

Policy Design Matters: The Impact of Performance Funding Policies on Credential Completion at Community Colleges

By: Amy Y. Li, Alec I. Kennedy, and Margaret L. Sebastian

Performance funding (PF) policies allocate a portion of state appropriations to public colleges and universities based on pre-determined outcomes.¹ PF is an accountability tool that aims to increase transparency in how colleges use public dollars. These policies reward colleges for improving indicators of student access, retention, completion, and other factors. According to one source,² as of January 2018, 30 states were operating or implementing a PF policy for the two- and/or four-year college sectors, six other states had created but not yet implemented a policy, and five additional states were designing a policy. This amounts to 41 states with some PF activity at the start of 2018.

In Wisconsin, a PF policy for the Wisconsin Technical College System (WTCS) was adopted in 2013, with 2014-15 as the first funding year. In 2017-18, colleges received 30 percent of general state funding based on performance.³ The remaining 70 percent was allocated using

Abstract

Results from a recent study of performance funding at community colleges suggest that policies with particular features, including over 5 percent of base funding tied to outcomes, produce increases in short-term certificate completions. Policies in place for at least two fiscal years were also more likely to produce declines in associate degree completions. There was an inconsistent relationship found between performance funding and medium-term certificate completions.

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an enrollment and cost-based formula. The WTCS formula consists of ten outcomes, including a completion outcome, which is based on the proportion of a college's certificates and degrees conferred in high-demand fields. High-demand fields are determined according to the needs of Wisconsin's employers.⁴

This WISCAPE policy brief summarizes select findings from a study that investigated the relationship between PF and the completion of various types of credentials at public, two-year colleges nationally.⁵ Significantly, this study accounted for PF policy design differences. The following research questions guided our study:

1. Taking into account policy design features, does the existence of a state performance funding policy for community colleges impact the number of short-term and medium-term certificates conferred?
2. Taking into account policy design features, do community colleges shift priorities away from associate degree programs to certificates based on performance funding incentives?

We estimated average effects following PF implementation and yearly effects up to five years after policy implementation. Our study examined three different types of credentials offered at community colleges:

- **Short-term certificates** require less than one year of study (i.e., instructional time).⁶
- **Medium-term certificates** require between one and two years of study.
- **Associate degrees** require at least two years of study.⁷

During our study period from 1990 to 2013, all but three states (Colorado, Massachusetts, and Michigan) allocated the same amount of performance-based funding for short-term certificates, medium-term certificates, and associate degrees. As it is generally quicker and less costly for colleges to graduate students from certificate programs, we hypothesized that colleges would focus primarily on certificate

completions to maximize their performance-based funds. Strategies that colleges can employ to encourage certificate completions include the following: create new certificate programs, add an embedded certificate along the way to earning an associate degree, automatically award certificates to students who complete a certain number of credit hours, route existing students into short-term programs, or recruit new students into short-term programs.⁸

Performance Funding Policy Types

Differences in PF policy designs across states are likely to contribute to different college responses. We incorporated a policy typology developed by earlier higher education observers (see Table 1).⁹

Key differences among policy types:

- **Type 1** policies use PF to allocate bonus state funding, while Types 2, 3, and 4 use PF to allocate base state funding.
- **Type 1** and **Type 2** policies allocate less than 5 percent of all state funding to colleges based on PF outcomes.
- **Type 3** policies differ from **Type 2** policies in that they:
 - Allocate 5 to 24.9 percent of state funding based on PF outcomes;
 - Include outcomes for underrepresented students;
 - Affect two- and four-year college sectors;
 - Affect all public colleges in both two- and four-year sectors; and
 - Differentiate between individual college missions.
- **Type 4** policies differ from **Type 3** policies in that they:
 - Allocate over 25 percent of state funding based on PF outcomes;
 - Are funded for at least two consecutive fiscal years.



Table 1: Performance funding policy typology

	Type 1	Type 2	Type 3	Type 4
State completion goals	Yes/no	Yes/no	Yes	Yes
Base funding (only or in addition to bonus funding)	No	Yes	Yes	Yes
Proportion of funding tied	<5%	<5%	5-24.9%	≥25%
Funding level	Low	Low	Moderate	Substantial
Both 2-year and 4-year sectors	No	Yes/no	Yes	Yes
All colleges within sector	Yes/no	Yes	Yes	Yes
Mission differentiation metrics	No	Yes/no	Yes	Yes
Completion metrics	Yes/no	Yes	Yes	Yes
Underrepresented student metrics	Yes/no	Yes/no	Yes	Yes
Sustained for 2 or more consecutive fiscal years	No	No	No	Yes

Source: Adapted from Snyder (2014) and Snyder and Fox (2016).

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<http://journals.sagepub.com/doi/10.1177/0091552117743790>

Note: Yes/no indicates a policy can be in this category whether it meets the requirement or not. Snyder and Fox identify Type 1 as having no completion metrics, but we code states with completion metrics and only bonus funding as Type 1 (all states in our sample have completion metrics).

Background on the Labor Market Benefits of Community College Credentials

To provide context, this section summarizes recent literature on the economic benefits of community college credentials for graduates. In 2015, certificates made up 25 percent of sub-baccalaureate degree awards, up from 16 percent in 2005, while associate degree completions grew more modestly.¹⁰ Many certificates are in vocational fields, which prepare graduates for a specific occupation (e.g., business, computer technologies, mechanics, construction). Other certificate programs award credits in general education, which are transferable to a two- or four-year degree.

A recent review of eight, state-level studies showed that students who graduated with associate degrees experienced wage gains.¹¹ Annual earnings gains averaged about \$4,640 for men and \$7,160 for women, compared to those who attended two-year colleges but did not complete any credential. Expressed in percentages, men experienced an 18 percent increase in annual wages and women experienced a 26 percent increase after completing an associate degree. Certificates as a whole tended to provide more modest wage gains at \$2,120 for men and \$2,960 for women, annually. Evidence suggests that certificates that require more credits (i.e., longer periods of study) provide greater wage gains than shorter-term certificates.¹²

For short-term certificates specifically, one study concluded that graduates earned lower wages compared to students who attended college but did not graduate.¹³ A different study showed a \$347 earnings *loss* for women (\$1,388 annually) and a \$279 quarterly earnings loss for men (\$1,116) who completed short-term certificates.¹⁴ There are exceptions to this general trend. For instance, one study



found that men who obtained short-term certificates in protective services experienced wage gains of 22 percent.¹⁵ Wage gains also vary by discipline across all levels of two-year credentials—in one study, gains were highest in nursing and health fields, more modest for other vocational fields, and negligible for the arts and humanities.¹⁶

The results of all of these studies suggest that longer-term certificates and associate degrees are more beneficial for students entering the labor market than short-term certificates. With this context in mind, we examined how PF policies impacted student certificate and associate degree completions.

Research Methods

In our dataset, we looked at states that adopted PF policies between 1990 and 2013. These states all allocated funding based on completion metrics, measured as total credentials, credentials per FTE, and/or graduation rates. Our dataset consisted of 751 colleges across 24 years. We considered the presence or absence of each of the four PF policy types and examined credential counts averaged across all post-policy years. We then considered yearly effects of each policy type from one to five years after policy adoption.

We incorporated a difference-in-differences strategy. This quasi-experimental technique allowed us to examine whether public, two-year colleges in states with PF graduated more (or fewer) students than similar colleges in states without PF. Because other factors can impact college completion, we controlled for time trends, college-level characteristics, and state-level factors.

Figure 1: Performance funding policy timeline and typology for community colleges (1990-2014)

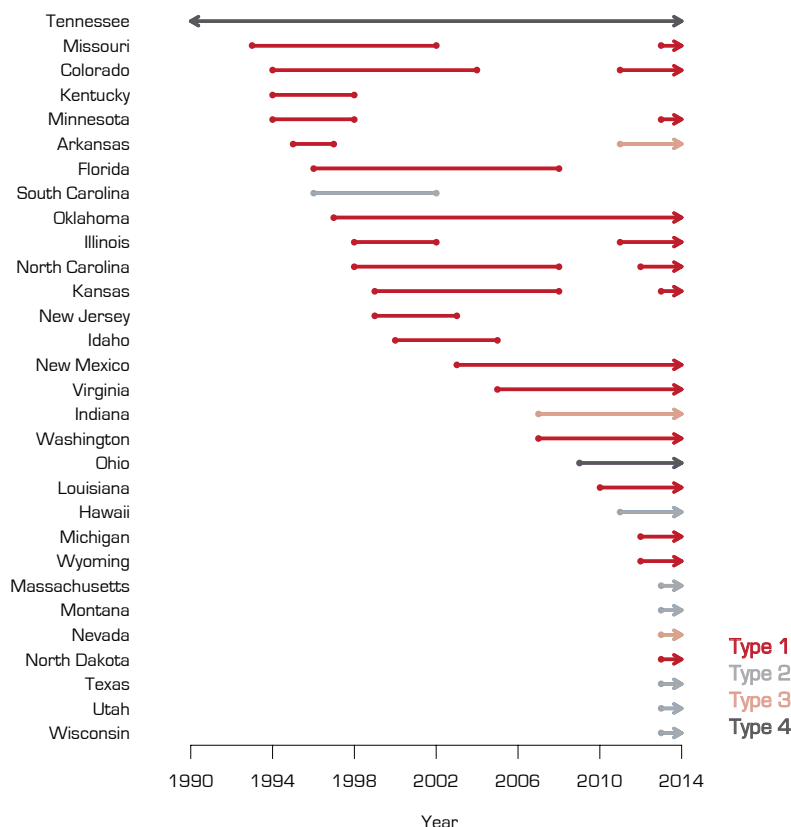


Figure 1 (previous page) shows the years of each state's PF policy, starting with the policy adoption year, as well as the policy type. While the figure displays Tennessee, we excluded Tennessee in our analysis, because the state operated PF across all years in our dataset, preventing comparisons to the state's non-PF years. Several states started PF in the last year of our dataset, thus, findings may have differed if more recent years were included.

Findings

In Table 2, we show our first set of findings on the average effect of PF on credential completions. A positive sign (+) denotes a significant increase in the specified credential, a negative sign (-) denotes a significant decrease. The percentages indicate the magnitude of changes—the percent difference in credentials at a college after PF began compared to a similar college, during the same time frame, without PF. A blank appears in Table 2 where we detected no statistically significant difference.

Table 2: Average impact of performance funding on credential completions

	Short-term certificates	Medium-term certificates	Associate degrees
PF Type I			
PF Type II			
PF Type III	[+] 71%		
PF Type IV	[+] 37%		[-] 18%

Note: + positive effect; - negative effect.

Finding #1 — On average, performance funding policies that allocate at least 5 percent of base funding to outcomes produce increases in short-term certificate completions.

In the years following the start of a PF policy, Type 1 and Type 2 policies did not yield changes in certificate or associate degree completions. However, Type 3 policies, which allocate 5 to 24.9 percent to outcomes, produced a 71 percent increase in short-term certificate completions compared to states with no PF. States with Type 3 policies included Arkansas, Indiana, and Nevada (Figure 1). Colleges within these states conferred about 100 additional short-term certificates on average than those in states with no PF. Ohio was the only state with a Type 4 policy, which allocates over 25 percent of state funding based on outcomes. The state saw a 37 percent increase in short-term certificate completions, or about 52 more certificates per college on average compared to colleges without PF.

Beyond the percentage of base funding tied to outcomes, Type 3 and Type 4 PF policies also have additional design features. These include outcomes for underrepresented students, outcomes that differentiate between college missions, and PF for all public colleges in both two- and four-year sectors. We recognize that we cannot draw conclusions on whether these individual design features contributed to an increase in short-term certificate completions.

Additionally, we found that PF policies of all four types resulted in no significant changes to medium-term certificate completions, on average (Table 2).



Finding #2 — On average, performance-funding policies that allocate over 25 percent of base funding to outcomes and are active for two or more years produce increases in short-term certificates and declines in associate degrees.

For associate degrees, Ohio's Type 4 policy was the only one to produce any changes. The state experienced an 18 percent decline in associate degree completions. For the average college under Type 4, this would mean 96 fewer associate degrees. Thus, we conclude that Type 4 policies, which have been in place for at least two years and allocate over 25 percent of funding to outcomes, may result in fewer associate degrees conferred. However, further study is encouraged, as this conclusion is based on results in a single state.

Finding #3 — Performance-funding policies that allocate higher percentages of base funding result in more short-term certificates over time.

To visually display our findings on the yearly effects of PF by policy type, we took the average college in the average state and created figures to show how credential completions might change from year one to year five of a newly implemented PF policy.

Each graph in Figure 2 shows the number of completions at a college under PF, subtracted by the number of completions at a college not under PF—the first difference. The shaded gray areas represent confidence intervals generated from our analyses.

Figure 2: Changes in short-term certificate completions (at an average college) 1-5 years after PF policy adoption

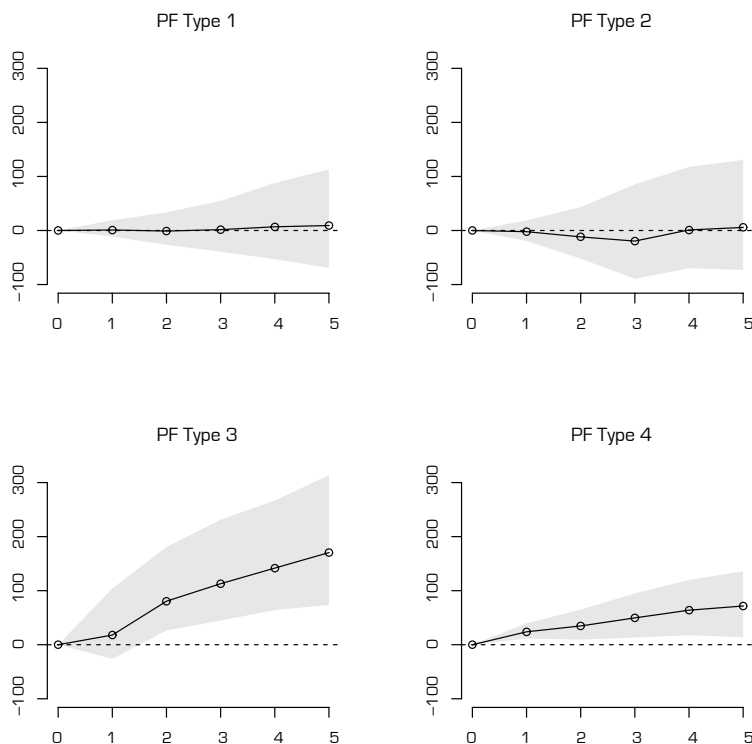


Figure 2 shows changes in short-term certificates during each year from year one to year five, starting with the PF adoption year (labeled zero). Policies categorized as Type 1, with less than 5 percent of funding tied to outcomes, all of which is bonus and not base funding, yield no changes to short-term certificate completions at the average college, compared to the colleges not affected by a PF policy (Figure 2, top-left). This is also true for colleges under Type 2 policies.

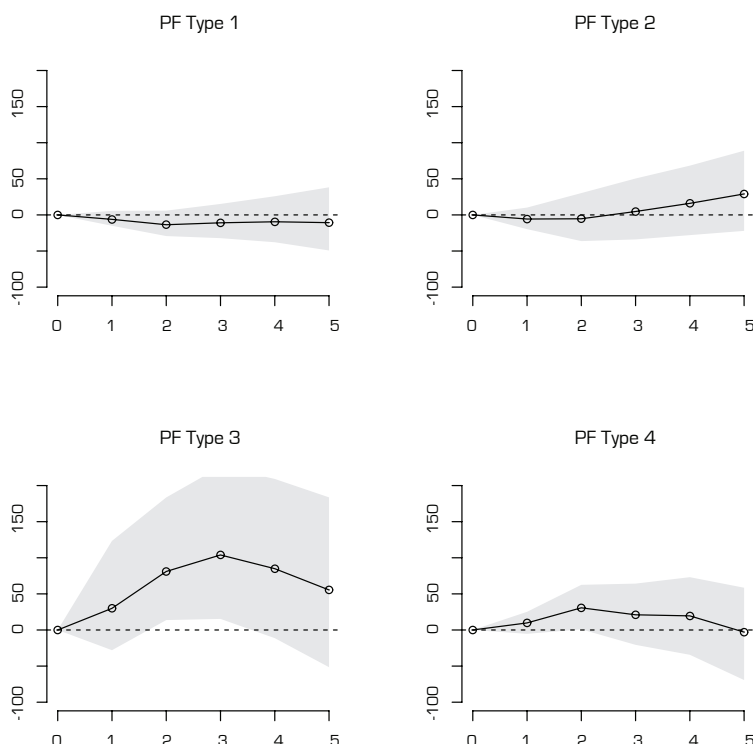
By contrast, the average college in states with Type 3 or Type 4 policies has higher numbers of short-term certificate completions relative to those with no PF policy. While Type 3 policies produce no significant changes during the first year, by the second year, short-term certificate completions are higher. This rising trend continues in the third, fourth, and fifth years, equivalent to 113, 142, and 170 additional short-term certificates conferred at the average college, respectively.

Type 4 policies produce changes starting with the first year, when short-term certificates increase by 62 percent, equivalent to 24 additional certificates conferred. Under a Type 4 policy, short-term certificates continue to be significantly higher during the third, fourth, and fifth years.

Finding #4 — The impact of performance funding on medium-term certificates over time is inconsistent, regardless of policy type.

Overall, PF policies do not appear to have a consistent effect on medium-term certificate completions. As shown in Figure 3, medium-term certificates might rise during some years for colleges under PF yet decline in other years, regardless of policy type.

Figure 3: Changes in medium-term certificate completions (at an average college) 1-5 years after PF policy adoption

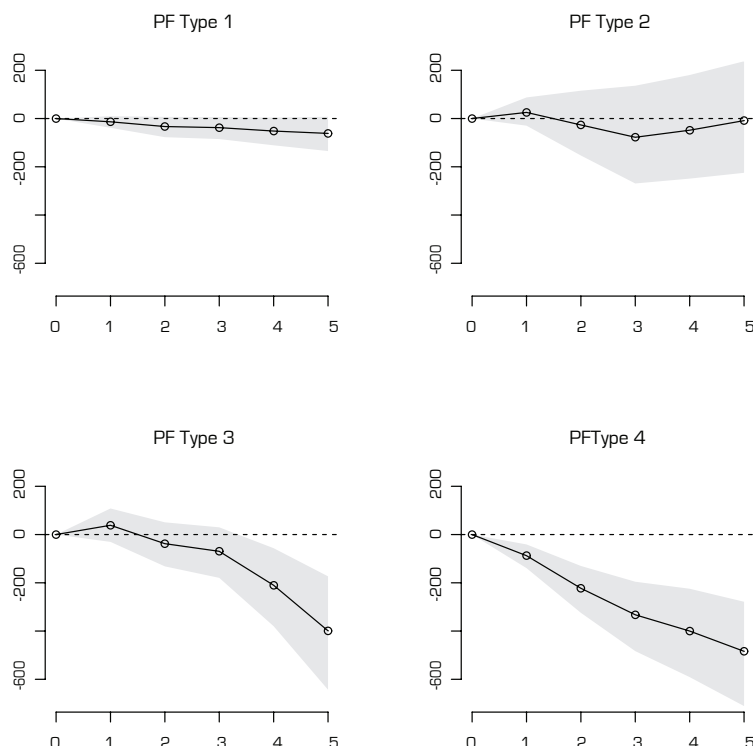


Finding #5 — Performance funding policies that allocate higher percentages of base funding to outcomes result in fewer associate degrees over time.

With respect to associate degree completions, PF Types 1 and 2 do not produce measurable changes during any of the five years following PF policy adoption. While the line graphs in Figure 4 show fewer degrees compared to non-PF colleges, the confidence intervals of these lines overlap with zero, meaning that the direction of the effect was not precise (Figure 4, top-left and top-right).

On the other hand, associate degrees show a clear decline among PF Types 3 and 4. Type 3 policies produce statistically significant declines in the second, fourth, and fifth year (Figure 4, bottom-left). In the first year of PF Type 4, associate degrees decline by 16 percent, equivalent to 88 fewer degrees compared to what would have been conferred under no PF. Significantly, colleges under Type 4 confer fewer associate degrees during all five years after PF policy adoption (Figure 4, bottom-right).

Figure 4: Changes in associate degree completions
(at an average college) 1-5 years after PF policy adoption



Policy Recommendations

As described in the introduction to our report, performance funding has a policy goal to improve college retention and completion. In addition, a core mission of community colleges is to prepare students for the workforce. Our findings suggest that PF policies that allocate a higher percentage of base funding to outcomes lead to more short-term certificate completions and fewer associate degree completions. This increase in short-term certificates (which offer negative to minimal wage gains) and decline in associate degrees (which offer substantive wage gains) suggests potentially damaging consequences for students.

Many PF policies offer equivalent funding allocations for completions of short-term certificates, medium-term certificates, and associate degrees. When designing PF policies, policymakers may not have anticipated that this would encourage colleges to direct students into short-term certificate programs. Our research supports the notion that colleges focus on graduating more students from short-term certificate programs in pursuit of short-term funding rewards.

The use of PF as an accountability tool, especially in the context of unstable or unpredictable state investment in higher education, may prompt colleges to pursue practices that improve student completion, but in programs and fields that offer wage gains that are limited or unclear. We caution policymakers to consider whether increasing graduates of short-term programs is an intended higher education attainment goal.

Some states are already heeding this recommendation. In Tennessee, for example, the PF model for 2015-2020 offers different funding rewards for associate degrees, medium-term certificates (1-2 years), and short-term certificates (less than 1 year).¹⁷

From a student's perspective, when deciding between a certificate program and a lengthier associate degree program, a short-term program might be more appealing. Students might not have access to information on whether their program of study will increase their earnings after graduation. Because certificates count as an earned credential, there is a possibility that students might be less likely to continue college after completing a certificate, even if they initially started college with intentions to earn an associate degree or to transfer to a four-year institution. We encourage additional research to understand how a student's choice of program is informed by knowledge of labor market outcomes or related to programs offered.

Further research is necessary to distinguish which PF policy design features matter the most in impacting college completion. Our study considered policy types, focusing especially on the percentage of funding tied to outcomes. However, it is unclear whether specific features in Type 3 and Type 4 policies, such as the inclusion of outcomes for underrepresented students and differentiation in outcomes according to college mission, contribute to changes to credential completions. In fact, the use of PF outcomes for underrepresented students (also known as premiums, at-risk measures, weighted metrics, or equity metrics), and the recognition that colleges have different missions, are considered best practices in designing PF policies.¹⁸

In summary, our findings provide evidence that PF policy designs matter. Policies that tie a higher proportion of base state funding to outcomes and that are funded for at least two years are more likely to move the needle on graduation. Policymakers should pay careful attention to policy design, and continually evaluate their policy's results, to ensure that PF is fostering its intended outcomes that are beneficial to students.



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Endnotes

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⁷ We did not investigate long-term certificates, which require two to four years of study. Given their longer study period, long-term certificates do not compete directly with associate degrees, and few community colleges confer them.

⁸ Select colleges in Tennessee were found to incorporate such strategies to increase certificate completion, according to Ness, E. C., Deupree, M. M., & Gándara, D. (2015). *Campus responses to outcomes-based funding in Tennessee: Robust, aligned, and contested*. Nashville, TN: Tennessee Higher Education Commission.

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