647,988 |
| Held Back | 0.12 | 985,020 | 0.04 | 1,541,341 |
| Graduate HS | 0.58 | 733,949 | 0.92 | 1,403,078 |
| Took SAT | 0.36 | 833,266 | 0.67 | 1,647,988 |
| Enrolled College | | | 0.65 | 1,403,078 |
| Graduated College | | | 0.41 | 461,864 |
| Earnings 6 yrs post HS | | | $27,789 | 288,268 |

# Grades are Increasing Over Time: Math



# Grades are Increasing Over Time: English



# Mean Grade Inflation

$$Grade_{ijst} = GI_{jt}^{mean} + \beta_1 TestScore_{ijst} + \beta_2 Grade_{ist-1} + \beta_3 MathTest_{ijst-1} + \beta_4 EnglishTest_{ijst-1} + X_{it}\beta + \epsilon_{ijst}$$

- $GI_{jt}^{mean}$ is **mean grade inflation**
  - Measures how much higher are teacher $j$'s students' average grades than predicted
- Controls: School FE, grade FE, year FE, EL status, lagged fraction days absent, and lagged suspension and held back indicators
- Estimate with a jackknife empirical Bayes following Chetty et al. (2014a) Other Measures

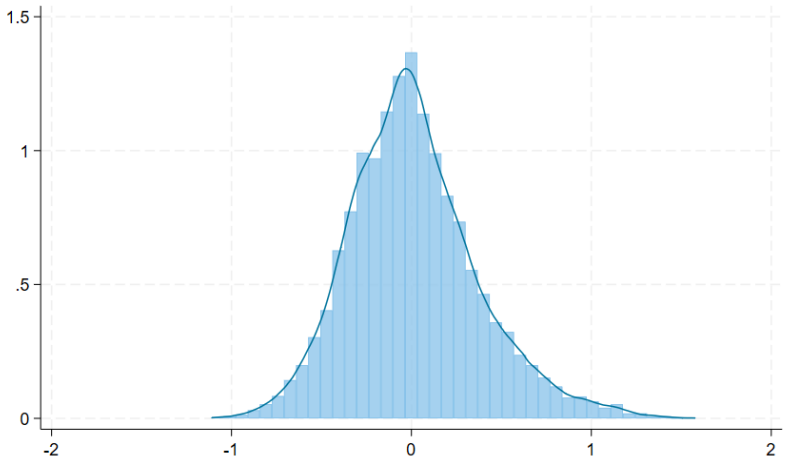
# Passing Grade Inflation

$$Pass_{ijst} = GI_{jt}^{pass} + \beta_1 TestScore_{ijst} + \beta_2 Grade_{ist-1} + \beta_3 MathTest_{ijst-1} + \beta_4 EnglishTest_{ijst-1} + X_{it}\beta + \epsilon_{ijst}$$

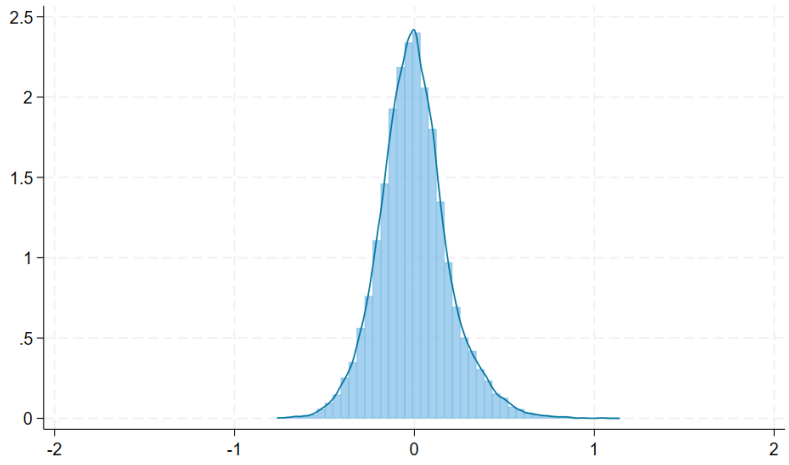
- $GI_{jt}^{pass}$ is **passing grade inflation**
  - Measures how much more frequently do teacher $j$'s students receive passing grades than predicted
- Same controls and estimation as mean grade inflation
- Passing grade inflation highlights a different type of grade inflation

# Mean Grade Inflation Distribution: Math English

Los Angeles



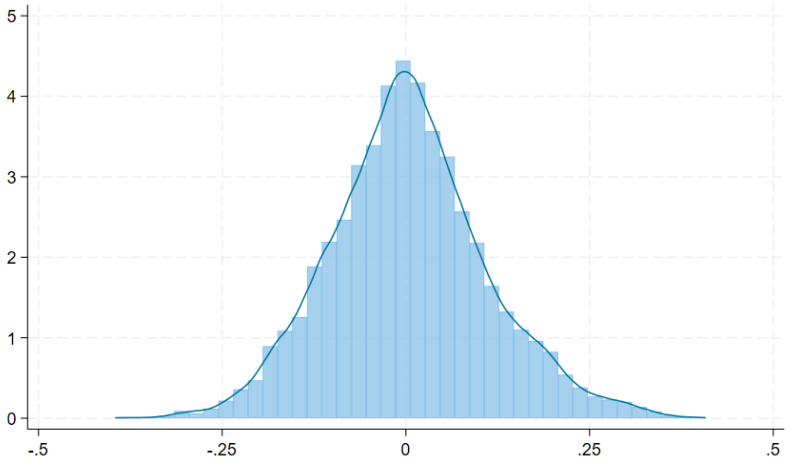

Maryland



# Passing Grade Inflation Distribution: Math

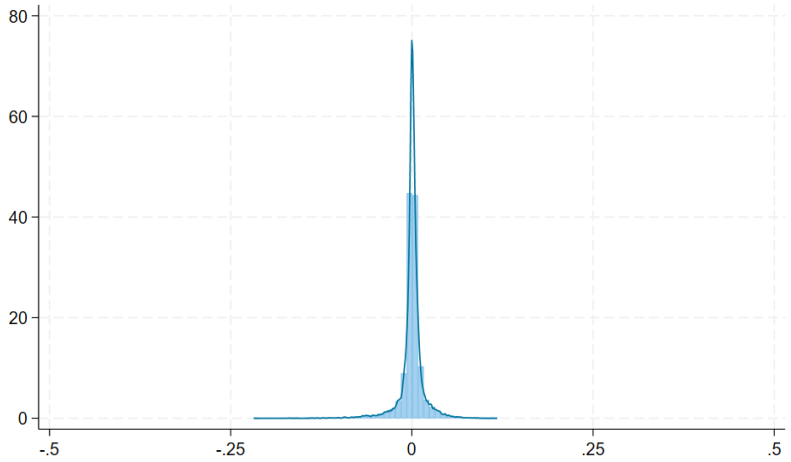
English

## Los Angeles




Likelihood of Passing

## Maryland




Likelihood of Passing

# Forecast Bias Tests

- Like value-added, grade inflation may suffer from two challenges:
  - Noise from estimation error
  - Bias from selection on unobservables
- Two common tests to help diagnose these issues
  1. Out-of-sample forecast bias test
     - Regress residualized GPA/passing indicator on grade inflation measures
  2. Test for selection on omitted observables
     - Regress predicted GPA/passing indicator (using twice lagged test scores) on grade inflation measures

# Forecast Bias Tests

| | Math | | ELA | |
|---|---|---|---|---|
| **Panel A: Forecast Bias Test, LAUSD** | Course Grade | Pass Indicator | Course Grade | Pass Indicator |
| Corresponding GI Measure | 1.07 | 1.07 | 1.03 | 1.04 |
| | (0.01) | (0.02) | (0.01) | (0.01) |
| N | 474,686 | 474,839 | 545,631 | 545,773 |
| **Panel B: Forecast Bias Test, Maryland** | Course Grade | Pass Indicator | Course Grade | Pass Indicator |
| Corresponding GI Measure | 1.08 | 1.11 | 1.03 | 0.96 |
| | (0.02) | (0.07) | (0.02) | (0.21) |
| N | 204,994 | 204,994 | 250,734 | 250,734 |
| **Panel C: Selection Test, LAUSD** | Course Grade | Pass Indicator | Course Grade | Pass Indicator |
| Corresponding GI Measure | -0.02 | -0.01 | -0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| N | 538,525 | 538,542 | 603,581 | 603,585 |

# Value-added Estimation

For comparison with grade inflation measures, we estimate both cognitive and noncognitive value-added

- Cognitive value-added:
  - Math and English test scores as outcome
  - For both grade inflation and test score VA we use a combined index for math and English
- Noncognitive value-added:
  - Next-year values of GPA, effort GPA, cooperation GPA, fraction days absent, suspended, held back as outcomes as in Petek and Pope (2023)
  - Construct a combined index of these six value-added

# Correlations Between Measures

| **Panel A: LAUSD** | Mean GI | Passing GI | Cog. VA | Noncog. VA |
|---|---|---|---|---|
| Mean GI | 1.0000 | | | |
| Passing GI | 0.8599 | 1.0000 | | |
| Cog. VA | -0.4070 | -0.3047 | 1.0000 | |
| Noncog. VA | 0.1550 | 0.1787 | 0.0879 | 1.0000 |
| **Panel B: Maryland** | Mean GI | Passing GI | Cog. VA | Noncog. VA |
| Mean GI | 1.0000 | | | |
| Passing GI | 0.3601 | 1.0000 | | |
| Cog. VA | -0.3108 | -0.0743 | 1.0000 | |
| Noncog. VA | 0.1163 | 0.0542 | -0.1241 | 1.0000 |

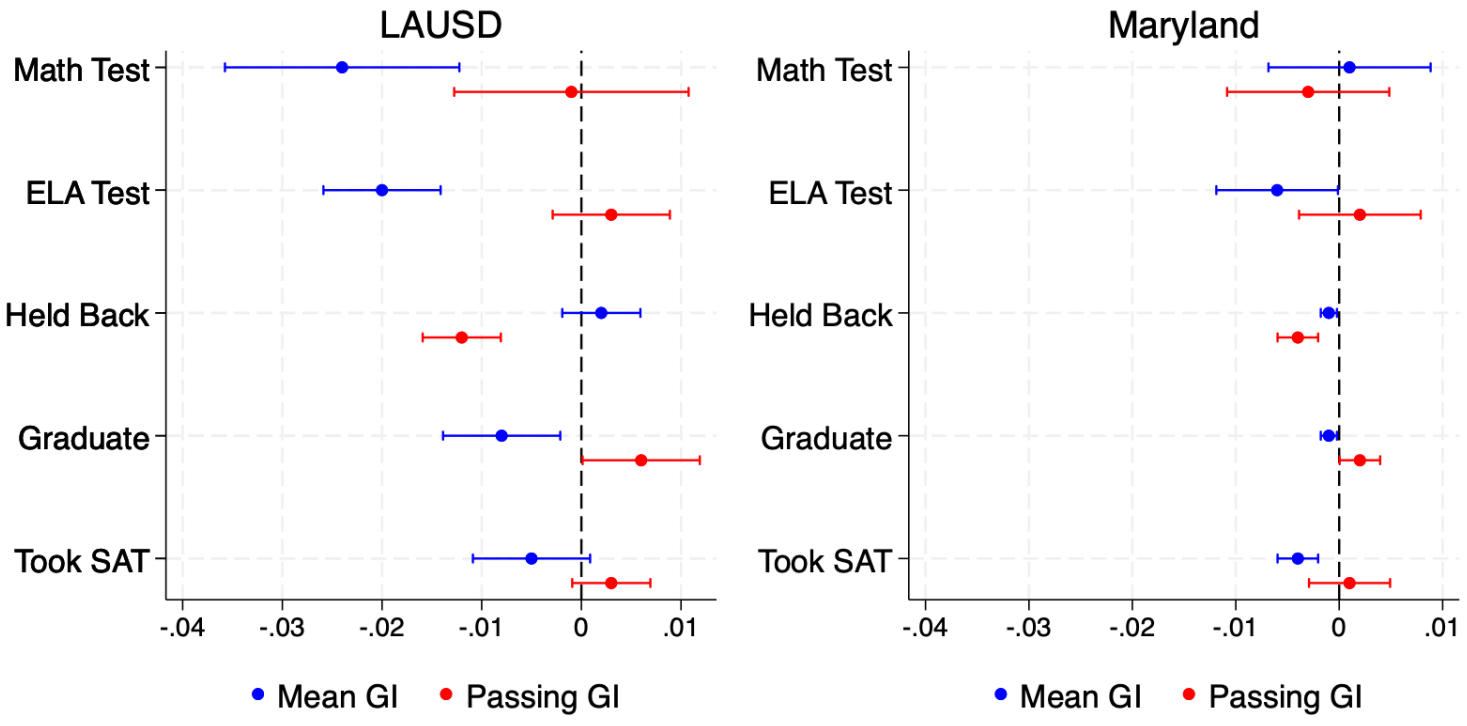
- Use a bootstrapped split-sample approach with attenuation correction to address measurement error Details Raw Corr
- Grade inflation measures negatively correlated with cognitive VA, mildly correlated with noncognitive VA

# Estimation: Long-Term Effects of Grade Inflation

$$Y_{it} = \alpha_{mean} \widehat{GI}_{it}^{mean} + \theta_{pass} \widehat{GI}_{it}^{pass} + \delta_{cogVA} \widehat{VA}_{it}^{cog} + \psi_{noncogVA} \widehat{VA}_{it}^{noncog} + X_{it}\beta + \eta_{it}$$

- Estimate the effect of grade inflation on student outcomes, conditional on VA measures (Chetty et al., 2014b; Petek and Pope, 2023)
  - $\alpha_{mean}$ and $\theta_{pass}$ are main coefficients of interest
- Key assumption: conditional random assignment
- Teacher estimates use jackknife empirical Bayes estimates to address measurement error bias concerns
- Same controls as used in the VA estimation

# Effect of Grade Inflation: High School Outcomes




As a Table | Not Controlling for Value-Added | Univariate

# Effect of Grade Inflation by Ability

The effects of mean and passing grade inflation may differ by student ability

- Mean grade inflation
  - May impact effort and human capital formation more for top performing students who can reduce effort and still earn an A
  - May uniformly impact students since less effort is likely needed for each grade
- Passing grade inflation
  - Likely more important for the incentives of students on the margin of passing a class
  - Could mechanically effect the progression of students through high school

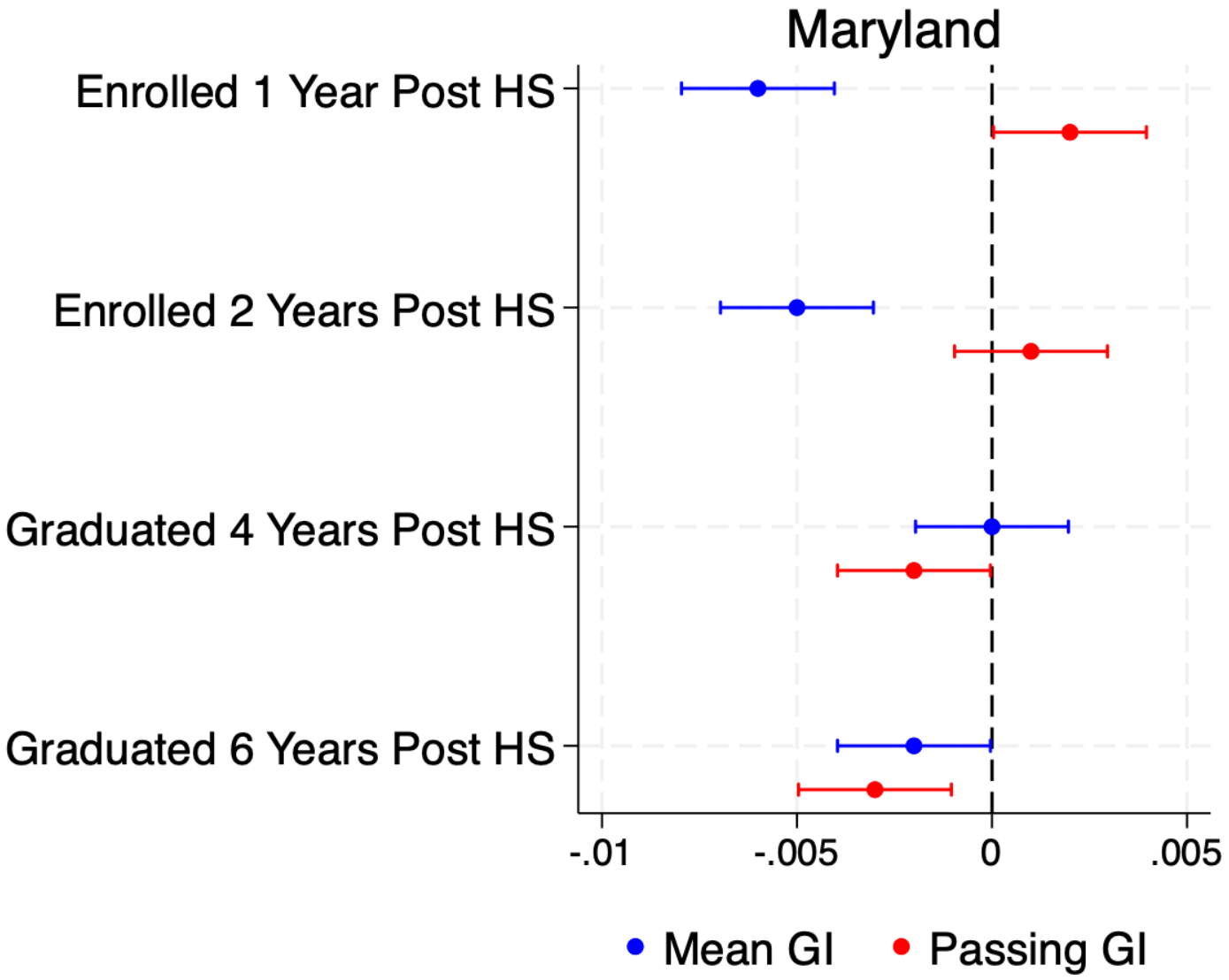
# Mean Grade Inflation by Ability

| **Panel A: LAUSD** | Future Test (Math) | Future Test (English) | Held Back | Graduate | Took SAT |
|---|---|---|---|---|---|
| Below Median | -0.026*** | -0.022*** | -0.004 | -0.007*** | -0.000 |
| | (0.006) | (0.005) | (0.003) | (0.003) | (0.002) |
| Above Median | -0.026*** | -0.018*** | 0.002* | -0.005** | -0.005* |
| | (0.007) | (0.003) | (0.001) | (0.002) | (0.002) |
| Equality Test P-value | 0.967 | 0.378 | 0.017 | 0.333 | 0.056 |
| **Panel B: Maryland** | | | | | |
| Below Median | 0.003 | -0.007** | -0.003*** | -0.000 | -0.004** |
| | (0.005) | (0.003) | (0.001) | (0.001) | (0.002) |
| Above Median | -0.005 | -0.005 | -0.001** | -0.000 | -0.003** |
| | (0.006) | (0.004) | (0.000) | (0.000) | (0.001) |
| Equality Test P-value | 0.169 | 0.552 | 0.000 | 0.849 | 0.428 |

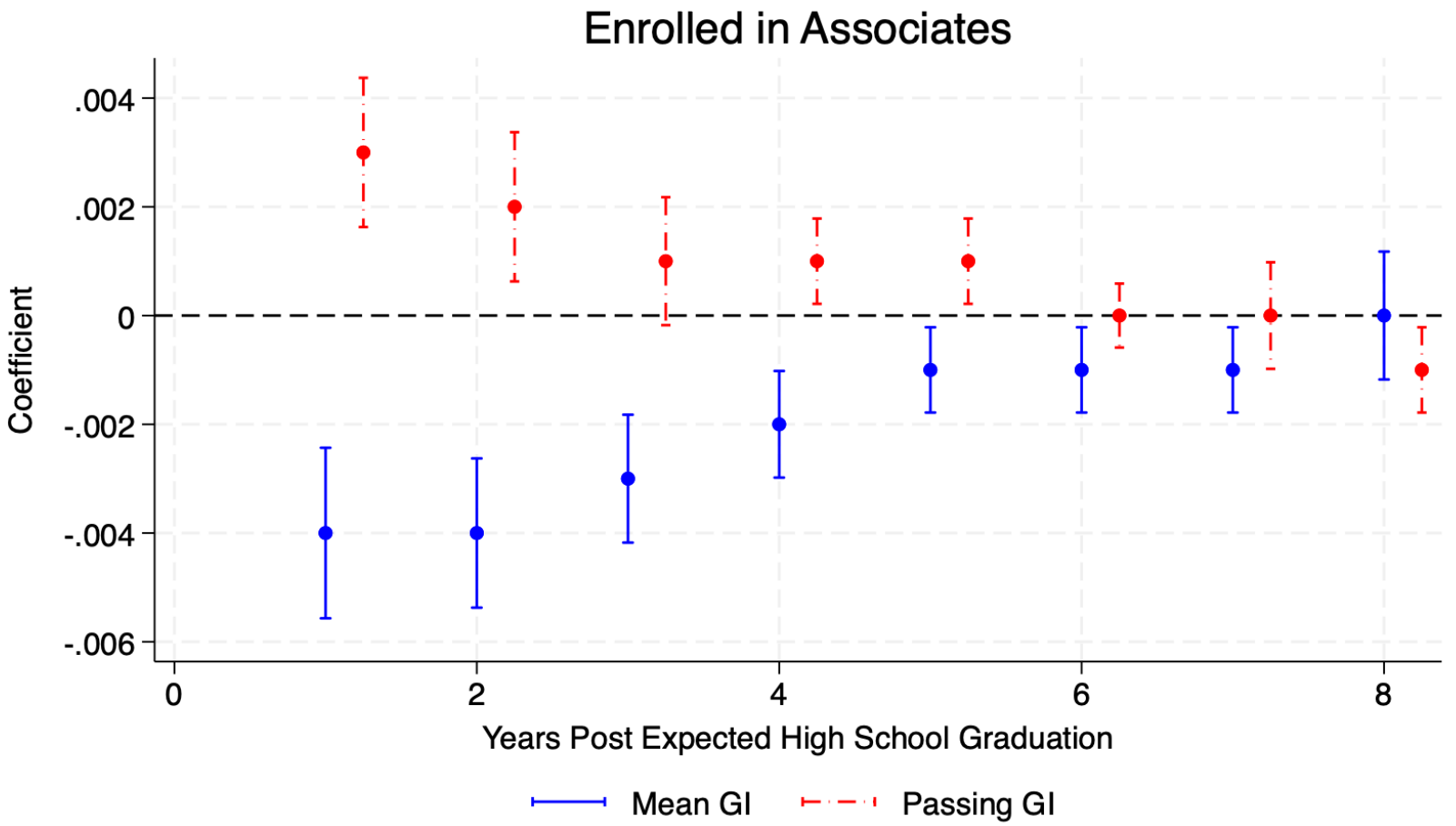
# Passing Grade Inflation by Ability

| **Panel A: LAUSD** | Future Test (Math) | Future Test (English) | Held Back | Graduate | Took SAT |
|---|---|---|---|---|---|
| Below Median | 0.001 | 0.003 | -0.012*** | 0.007*** | 0.001 |
| | (0.005) | (0.005) | (0.003) | (0.002) | (0.002) |
| Above Median | 0.001 | 0.004 | -0.009*** | 0.001 | 0.003 |
| | (0.007) | (0.003) | (0.001) | (0.002) | (0.003) |
| Equality Test P-value | 0.965 | 0.821 | 0.201 | 0.010 | 0.359 |
| **Panel B: Maryland** | | | | | |
| Below Median | -0.004 | 0.002 | -0.005*** | 0.002** | 0.001 |
| | (0.005) | (0.004) | (0.002) | (0.001) | (0.002) |
| Above Median | -0.001 | 0.001 | -0.002* | 0.001 | 0.002 |
| | (0.005) | (0.004) | (0.001) | (0.001) | 0.002) |
| Equality Test P-value | 0.605 | 0.772 | 0.001 | 0.022 | 0.926 |

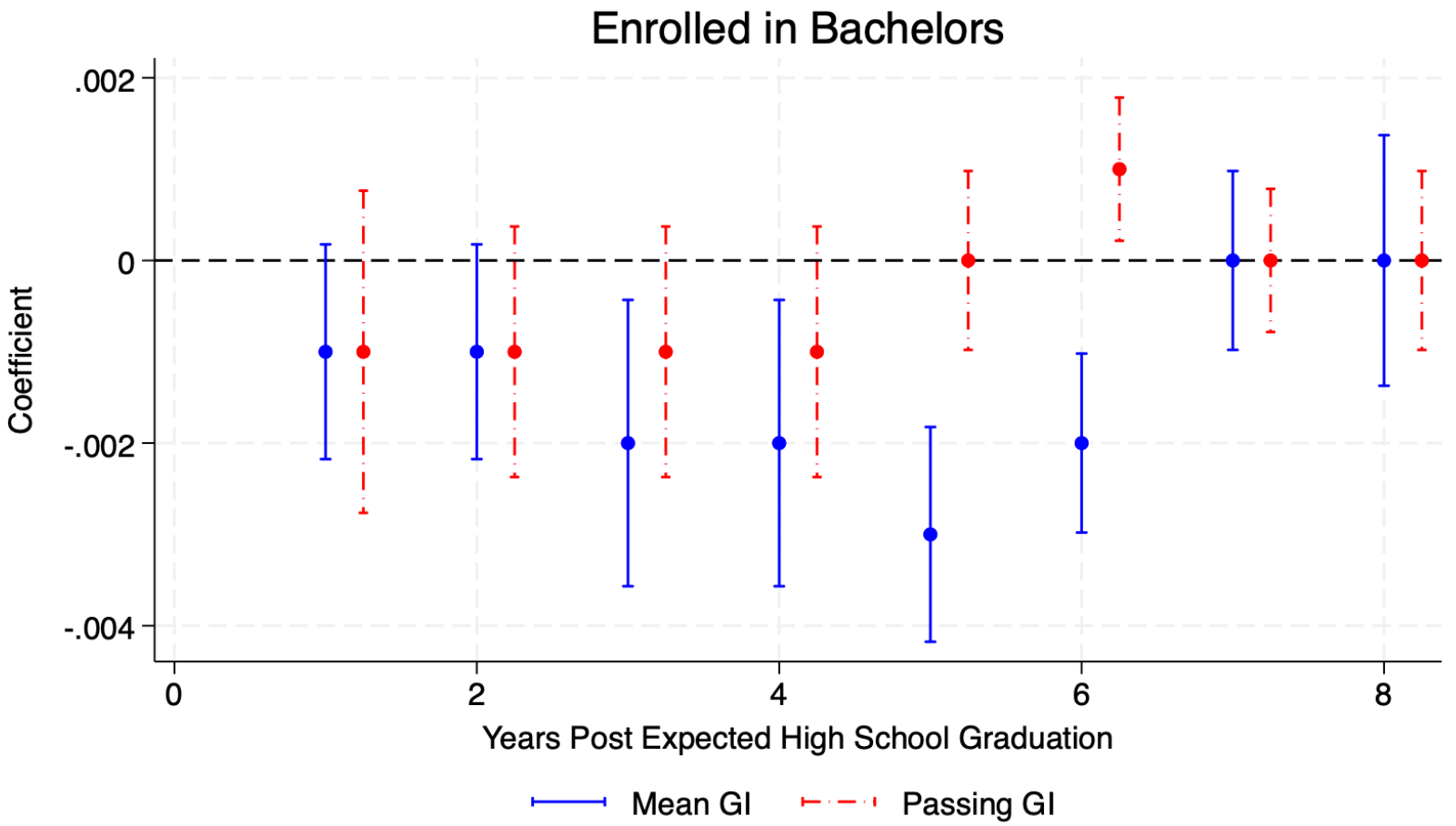
# Effect of Grade Inflation: Postsecondary Outcomes



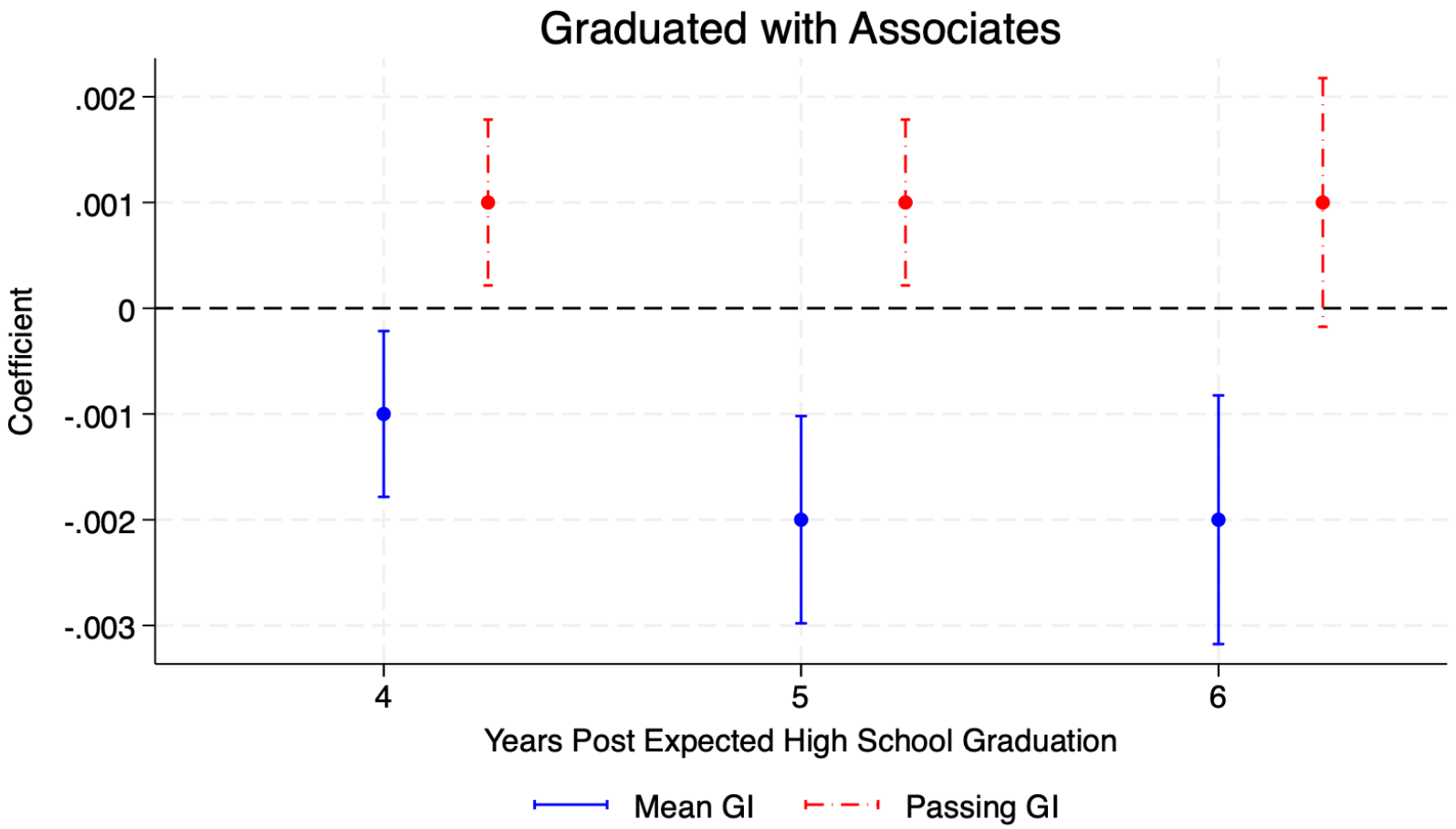
# Effect of Grade Inflation: Enrolled in Associates



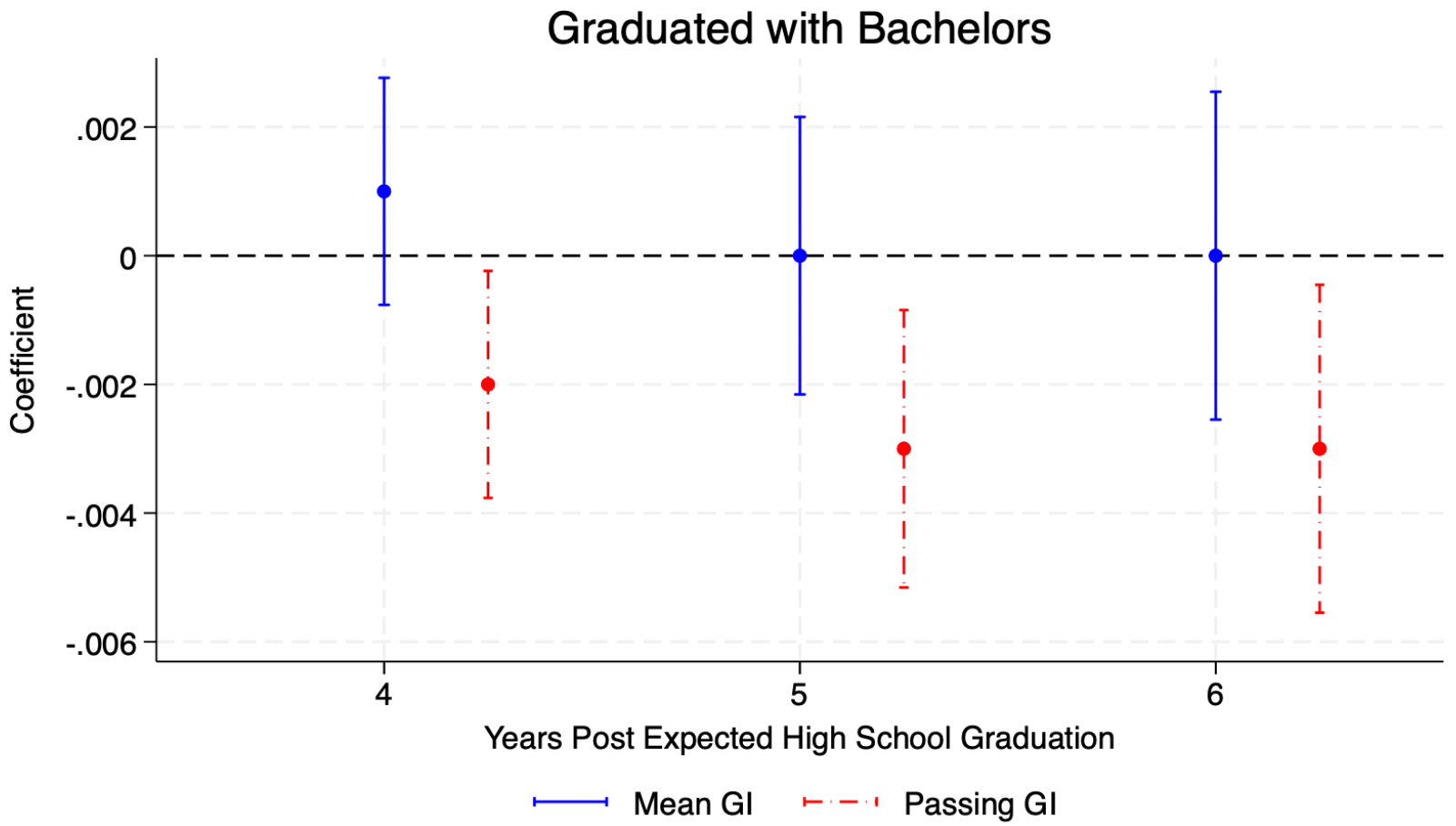
# Effect of Grade Inflation: Enrolled in Bachelors



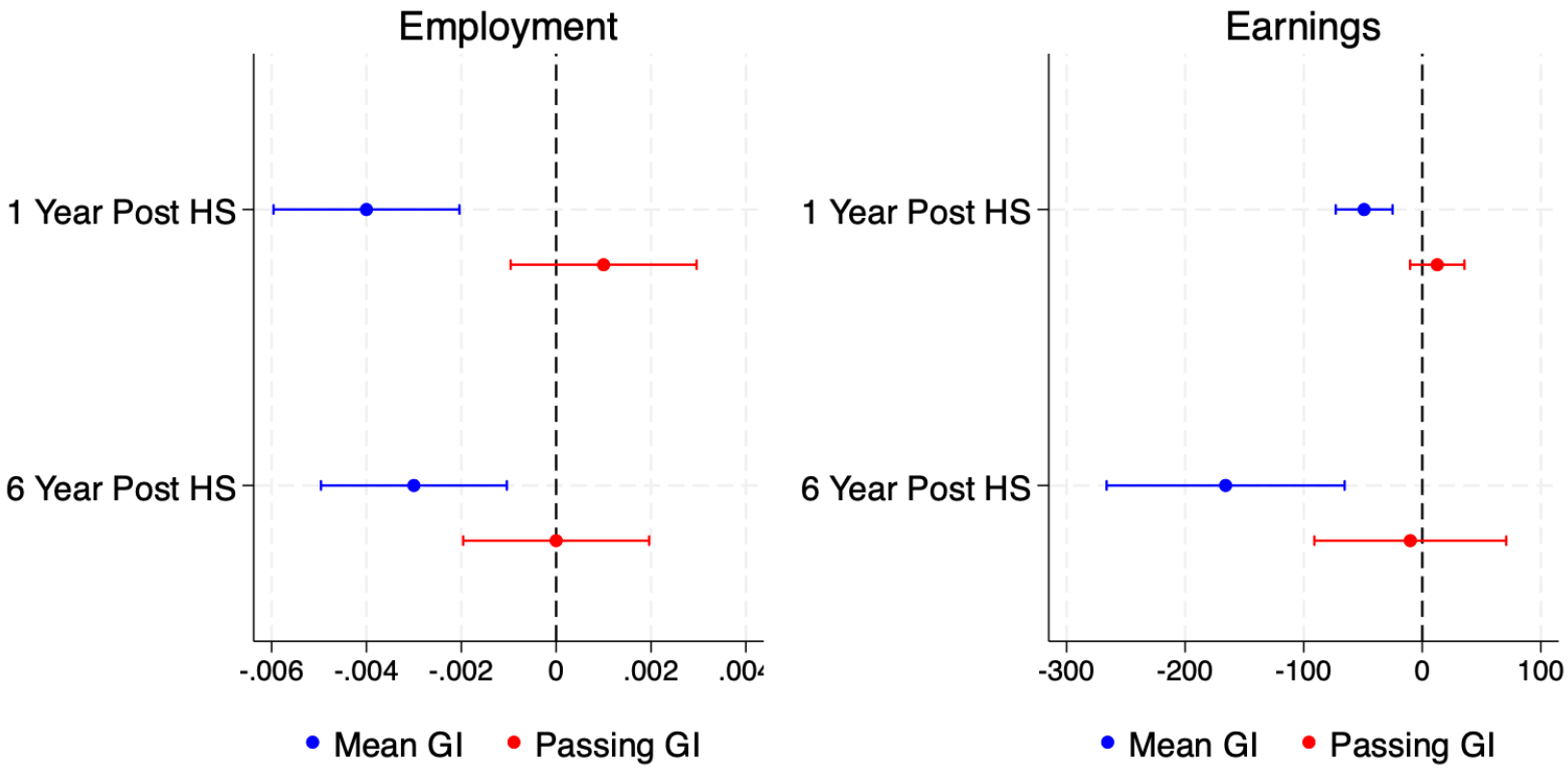
# Effect of Grade Inflation: Graduated with Associates



# Effect of Grade Inflation: Graduated with Bachelors



# Effect of Grade Inflation: Labor Market



# Robustness

- Two disparate settings
  - Consistent results for Los Angeles and Maryland
- Univariate regressions Univariate
  - Similar results when only including grade inflation measures
- Excluding contemporaneous test scores Noncontemporaneous
  - Grade inflation measures estimated without contemporaneous test scores are nearly identical
  - Estimates with these alternative measures are also nearly identical
- Similar results when estimated separately by math and English Los Angeles Maryland
- Similar results when including additional controls in Maryland Additional Controls

# Conclusion

- Grade inflation is a distinct dimension by which teachers impact students
- Grade inflation impacts students' future outcomes
  - Mean grade inflation negatively affects HS graduation, college-going, employment and earnings
  - Passing grade inflation helps some students graduate from HS and attend 2-year colleges
- Altering grading practices could be a low-cost strategy to improve student outcomes
- Future Work:
  - Effects of grade inflation at other levels of education
  - Test if policies that directly change grade distributions impact students
  - Broader general equilibrium effects of grade inflation

# Thank You

- Thank you!

# Previous Used Measures of Grade Inflation back

Previous measures of grade inflation:

1. Average test score of each teacher's B students (Figlio and Lucas, 2004; Gershenson et al., 2022)
2. Teacher fixed effect from a regression of test scores on grade (Figlio and Lucas, 2004; Gershenson et al., 2022)
   - $TestScore_{ijt} = \delta_j + \beta\, grade_{ijt} + \varepsilon_{ijt}$

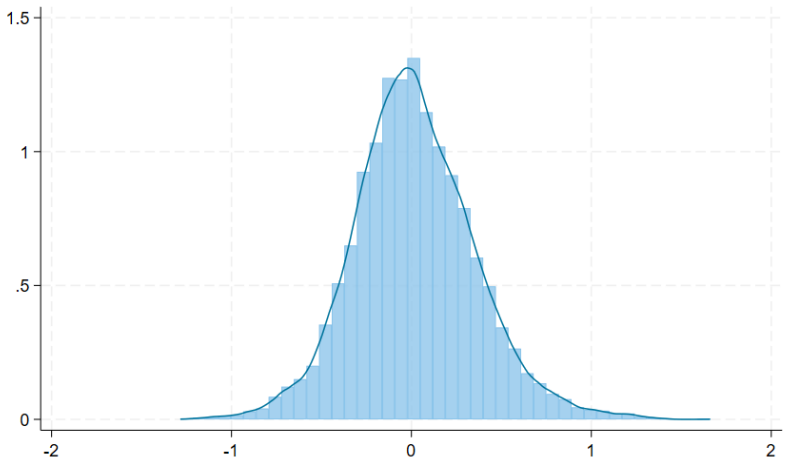
Differences with our measure:

- Previous measures capture the residual of test scores conditional on grades
- Our measure captures the residual of grades conditional on test scores

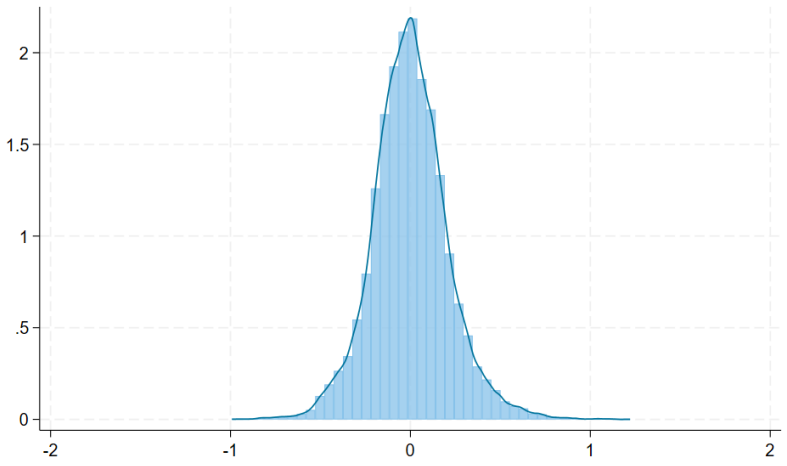
# Mean Grade Inflation Distribution: English

back

Los Angeles



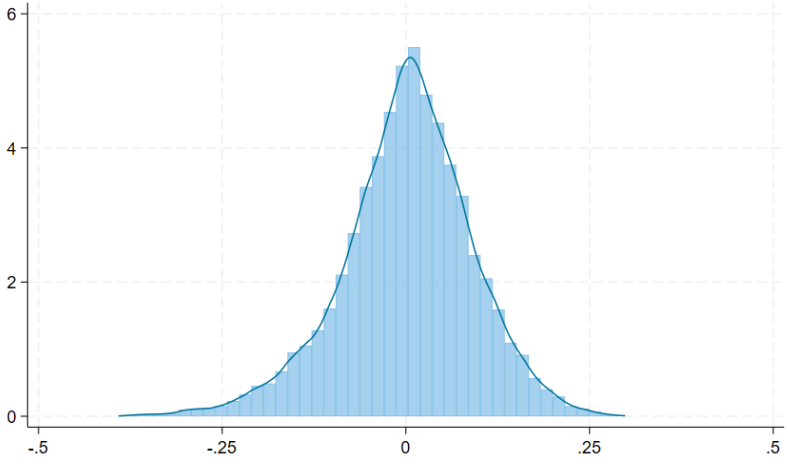

Maryland



# Passing Grade Inflation Distribution: English

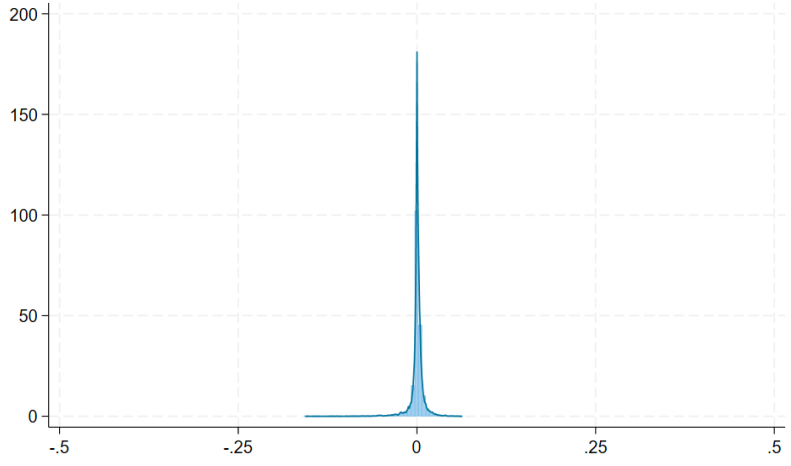
back

## Los Angeles




Likelihood of Passing

## Maryland




Likelihood of Passing

# Estimating Correlations Between Teacher Measures

back

- Raw correlations could be biased upward or downward due to measurement error Jackson et al. (2024)
- A split sample correlation procedure addresses this concern: Ayllón et al. (2025)
  - Split the sample within classroom into samples 1 and 2
  - Estimate teacher measures $\mu_A$ and $\mu_B$ on each sample to obtain $\hat{\mu}_A^i$ and $\hat{\mu}_B^i$ for each teacher
  - Estimate the correlation as

$$\widehat{r}_{AB} = \frac{\widehat{corr}(\mu_A^0, \mu_B^1)}{\sqrt{\widehat{corr}(\mu_A^0, \mu_A^1)\widehat{corr}(\mu_B^0, \mu_B^1)}}$$

  - Finally, bootstrap this estimate with random sample splits
- Sample split in numerator removes spurious correlations of measurement errors across outcomes, correction term in denominator removes attenuation from measurement error

# Correlations Between Grade Inflation and Value-Added

back

Raw correlations without correcting for bias in measurement

| **Panel A: LAUSD** | Mean GI | Passing GI | Cog. VA | Noncog. VA |
|---|---|---|---|---|
| Mean GI | 1.000 | . | . | . |
| Passing GI | 0.785 | 1.000 | . | . |
| Cog. VA | -0.268 | -0.337 | 1.000 | . |
| Noncog. VA | -0.023 | -0.050 | 0.103 | 1.000 |
| **Panel B: Maryland** | Mean GI | Passing GI | Cog. VA | Noncog. VA |
| Mean GI | 1.000 | . | . | . |
| Passing GI | 0.394 | 1.000 | . | . |
| Cog. VA | -0.145 | -0.048 | 1.000 | . |
| Noncog. VA | -0.014 | 0.005 | 0.046 | 1.000 |

# Effect of Grade Inflation

back

| **Panel A: LAUSD** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI | -0.024*** | -0.020*** | 0.002 | -0.008*** | -0.005+ | -1.546 |
| | (0.006) | (0.003) | (0.002) | (0.003) | (0.003) | (1.790) |
| Passing GI | -0.001 | 0.003 | -0.012*** | 0.006** | 0.003 | -3.315+ |
| | (0.006) | (0.003) | (0.002) | (0.003) | (0.002) | (1.896) |
| Cog. VA | 0.113*** | 0.054*** | 0.001 | -0.000 | 0.029*** | 24.748*** |
| | (0.010) | (0.002) | (0.001) | (0.002) | (0.003) | (2.919) |
| Noncog. VA | -0.004 | 0.011*** | -0.005*** | 0.011*** | 0.010*** | 1.625+ |
| | (0.004) | (0.002) | (0.001) | (0.002) | (0.001) | (0.938) |
| Outcome Mean | -0.02 | 0.04 | 0.13 | 0.58 | 0.32 | 1327.79 |
| Observations | 391,782 | 432,534 | 832,002 | 733,946 | 680,305 | 186,350 |
| $R^2$ | 0.522 | 0.659 | 0.167 | 0.296 | 0.364 | 0.738 |
| **Panel B: Maryland** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
| Mean GI | 0.001 | -0.006+ | -0.001*** | -0.001** | -0.004*** | -0.427 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.262) |
| Passing GI | -0.003 | 0.002 | -0.004*** | 0.002** | 0.001 | -2.953** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.416) |
| Cog. VA | 0.015*** | 0.031*** | 0.001** | 0.000 | 0.005*** | -0.509 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.270) |
| Noncog. VA | 0.006 | 0.013*** | -0.004*** | 0.007*** | 0.003 | -6.432*** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.512) |
| Outcome Mean | -0.20 | 0.03 | 0.04 | 0.90 | 0.65 | 1158.08 |
| Observations | 123,205 | 279,802 | 1,117,227 | 979,425 | 1,117,945 | 252,950 |
| $R^2$ | 0.356 | 0.592 | 0.154 | 0.239 | 0.242 | 0.772 |

# Effect of Grade Inflation: No Value-Added Controls

back

| **Panel A: LAUSD** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI | -0.053*** | -0.035*** | 0.002 | -0.009*** | -0.013*** | -8.288*** |
| | (0.010) | (0.004) | (0.002) | (0.003) | (0.003) | (2.166) |
| Passing GI | 0.001 | 0.005 | -0.012*** | 0.007** | 0.004 | -3.798 |
| | (0.009) | (0.004) | (0.002) | (0.003) | (0.003) | (2.453) |
| Outcome Mean | -0.02 | 0.04 | 0.13 | 0.58 | 0.32 | 1331.81 |
| Observations | 391,782 | 432,534 | 832,002 | 733,946 | 680,305 | 279,121 |
| $R^2$ | 0.510 | 0.656 | 0.167 | 0.295 | 0.360 | 0.734 |
| **Panel B: Maryland** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
| Mean GI | -0.002 | -0.012*** | -0.001*** | -0.001*** | -0.005*** | -0.130 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.279) |
| Passing GI | -0.002 | 0.002 | -0.004*** | 0.002** | 0.001 | -3.003** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.381) |
| Outcome Mean | -0.20 | 0.03 | 0.04 | 0.90 | 0.65 | 1158.08 |
| Observations | 123,205 | 279,802 | 1,117,227 | 979,425 | 1,117,945 | 252,950 |
| $R^2$ | 0.356 | 0.590 | 0.154 | 0.239 | 0.242 | 0.772 |

# Effect of Grade Inflation: Univariate

back

| **Panel A: LAUSD** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI | -0.052*** | -0.029*** | -0.007*** | -0.004** | -0.009*** | -11.234*** |
| | (0.007) | (0.003) | (0.001) | (0.002) | (0.001) | (2.629) |
| Passing GI | -0.043*** | -0.022*** | -0.009*** | -0.001 | -0.007*** | -10.919*** |
| | (0.007) | (0.003) | (0.001) | (0.001) | (0.001) | (2.824) |
| Cog. VA | 0.114*** | 0.058*** | 0.001 | 0.005* | 0.030*** | 25.004*** |
| | (0.011) | (0.002) | (0.001) | (0.003) | (0.003) | (3.257) |
| Noncog. VA | 0.008 | 0.016*** | -0.006*** | 0.012*** | 0.013*** | 0.594 |
| | (0.007) | (0.003) | (0.001) | (0.002) | (0.002) | (1.508) |
| Outcome Mean | 0.115 | 0.235 | 0.106 | 0.645 | 0.405 | 1,368.568 |
| Observations | 199,038. | 215,559. | 411,275. | 327,528. | 323,635. | 173,195. |
| **Panel B: Maryland** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
| Mean GI | -0.003 | -0.011*** | -0.003*** | -0.000 | -0.004*** | -1.115 |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.001) | (1.244) |
| Passing GI | -0.003 | -0.003 | -0.004*** | 0.001+ | -0.000 | -3.051** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.335) |
| Cog. VA | 0.016*** | 0.033*** | 0.001** | 0.001+ | 0.005*** | -0.521 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.300) |
| Noncog. VA | 0.007+ | 0.015*** | -0.004*** | 0.007*** | 0.003+ | -6.423*** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.517) |
| Outcome Mean | -0.20 | 0.03 | 0.04 | 0.90 | 0.65 | 1158.08 |
| Observations | 123,205 | 279,802 | 1,117,227 | 979,425 | 1,117,945 | 252,950 |

# Effect of Grade Inflation: Univariate

back

| **Panel A: LAUSD** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI | -0.052*** | -0.029*** | -0.007*** | -0.004** | -0.009*** | -11.234*** |
| | (0.007) | (0.003) | (0.001) | (0.002) | (0.001) | (2.629) |
| Passing GI | -0.043*** | -0.022*** | -0.009*** | -0.001 | -0.007*** | -10.919*** |
| | (0.007) | (0.003) | (0.001) | (0.001) | (0.001) | (2.824) |
| Cog. VA | 0.114*** | 0.058*** | 0.001 | 0.005* | 0.030*** | 25.004*** |
| | (0.011) | (0.002) | (0.001) | (0.003) | (0.003) | (3.257) |
| Noncog. VA | 0.008 | 0.016*** | -0.006*** | 0.012*** | 0.013*** | 0.594 |
| | (0.007) | (0.003) | (0.001) | (0.002) | (0.002) | (1.508) |
| Outcome Mean | 0.115 | 0.235 | 0.106 | 0.645 | 0.405 | 1,368.568 |
| Observations | 199,038. | 215,559. | 411,275. | 327,528. | 323,635. | 173,195. |
| **Panel B: Maryland** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
| Mean GI | -0.003 | -0.011*** | -0.003*** | -0.000 | -0.004*** | -1.115 |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.001) | (1.244) |
| Passing GI | -0.003 | -0.003 | -0.004*** | 0.001+ | -0.000 | -3.051** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.335) |
| Cog. VA | 0.016*** | 0.033*** | 0.001** | 0.001+ | 0.005*** | -0.521 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.300) |
| Noncog. VA | 0.007+ | 0.015*** | -0.004*** | 0.007*** | 0.003+ | -6.423*** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.517) |
| Outcome Mean | -0.20 | 0.03 | 0.04 | 0.90 | 0.65 | 1158.08 |
| Observations | 123,205 | 279,802 | 1,117,227 | 979,425 | 1,117,945 | 252,950 |

# Effect of Grade Inflation: No Contemporaneous Test Score

back

| **Panel A: LAUSD** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI, No Test | -0.019*** | -0.023*** | 0.002 | -0.008*** | -0.007*** | -2.143 |
| | (0.005) | (0.003) | (0.002) | (0.003) | (0.003) | (1.905) |
| Passing GI, No Test | -0.001 | 0.005 | -0.012*** | 0.006*** | 0.004 | -2.625 |
| | (0.005) | (0.003) | (0.002) | (0.002) | (0.002) | (1.829) |
| Cog. VA | 0.116*** | 0.056*** | 0.001 | 0.000 | 0.029*** | 25.297*** |
| | (0.010) | (0.002) | (0.001) | (0.002) | (0.003) | (3.029) |
| Noncog. VA | -0.004 | 0.011*** | -0.005*** | 0.011*** | 0.010*** | 1.625+ |
| | (0.004) | (0.002) | (0.001) | (0.002) | (0.001) | (0.950) |
| Outcome Mean | -0.02 | 0.04 | 0.13 | 0.58 | 0.32 | 1327.79 |
| Observations | 391,782 | 432,534 | 832,002 | 733,946 | 680,305 | 186,350 |
| $R^2$ | 0.521 | 0.659 | 0.167 | 0.296 | 0.364 | 0.738 |
| **Panel B: Maryland** | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
| Mean GI, No Test | 0.004 | -0.005 | -0.002*** | -0.001** | -0.004** | 0.169 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.002) | (1.300) |
| Passing GI, No Test | -0.004 | 0.000 | -0.002*** | 0.001 | 0.001 | -2.388+ |
| | (0.005) | (0.003) | (0.001) | (0.001) | (0.002) | (1.323) |
| Cog. VA | 0.016*** | 0.032*** | 0.001** | 0.000 | 0.008*** | -1.255 |
| | (0.005) | (0.003) | (0.000) | (0.000) | (0.001) | (1.377) |
| Noncog. VA | 0.007+ | 0.013*** | -0.004*** | 0.008*** | 0.003+ | -6.250*** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.594) |
| Outcome Mean | -0.19 | 0.04 | 0.04 | 0.90 | 0.67 | 1171.29 |
| Observations | 119,921 | 276,288 | 887,612 | 842,353 | 887,535 | 217,749 |
| $R^2$ | 0.358 | 0.593 | 0.160 | 0.230 | 0.252 | 0.772 |

# Effect of Grade Inflation: Los Angeles

back

| | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI (math) | -0.046*** | -0.022*** | 0.000 | -0.011*** | -0.009** | -1.129 |
| | (0.010) | (0.005) | (0.003) | (0.003) | (0.004) | (2.369) |
| Mean GI (ela) | -0.005 | -0.011*** | 0.003 | -0.006 | 0.001 | 0.679 |
| | (0.008) | (0.004) | (0.002) | (0.004) | (0.004) | (2.131) |
| Passing GI (math) | 0.011 | 0.007 | -0.011*** | 0.006+ | 0.003 | -2.459 |
| | (0.009) | (0.005) | (0.003) | (0.004) | (0.003) | (1.960) |
| Passing GI (ela) | -0.001 | -0.006 | -0.012*** | 0.005 | -0.001 | -6.945** |
| | (0.009) | (0.005) | (0.002) | (0.004) | (0.004) | (2.644) |
| Cog. VA (math) | 0.126*** | 0.017*** | 0.002+ | -0.010*** | 0.011*** | 21.299*** |
| | (0.013) | (0.003) | (0.001) | (0.003) | (0.004) | (2.862) |
| Cog. VA (ela) | 0.058*** | 0.066*** | -0.002 | 0.013*** | 0.033*** | 19.492*** |
| | (0.008) | (0.003) | (0.001) | (0.002) | (0.002) | (3.287) |
| Noncog. VA (math) | -0.005 | 0.005*** | -0.003*** | 0.007*** | 0.007*** | -0.306 |
| | (0.003) | (0.002) | (0.001) | (0.001) | (0.001) | (0.605) |
| Noncog. VA (ela) | 0.004 | 0.008*** | -0.004*** | 0.005*** | 0.004*** | 0.492 |
| | (0.004) | (0.002) | (0.001) | (0.001) | (0.001) | (1.166) |
| Outcome Mean | 0.11 | 0.23 | 0.11 | 0.65 | 0.40 | 1368.58 |
| Observations | 199,038 | 215,559 | 411,275 | 327,528 | 323,635 | 173,195 |
| $R^2$ | 0.564 | 0.679 | 0.160 | 0.307 | 0.379 | 0.746 |

# Effect of Grade Inflation: Maryland

back

| | Enrolled in Postsecondary | | Graduated from Postsecondary | | Employed | | Log Conditional Earnings | | Unconditional Winz. Earnings | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 year | 2 years | 4 years | 6 years | 1 year | 6 years | 1 year | 6 years | 1 year | 6 years |
| Mean GI (math) | -0.006*** | -0.004** | 0.001 | 0.000 | -0.005*** | -0.005** | -0.010** | 0.008 | -74.643*** | -110.426 |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.001) | (0.002) | (0.005) | (0.007) | (24.071) | (108.179) |
| Mean GI (ela) | -0.006*** | -0.005*** | 0.002 | -0.002 | -0.003** | -0.001 | -0.005 | -0.010+ | -44.788** | -181.627** |
| | (0.001) | (0.002) | (0.001) | (0.002) | (0.001) | (0.002) | (0.004) | (0.006) | (21.835) | (81.448) |
| Passing GI (math) | 0.002 | -0.002 | -0.005** | -0.007** | 0.002 | 0.003 | 0.010+ | -0.005 | 45.384 | -65.554 |
| | (0.002) | (0.002) | (0.002) | (0.003) | (0.002) | (0.003) | (0.006) | (0.010) | (34.094) | (125.684) |
| Passing GI (ela) | 0.005 | 0.005 | -0.001 | -0.003 | 0.000 | -0.003 | 0.013 | -0.019 | 19.245 | -136.213 |
| | (0.004) | (0.004) | (0.004) | (0.005) | (0.002) | (0.004) | (0.008) | (0.014) | (43.935) | (247.180) |
| Cog. VA (math) | -0.002 | -0.003 | -0.003 | -0.003 | -0.003 | -0.007*** | -0.004 | -0.005 | -10.622 | -227.701** |
| | (0.002) | (0.002) | (0.002) | (0.003) | (0.002) | (0.002) | (0.007) | (0.008) | (38.391) | (110.234) |
| Cog. VA (ela) | 0.002+ | 0.002+ | -0.004*** | 0.000 | -0.001 | 0.000 | -0.015*** | -0.001 | -79.798*** | 46.044 |
| | (0.001) | (0.001) | (0.002) | (0.002) | (0.001) | (0.002) | (0.003) | (0.006) | (16.232) | (80.076) |
| Noncog. VA (math) | 0.004*** | 0.004*** | 0.000 | 0.000 | 0.001 | 0.001 | 0.006*** | 0.003 | 22.707** | -14.261 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) | (0.004) | (11.518) | (53.920) |
| Noncog. VA (ela) | 0.004*** | 0.004*** | -0.001 | 0.000 | 0.000 | 0.001 | -0.001 | 0.003 | -3.207 | 57.061 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) | (0.004) | (13.620) | (57.590) |
| Outcome Mean | 0.65 | 0.57 | 0.26 | 0.40 | 0.69 | 0.63 | 8.40 | 9.79 | 5546.57 | 18175.75 |
| Observations | 444,650 | 388,229 | 260,877 | 127,076 | 444,650 | 127,076 | 307,329 | 80,360 | 444,650 | 127,076 |
| $R^2$ | 0.269 | 0.268 | 0.230 | 0.329 | 0.032 | 0.048 | 0.089 | 0.049 | 0.078 | 0.041 |

# Maryland High School: Additional Controls

back

| | Future Test (math) | Future Test (ela) | Held Back | Graduate in 5 Years | Took SAT | SAT Score |
|---|---|---|---|---|---|---|
| Mean GI | 0.001 | -0.007+ | -0.001*** | -0.001*** | -0.004*** | -0.407 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.254) |
| Passing GI | -0.003 | 0.002 | -0.004*** | 0.002** | 0.001 | -2.793** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.400) |
| Cog. VA | 0.016*** | 0.031*** | 0.001+ | 0.000 | 0.004*** | -0.705 |
| | (0.004) | (0.003) | (0.000) | (0.000) | (0.001) | (1.268) |
| Noncog. VA | 0.001 | 0.011*** | -0.004*** | 0.007*** | 0.002 | -6.083*** |
| | (0.004) | (0.003) | (0.001) | (0.001) | (0.002) | (1.440) |
| Outcome Mean | -0.20 | 0.03 | 0.04 | 0.90 | 0.65 | 1158.08 |
| Observations | 123,205 | 279,802 | 1,117,227 | 979,425 | 1,117,945 | 252,950 |
| $R^2$ | 0.356 | 0.591 | 0.153 | 0.238 | 0.241 | 0.772 |

# Maryland Postsecondary: Additional Controls

back

| | Enrolled in Postsecondary | | Graduated from Postsecondary | | Employed | | Unconditional Winz. Earnings | |
|---|---|---|---|---|---|---|---|---|
| | 1 year | 2 years | 4 years | 6 years | 1 year | 6 years | 1 year | 6 years |
| Mean GI | -0.006*** | -0.005*** | 0.000 | -0.002+ | -0.004*** | -0.002+ | -48.557*** | -168.062*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (12.284) | (51.641) |
| Passing GI | 0.002** | 0.001 | -0.002+ | -0.002** | 0.000 | 0.000 | 11.538 | -6.060 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (11.629) | (41.400) |
| Cog. VA | 0.001 | 0.001 | -0.004*** | -0.001 | -0.000 | -0.001 | -29.773** | -53.385 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (12.433) | (41.588) |
| Noncog. VA | 0.006*** | 0.005*** | -0.001 | 0.000 | 0.002*** | 0.001 | 33.330*** | -24.619 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (9.711) | (43.546) |
| Outcome Mean | 0.64 | 0.56 | 0.27 | 0.40 | 0.68 | 0.62 | 5444.70 | 17801.59 |
| Observations | 979,425 | 838,616 | 552,566 | 274,354 | 979,425 | 274,354 | 979,425 | 274,354 |
| $R^2$ | 0.285 | 0.278 | 0.237 | 0.338 | 0.034 | 0.049 | 0.080 | 0.040 |

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