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THE EFFECTS OF PERFORMANCE-BASED FUNDING POLICIES ON STUDENT EARNINGS

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One of the main reasons why students attend college is to get a well-paying job upon completion.[1] The economic pressures facing students are likely to intensify in coming years due to the long-term effects of the pandemic and the disproportionate burdens placed on students from historically underserved groups. At the same time, public confidence in the value of higher education has fallen in recent years amid growing political polarization and concerns about the return on investment.[2]

A growing number of states allocate a portion of funding to public colleges based on student progress and completion metrics. Thirty-two states used performance-based funding (PBF) to allocate at least some funding to public higher education in Fiscal Year 2020, and 41 states have done so at some point over the last 25 years.[3] In addition to student progress and completion metrics, many states also include incentives in their PBF systems that are based on students' labor market outcomes, such as alumni earnings or the number of graduates in STEM, health, and other high-value or high-need fields.

We find that the presence of a funded PBF policy increased the earnings of former students at four-year universities by about one percent after leaving college, while overall effects for two-year colleges were smaller and less statistically significant. Equity metrics generally improved student earnings, while workforce provisions had smaller effects.

[1] Stolzenberg, E. B., Aragon, M. C., Romo, E., Couch, V., McLennan, D., Eagan, M. K., & Kang, N. (2020). *The American freshman: National norms fall 2019.* Higher Education Research Institute, University of California-Los Angeles.

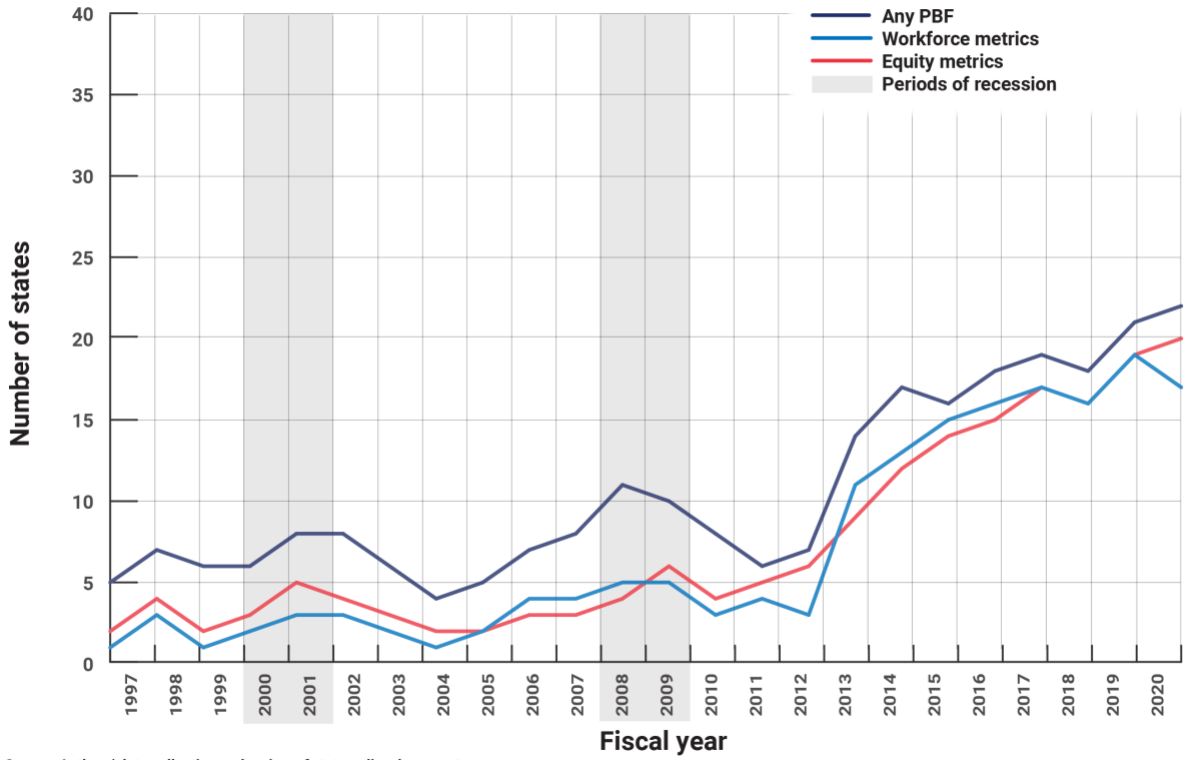
[2] Kelchen, R. (2018). *Higher education accountability*. Baltimore, MD: Johns Hopkins University Press. Parker, K. (2020, May 14). The growing partisan divide in views of higher education. *Pew Research Center*. Retrieved from https://www.pewresearch.org/social-trends/2019/08/19/the-growing-partisan-divide-in-views-of-higher-education-2/.

[3] Ortagus, J. C., Kelchen, R., Rosinger, K. O., & Voorhees, N. (2020). Performance-based funding in American higher education: A systematic synthesis of the intended and unintended consequences. *Educational Evaluation and Policy Analysis, 42*(4), 520-550.

In Fiscal Year 2020, public universities in Wisconsin had a workforce incentive to graduate students in STEM and health majors, while technical colleges were funded in part based on job placement rates and the number of graduates in high-demand fields, such as health care, accounting, and truck driving. Texas primarily funded its technical colleges on a returned value formula that was based on former students' wages and contributions to the state's tax base.

As shown in Figures 1 and 2, a majority of states that provided funding for their PBF systems in Fiscal Year 2020 included workforce incentive metrics. Seventeen of the 22 states with funded PBF systems in the four-year sector and 20 of the 29 funded two-year PBF systems had a workforce PBF measure. These are nearly as common as equity provisions (20 states in the four-year sector and 22 states in the two-year sector) and proliferated in the early 2010s during the most recent wave of PBF policy adoptions. Importantly, some PBF states operated workforce metrics during the 1990s and 2000s, which allows for an analysis of the long-term effects of PBF policies with workforce metrics on labor market outcomes.[4]

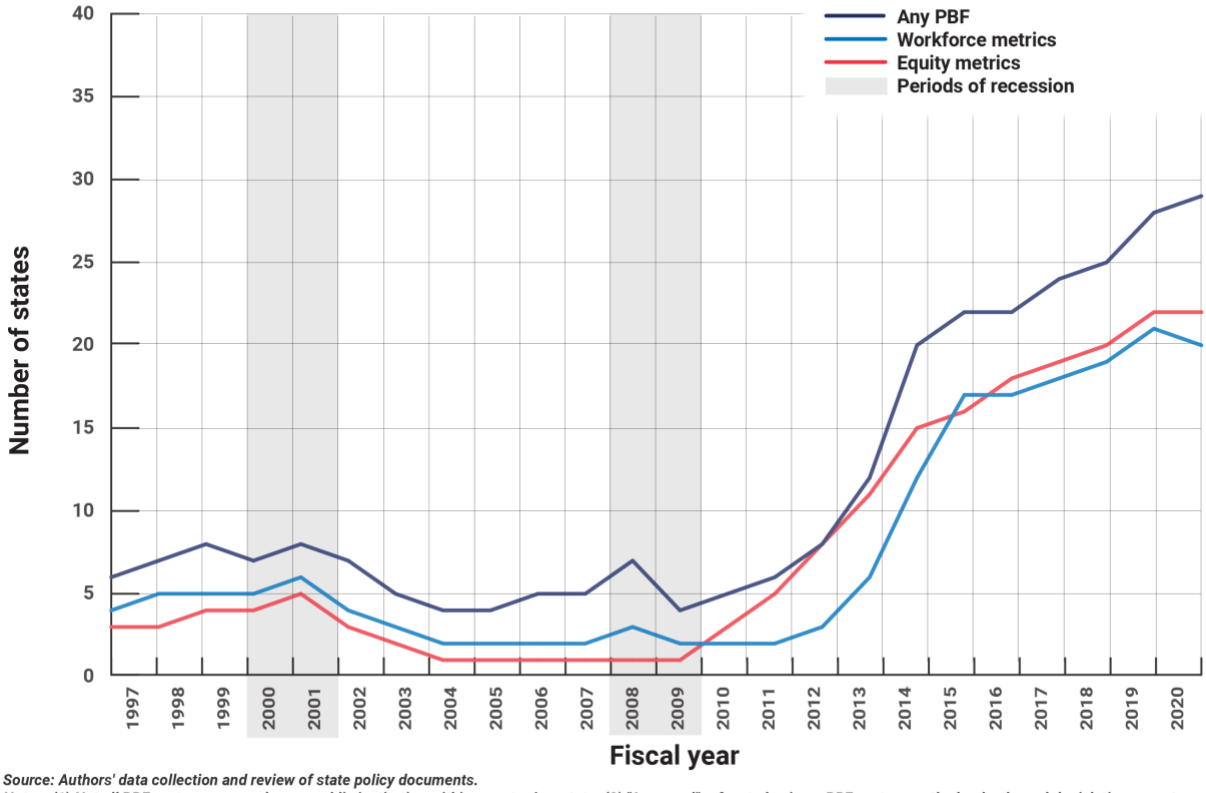
Figure 1: Trends in 4-year funded PBF policies



Source: Authors' data collection and review of state policy documents.
Notes: (1) Not all PBF systems covered every public institution within a sector in a state. (2) "Approved" refers to having a PBF system on the books through legislative or system documents that was eligible for funding. (3) "Funded" means that colleges received funds tied to student outcomes in the given fiscal year.

[4] Serban, A. M., & Burke, J. C. (1998). Meeting the performance funding challenge: A nine-state comparative analysis. *Public Productivity & Management Review, 22*(2), 157-176.

Figure 2: Trends in 2-year funded PBF policies



Source: Authors' data collection and review of state policy documents.
Notes: (1) Not all PBF systems covered every public institution within a sector in a state. (2) "Approved" refers to having a PBF system on the books through legislative or system documents that was eligible for funding. (3) "Funded" means that colleges received funds tied to student outcomes in the given fiscal year.

A sizable body of research has examined the effects of PBF policies on access and completion metrics, with most studies finding null or modest positive effects of PBF on outcomes, such as student enrollment and degree completions, and several researchers have raised concerns about restricting access to historically underserved students unless appropriate safeguards are put into place.[5] To this point, there has been no research on the effects of PBF on the earnings of former students. If colleges face incentives to increase the earnings of graduates, they may choose to focus on certain groups of students who are already well-served by the higher education system. However, they could also work to improve the labor market outcomes of students from lower-income families or first-generation students to both close equity gaps and receive more state funding.

Our research questions are the following:

1. To what extent does the presence of a funded PBF policy affect student earnings outcomes, both for all students and for historically underrepresented groups?

[5] Ortagus et al. (2020).

2. To what extent do variations in state commitments to PBF affect student earnings outcomes, both for all students and for historically underrepresented groups?
3. To what extent does the presence of workforce or equity metrics in state PBF policies affect student earnings outcomes, both for all students and for historically underrepresented groups??

To answer these questions, we used the first comprehensive longitudinal dataset of state PBF policy details.[6] We conducted three analyses separately for public two-year and four-year colleges. The first analysis used a continuous variable of percent of state general fund appropriations tied to performance metrics in a sector within a given year. The second analysis included percent PBF along with an indicator variable for whether a state had a funded equity premium in a given year across any of four categories: underrepresented minority, low-income families, adult, and academically underprepared students. The third analysis included percent PBF along with an indicator capturing whether a state had a funded workforce premium that incentivized earnings of former students, employment metrics, and whether students worked in high-demand fields, such as STEM and health.

The outcomes of interest are the earnings of students (dropouts and graduates) who received federal financial aid six and eight years after they entered college. Six-year earnings data were available for cohorts starting college between Fiscal Years 1997 and 2009 and measured students between calendar years 2003 and 2015. This included mean, median, and the 25th and 75th percentiles of earnings as well as subgroup means by family income tercile and dependency status.[7] Eight-year data were available for the 1997 to 2007 cohorts and measured students between calendar years 2005 and 2015. Only mean, median, and the 25th and 75th percentiles of earnings were available.

Our estimation strategy was to use a generalized difference-in-differences framework with two-way fixed effects that allowed for the treatment to take place in different time periods in different states. We included controls for measures of institutional pricing, financial resources, and size that could affect how institutions respond to PBF incentives and could otherwise confound our estimates of the impact of PBF. We also clustered standard errors at the Federal Student Aid OPEID level to match how College Scorecard earnings data were reported. We also estimated event study analyses as a robustness check to our main analyses.

We find that the presence of a funded PBF policy increased the earnings of former students at four-year universities by about one percent after leaving college, while overall effects for two-year colleges were smaller

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[6] For more information on how the dataset was constructed, see Kelchen, R., Rosinger, K. O., & Ortagus, J. (2019) How to create and use state-level policy data sets in education research. *AERA Open, 5*(3), 1-14. doi: 10.1177/2332858419873619.

[7] Because the College Scorecard is based on data from the Free Application for Federal Student Aid, we were unable to look at students by race/ethnicity. This is an unfortunate limitation of the dataset.

and less statistically significant. Equity metrics generally improved student earnings, while workforce provisions had smaller effects. The share of state funding tied to performance did not affect student earnings.

Performance funding policies are unlikely to go away anytime soon, so it is crucial that these policies improve the outcomes of all students. Our work finds some promise with respect to student earnings, especially in the four-year sector. One key question to consider is how much funding is necessary to encourage colleges to successfully serve low-income, racially minoritized, and first-generation students. Some formulas with equity metrics do not provide enough bonus funds to truly incentivize colleges to serve more historically underserved students.[8] We are also in the process of examining whether PBF policies affect other post-college outcomes, such as student debt burdens and loan repayment rates.

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[8] McKinney, L., & Hagedorn, L. S. (2017). Performance-based funding for community colleges: Are colleges disadvantaged by serving the most disadvantaged students? *The Journal of Higher Education, 88*(2), 159-182.