

The Hidden Bias in College ROI Frameworks

By: Michelle Chen and Sebastian Kane

The [cost of higher education has soared](#) over the past few decades. With tuition so high that many students from low-income backgrounds are forced to take on debt, it's no wonder that students and policymakers alike are asking whether college is worth it and are seeking ways to measure the value of higher education. Return-on-investment (ROI) frameworks typically use the earnings of college graduates to quantify the value of a college education and offer policymakers a starting point to guide decisions and help families plan for higher education expenses.

The recently enacted [One Big Beautiful Bill Act](#) (OBBBA) makes the measure of "value" more consequential than ever by linking federal student loan eligibility to graduate earnings. Specifically, undergraduate programs must show that the median earnings of their graduates are at least equal to those of state residents aged 24 to 34 who hold only a high school diploma. This earnings threshold mirrors other common ROI measures, such as those developed by the [Postsecondary Value Commission](#) and [Third Way's Price-to-Earnings Premium](#) (PEP), which compare the earnings of college graduates to those of high school graduates in the same state. While these frameworks can help hold colleges accountable for ensuring that students see a financial return on their investment, they risk oversimplifying the value of higher education and reinforcing biases against lower-resourced institutions that serve a higher proportion of students of color and students from low-income backgrounds.

To explore these questions of value and accountability, we conducted original research in partnership with EdTrust. This project was carried out over six months by undergraduate data science students at Stanford University. In this brief, we summarize our research questions, methods, and key findings.

Our study investigates whether ROI frameworks commonly used in federal policy discussions unintentionally disadvantage minority-serving institutions (MSIs), which play a crucial role in [expanding opportunities for students of color](#). We hypothesize that by overlooking how a student body's socioeconomic status (SES) affects post-graduation earnings, existing ROI frameworks inadvertently penalize MSIs. Because Title III and V eligibility criteria require most types of MSIs to [enroll a high share of low-income students](#), these institutions are particularly vulnerable to ROI models that fail to account for SES-related differences in graduates' outcomes.

Our goal is to identify and analyze potential biases in two widely used ROI measures and to offer brief recommendations for improving these frameworks in practice. This research is especially timely given the new earnings threshold [introduced by OBBBA](#), which does not address several shortcomings identified in our analysis.

Comparing Existing ROI Frameworks

We compared two major approaches to measuring the return on a college education: one that captures outcomes on a continuous scale and another that relies on a pass-or-fail threshold. The latter approach reflects the same logic used in OBBBA.

Specifically, we examined [Third Way's Price to Earnings Premium \(PEP\) model](#) and the [Postsecondary Value Commission's \(PVC\) ROI framework](#).

The PEP model measures the typical time it takes for graduates to earn back the cost of attending college. It compares college graduates' median earnings to those of high school graduates in the same state, expressing the result in "years to recoup costs." This provides a simple, continuous method for estimating financial return.

The PVC framework takes a different approach. It sets clear benchmarks for economic mobility and assesses whether graduates from a given school meet those benchmarks. In other words, it uses a threshold to determine whether a college's graduates are earning enough to demonstrate a positive return. This threshold-based design mirrors the standard set in OBBBA and offers a straightforward pass-or-fail signal of institutional value.

In the following sections, we compare how colleges perform across these two frameworks to identify where their results align and where they diverge.

Our Modeling Approach

Regression analysis allows us to isolate the effect of student demographics on an institution's performance within ROI frameworks.

To assess how institutional characteristics relate to return on investment, we ran ordinary least squares (OLS) regression models using primarily publicly available data from the [College Scorecard](#), supplemented with data from [Third Way](#) and [IPUMS](#). These models isolate the effect of specific variables by holding others constant, allowing us to interpret, for example, how an institution's MSI status or student demographic makeup is associated with ROI. We also ran logistic regression models to estimate the likelihood of meeting or failing to meet a defined ROI threshold, a binary outcome that aligns conceptually with federal accountability frameworks such as [gainful employment](#) (GE) and the [Postsecondary Employment Outcomes](#) (PSOE) metrics.

Like our adapted PEP ROI measure, both GE and PEP consider program costs in addition to earnings: GE uses a debt-to-earnings ratio to ensure graduates earn enough to reasonably repay their loans, while PEP evaluates the time it takes for graduates to recoup their educational investment through post-college earnings.

We conduct analyses both with and without controlling for demographic makeup (race/ethnicity) and the percentage of students receiving Pell Grants, in lieu of a better-fitting [proxy](#) for socioeconomic status. Comparing results across these models reveals whether apparent differences in performance on ROI frameworks are due to the socioeconomic and demographic profile of the student body.

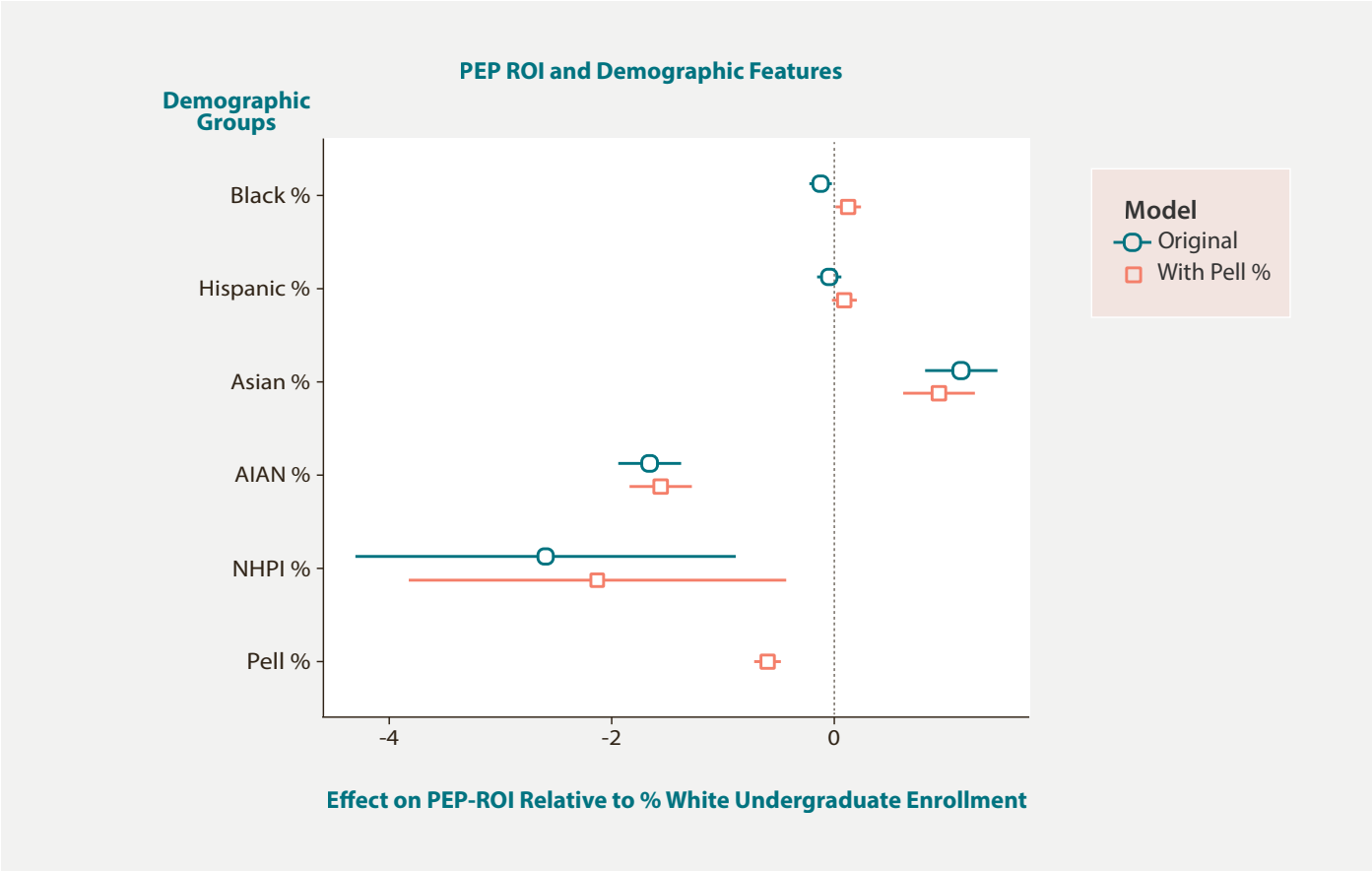
How Do Student Demographics and MSI Status Affect Measured ROI?

Overall, our findings show that both student demographics and MSI status significantly affect how institutions perform under different ROI frameworks.

In general, these measures tend to disadvantage MSIs by overlooking the socioeconomic backgrounds of the students they enroll. However, the magnitude of this effect varies across MSI types and depends on the framework used. Even after accounting for students' socioeconomic status, substantial differences in outcomes persist, indicating that deeper structural inequities, such as disparities in institutional funding, the strength of regional labor markets, and labor market discrimination, continue to shape results.

Price-to-Earnings Premium (PEP) Framework

Third Way's PEP framework defines ROI as the number of years it takes for the average student who graduates in four years to recoup the cost of their degree. To make this measure more compatible with regression analysis, we used its reciprocal, meaning that higher values indicate better returns.



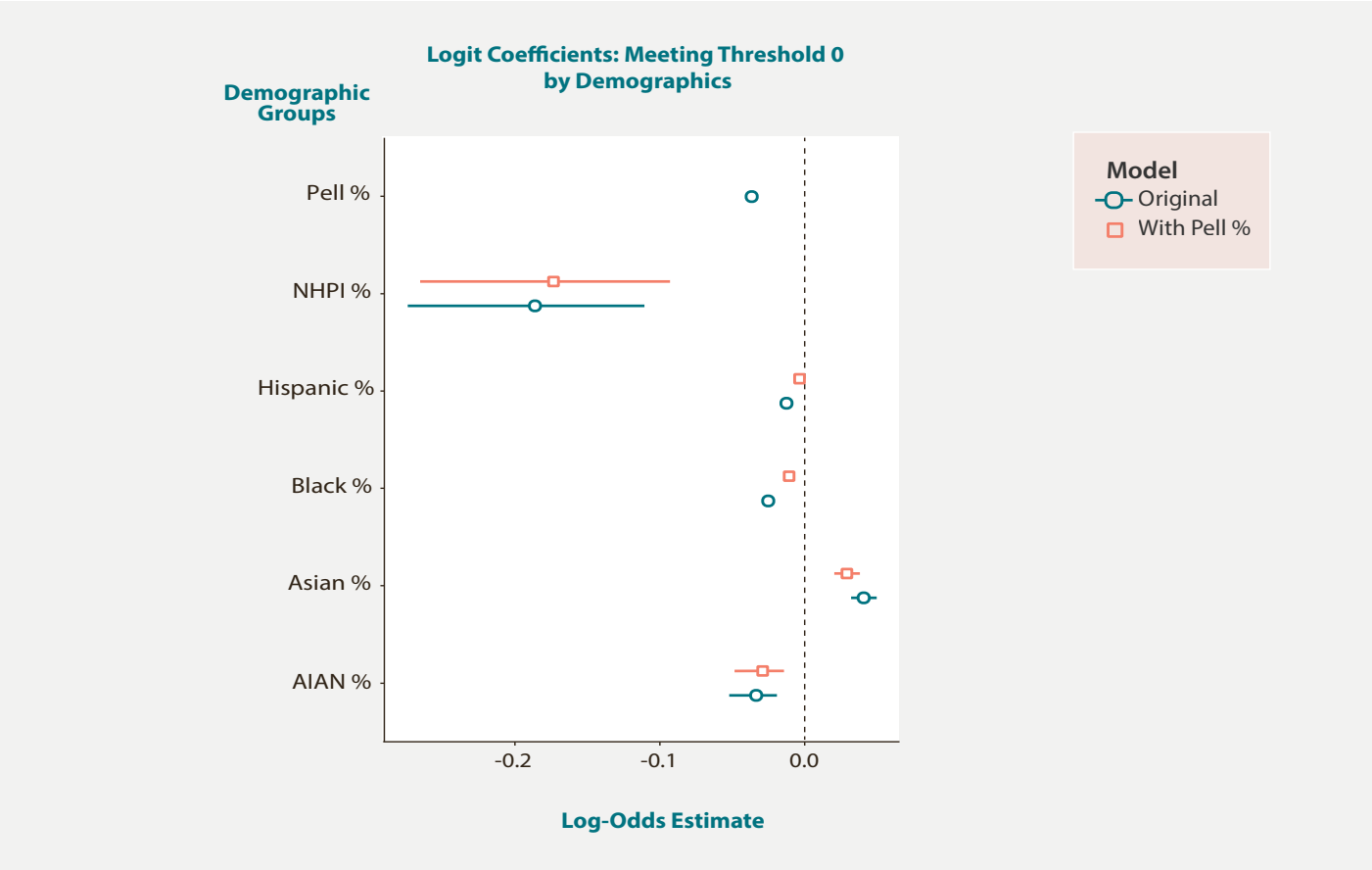
Source: Regression analysis of U.S. Department of Education College Scorecard, Third Way, and IPUMS data.

The results show that the share of certain demographic groups is associated with differences in institutional performance within the PEP framework. Graduates from institutions with higher proportions of American Indian or Alaska Native (AIAN) and Native Hawaiian or Pacific Islander (NHPI) students tend to take longer, on average, to recoup the cost of their degrees, suggesting lower returns on investment. Similarly, institutions with larger shares of students receiving Pell Grants also show lower ROI outcomes when other factors are held constant. In contrast, the presence of Black and Hispanic students has little effect on institutional performance once socioeconomic factors are taken into account. This trend is reflected in the graph, where the coefficients for Black and Hispanic students cluster near zero, indicating a minimal impact on ROI when Pell enrollment is considered.

The comparison between the “Original” and “With Pell” models highlights this pattern. After adjusting for the share of students from low-income backgrounds, some differences narrow, but performance gaps remain. This finding shows that much of the variation in measured ROI can be attributed to student characteristics rather than institutional quality.

PVC Framework – Threshold 0

The PVC’s [Threshold 0](#) standard defines success based on two criteria: whether graduates’ median earnings meet or exceed those of high school graduates in the same state, and whether they can repay the average cost of attendance with interest within 10 years. This measure, like the one used in OBBBA, provides a binary pass-or-fail signal of value.



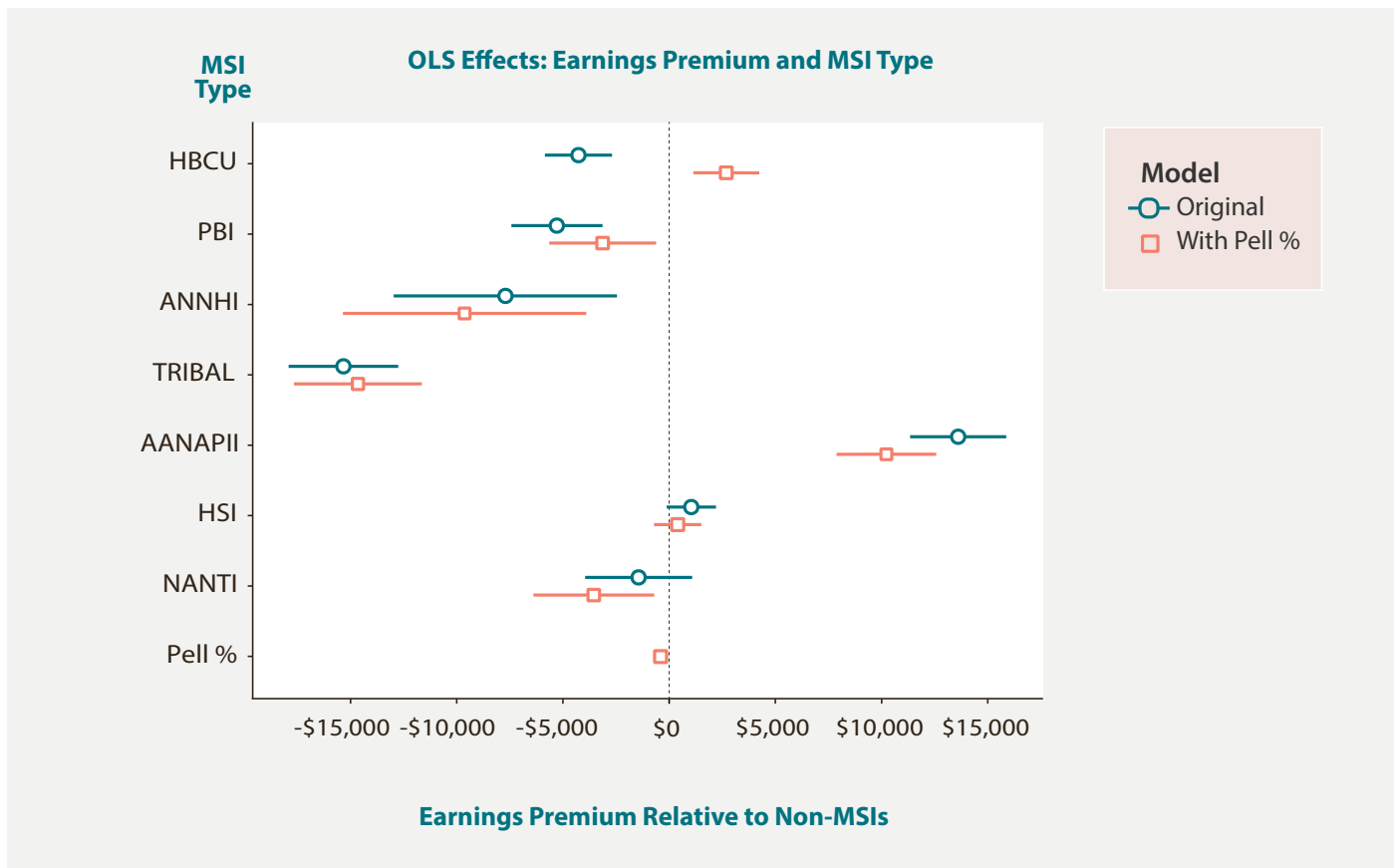
Source: Regression analysis of U.S. Department of Education College Scorecard, Postsecondary Value Commission ROI framework, and IPUMS data.

Our logistic regression analysis shows that institutions with larger shares of students from low-income backgrounds, as measured by Pell Grant recipients, as well as higher percentages of American Indian or Alaska Native (AIAN), Native Hawaiian or Pacific Islander (NHPI), Black, and Hispanic students, are less likely to meet Threshold 0. Conversely, colleges with a greater proportion of Asian students are more likely to meet this threshold. These patterns persist, and in some cases become stronger, after accounting for socioeconomic status.

However, this binary design oversimplifies outcomes. Institutions that are just below the threshold are treated the same as those that are far below it, masking small but meaningful differences in performance. This lack of nuance shows how threshold-based frameworks can distort the understanding of institutional value.

PVC Framework – Threshold 1

The PVC's Threshold 1 framework measures return on investment using graduates' median earnings 10 years after their initial enrollment. This figure is then compared to the median earnings of all workers in the same state. Since the comparison group is higher than in Threshold 0, Threshold 1 establishes a more rigorous standard.



Source: Regression analysis of U.S. Department of Education College Scorecard, Postsecondary Value Commission ROI framework, and IPUMS data.

The analysis reveals that, on average, graduates from historically Black colleges and universities (HBCUs), predominantly Black institutions (PBIs), Alaska Native and Native Hawaiian-serving institutions (ANNHIs), and tribal colleges and universities (TCUs) have lower expected earnings than graduates from non-MSI institutions. In contrast,

Asian American and Native American Pacific Islander-serving institutions (AANAPIIs) outperform non-MSI institutions on this measure.

When we account for student socioeconomic status, measured by the percentage of students receiving Pell Grants, the results shift considerably. HBCUs, for example, move from underperforming to outperforming non-MSIs, with an increase of approximately \$7,000 in average median earnings. This change suggests that much of the difference in measured ROI is due to students' initial socioeconomic status rather than institutional effectiveness.

For other types of MSIs, the shift is less pronounced but follows a similar pattern. Analyses linking the racial and ethnic composition of the student body to ROI show that, except for the share of Asian students, controlling for socioeconomic status strengthens the positive association between diversity and post-college earnings. In short, institutions serving a higher proportion of students of color are often disadvantaged by ROI frameworks that fail to consider student background.

Key Takeaways

ROI frameworks can unintentionally disadvantage certain types of institutions, especially MSIs, and the students they serve for various reasons.

1. ROI measures are not fully objective. Most ROI frameworks focus on economic metrics because they are easier to quantify. Yet, while cost, repayment, and earnings are important, these measures fail to capture the full value of higher education. [Less tangible factors](#) such as [campus climate](#), social networks, civic engagement, and [community impact](#) are equally vital considerations.
2. Socioeconomic background strongly influences outcomes. Many frameworks overlook the socioeconomic makeup of the student body, despite its strong correlation with post-graduation earnings. As a result, institutions that enroll large shares of minority students and students from low-income backgrounds may appear to underperform, even when they provide [significant upward mobility](#) for their students. For example, when student income backgrounds are considered, outcomes for HBCUs improve substantially relative to non-MSIs.
3. Threshold-based models oversimplify performance. Frameworks like the one used in OBBBA use rigid pass-or-fail measures that can mask progress and nuance. While such models make accountability easier to administer, they ignore small but meaningful incremental differences among schools that narrowly miss a benchmark. Continuous measures, such as those used in the PEP framework, provide a more accurate assessment of institutional performance.
4. The true value of higher education goes beyond economics. Purely economic definitions of value overlook the broader contributions of higher education institutions, particularly MSIs. These institutions often play a vital role in cultural preservation, community development, and [social mobility](#), and their value cannot be fully captured by income-based metrics alone.

Limitations and Implications

Our analysis faces several data limitations that affect how comprehensively ROI can be evaluated. Program-level data is often suppressed for privacy when programs are small, hindering more detailed analysis. In addition, limited data on local labor market conditions makes it difficult to assess how regional economic factors influence graduate outcomes. OBBBA presents an opportunity to improve data collection and expand the use of granular information that can better inform future evaluations of college value.

Future research should build on this work by developing models that account for factors such as local labor markets and student socioeconomic backgrounds at the program level. These refinements would allow for more accurate and fair assessments of institutional performance.

Although the OBBBA benchmark serves as a floor rather than a high bar, reliance on a single threshold has real-world consequences. Institutions just below the cutoff risk losing access to federal loans, even if they provide meaningful value to students and their communities. This binary structure can oversimplify the contributions of higher education beyond narrow performance metrics.

These outcomes place higher education leaders on campuses and in state governments in a crucial position. They must help define what “value” means for their students and communities, pointing policymakers to concrete evidence of impact such as learning outcomes, community engagement, and career readiness that extends beyond job placement. While student learning itself remains difficult to measure consistently across institutions, it must remain central to any definition of educational value.

At the same time, it is important to recognize that differences in ROI outcomes should not be interpreted as shortcomings of students or the institutions that serve them. Many MSIs achieve strong results despite structural inequities and limited resources. The challenge lies not in whom these institutions enroll, but in the systemic conditions that shape opportunities and constrain outcomes.

Defining value from the bottom up ensures that measures of success reflect what truly matters: student opportunity, community impact, learning, and long-term mobility, rather than a single earnings threshold.

Technical Appendix

PEP Framework: Full Calculation

We adapted Third Way's original Price-to-Earnings Premium (PEP) model by using the inverse of the standard calculation. This modification allows larger values to represent higher returns, making the results easier to interpret within regression analyses.

$$\text{Modified PEP-ROI} = \frac{(\text{Post-enrollment earnings} - \text{Typical high school salary})}{(\text{Total average net price} \times 4 \text{ years})}$$

PVC Framework: Threshold 0 Graph

In the Threshold 0 analysis, the x-axis represents log-odds, which measures the likelihood of an outcome. A positive value to the right of zero means that as the share of a given student group increases, the institution is more likely to meet the ROI benchmark. A negative value to the left of zero means that as the share of that student group increases, the institution is less likely to meet the benchmark. Each dot represents the estimated effect for that demographic variable, while the horizontal lines show the uncertainty around those estimates (confidence intervals).

PVC Framework: Threshold 1 Modifications

To support our analysis, we made several adjustments to the original Threshold 1 framework. Since program-level data is often suppressed for privacy when sample sizes are small (with up to 80% missing), we conducted our analysis at the institutional level. We also used actual earnings values rather than a binary pass-or-fail indicator, allowing for a continuous measure that better reflects variations in institutional performance.

For more information about the data and methodology, see the [full analysis here](#).

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