

Need-Based Financial Aid in Wisconsin

State Policy and Student Pathways

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Preface

Making college accessible to all includes making it affordable to lower-income families. A growing policy strategy at the state level is to provide individual students with need-based financial aid to offset tuition and living expenses. This strategy inherently presents challenges in choosing which income levels are eligible to receive aid, identifying the eligible population, and delivering aid at a time and in an amount that will meaningfully support college attainment.

In partnership with the state of Wisconsin, RAND Corporation researchers created and analyzed a new database connecting state grant aid applications to the educational attainment of applicants. The Wisconsin experience reflects several national trends and several challenges faced by other states operating similar financial aid programs. This report describes those trends and challenges, and how research might be used to support policy decisions.

This report was funded by the Ascendium Education Group, with support for earlier data collection provided by the Spencer Foundation. The data were provided under a data sharing agreement between RAND and the Wisconsin Higher Educational Aids Board (HEAB). We also thank the Wisconsin Department of Public Instruction and the National Student Clearinghouse for providing data to HEAB.

Note that this is an updated version of the original report, first published in early 2020. A secondary detailed review indicated that some refinements were needed in Tables 2.1 and 2.2 and Figures 2.1 and 2.2, as well as the corresponding text, although those changes did not substantively affect the findings.

About RAND Education and Labor

This report was undertaken by RAND Education and Labor, a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking.

More information about RAND can be found at www.rand.org. Questions about this report should be directed to Drew M. Anderson at drew@rand.org, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

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Summary

Higher education finance has drawn media and policy attention because of rising tuition, rising student debt, and the competition among elite colleges for resources and students, but there are many more issues that are worthy of discussion. Many of the most important decisions in higher education finance are made at the state level. Education is largely delivered by systems of two- and four-year public institutions that draw most of their students and funding from their home state. Most of these institutions do not deal with massive student loans taken by graduate and professional students. They do not struggle with deciding who to accept, because admission is open to any student. Their mission is to educate state residents, and their main challenge is to increase the completion rates of certificates, degrees, and credentials, particularly for such disadvantaged groups as lower-income students.

Following the recession spurred by the 2008 global financial crisis, state budgets for higher education began to shift. States increasingly chose to target subsidies to particular students rather than to institutions. Direct appropriations to colleges and universities (to support instruction, keeping tuition low, or other purposes) remained the main component, but they declined on a per-student basis.¹ Spending on financial aid programs increased on a per-student basis, particularly for low-income students.² However, the success of this new trend in promoting equity and producing college graduates is not clear.

This report is a case-based effort to shed light on how well state aid policies are doing at closing attainment gaps between students from low- and higher-income backgrounds.³ It focuses on the successes, challenges, and opportunities for the state of Wisconsin and its flagship aid program, the Wisconsin Grant. This report examines three areas: the *design* of effective aid policies and processes, *program implementation* under time and budget constraints, and the *building of evidence* on aid program effectiveness. The findings related to the Wisconsin case can inform the state on how to build on successes and mediate challenges related to state student aid going forward. The findings also offer insight to other states wanting to better design, implement, and build evidence for their state student aid programs.

¹ State Higher Education Executive Officers Association, *State Higher Education Finance: FY 2018*, Boulder, Colo., 2019.

² National Association of State Student Grant and Aid Programs, *48th Annual Survey Report on State-Sponsored Student Financial Aid: 2016-2017 Academic Year*, Washington, D.C., 2018.

³ See also Sandy Baum, David W. Breneman, Matthew M. Chingos, Ronald G. Ehrenberg, Pamela Fowler, John Hayek, Donald E. Heller, Allison G. Jones, David A. Longanecker, Timothy J. Nesbitt, Judith Scott-Clayton, Sarah E. Turner, Jane V. Wellman, Grover J. Whitehurst, *Beyond Need and Merit: Strengthening State Grant Programs*, Washington, D.C.: Brown Center on Education Policy, Brookings Institution, May 2012.

How the Report Is Organized

The remainder of the report is organized into six chapters. Chapter 1 offers further contextual background on the general challenges of supporting students through need-based financial aid at the state level. Chapter 2 describes the college attainment gaps in terms of income that the Wisconsin Grant was developed to address, and introduces a new database that describes student pathways of Wisconsin Grant program alumni. In Chapter 3, we examine the design of the Wisconsin Grant to understand how it interacts with the federal Pell Grant and college costs across four sectors of higher education: the public university system, private nonprofit colleges and universities, the technical college system, and two tribal colleges. Chapter 4 describes the implementation of the Wisconsin Grant, specifically in relation to its “first-come first-serve” policy. Chapter 5 describes how these analyses were made possible by collaboration between the state and researchers. The database used in this report has supported a rigorous analysis of the Wisconsin Grant at technical colleges, but there are still challenges to building evidence in Wisconsin and elsewhere. The report concludes with Chapter 6, in which we discuss ways forward for Wisconsin and offer considerations for other state aid organizations.

Key Findings

- Lower-income students have lower college graduation rates than their higher-income peers. Income gaps persist regardless of gender, race and ethnicity, level of academic preparation, urban/rural status, and high school quality, and across different types of postsecondary institutions.
- The design of financial aid programs imposes complex procedures to target aid where it is needed most. The lowest-income group has significant financial need that is not met by current financial aid systems, and students in that group are most likely to lose access to financial aid by filing applications too late.
- Implementation challenges are exacerbated by tight state budgets following recessions, and shortages of aid disproportionately affect older adult students returning to college during downturns in the labor market.
- Aid programs seeking to maximize impact should alter designs to provide additional funds to the lowest-income students. Within current designs, states should allocate funding so that all students who are financially eligible can access aid. It is also important to remove barriers to aid application and renewal, and to support comprehensive data systems so that these programs can be continually improved.

Abbreviations

DPI	Wisconsin Department of Public Instruction
EFC	Expected Family Contribution
FAFSA	Free Application for Federal Student Aid
FRPL	free or reduced-price lunch
HEAB	Wisconsin Higher Educational Aids Board
HS	high school
NSC	National Student Clearinghouse
UW	University of Wisconsin
WAICU	Wisconsin Association of Independent Colleges and Universities
WTCS	Wisconsin Technical College System

1. Challenges for State Need-Based Aid Programs

To offer context for the rest of the report, this chapter describes the challenges of supporting students through need-based financial aid at the state level. States must decide which students are eligible for aid and how much aid each student should receive. They must also decide how aid should vary across types of institutions with different tuition levels. States benefit from federal aid policies and the use of the federal aid application form, but they have to manage with more-limited budgets than the federal government does. Both federal and state systems for identifying eligible students place administrative burdens on students, and aid often fails to reach all eligible individuals. All of these issues call for detailed analysis to find the right balance between providing broad access to aid and targeting funds where they are needed most. But evaluation and improvement of aid processes require high-quality databases, which are often unavailable.

Considering State Aid in the Federal Context

States are in the middle of the higher education policy landscape. From above, states inherit programs and policies from the federal government.⁴ From below, states deal with semiautonomous systems of public colleges and universities, and with private institutions within their borders. States compete with their neighbors for students and workers. State legislators must weigh the value of investing in college affordability against other uses of public funds, and then must decide how to allocate higher education support to maintain quality while keeping prices low. These policy decisions affect students and families throughout the United States, yet often, these decisions are made without a strong evidence base.⁵

One major trend in state higher education finance is the shift toward providing need-based grant aid to students. Grant aid can be used to offset tuition or living costs, and, unlike a student loan, it does not need to be paid back. Historically, states have provided financial appropriations directly to public universities and community colleges, and the bulk of grants and loans to individual students have come from the federal government.⁶ That overall balance is still in effect, but in the wake of the 2008 recession, states began increasingly offering targeted grants to

⁴ Sandy Baum, Douglas N. Harris, Andrew Kelly, and Ted Mitchell, *A Principled Federal Role in Higher Education*, Washington, D.C.: Urban Institute, September 2017.

⁵ Michael McPherson and Sandy Baum, *The Federal-State Higher Education Partnership: Rethinking the Relationship*, Washington, D.C.: Urban Institute, April 2017.

⁶ Pew Charitable Trusts, *Two Decades of Change in Federal and State Higher Education Funding*, Washington, D.C.: Pew, October 2019.

students to supplement federal aid, in place of spending on direct appropriations to schools.⁷ Tuition went up as a result.⁸ Need-based aid, in turn, keeps the net price down for lower-income students.⁹

The goal of need-based aid is to promote equity in college attainment, but equity is declining while spending on aid proliferates. There are longstanding gaps in college attainment by family income, and these gaps have widened over the last decades of the 20th century and into the early decades of the 21st.¹⁰ During the same period, the financial aid available through the Pell Grant increased dramatically: The federal government tripled its spending in real dollar terms from 1988 to 2018.¹¹ Still, within the most recent cohort of full-time, first-time, degree- or certificate-seeking undergraduate students, graduation rates of Pell Grant recipients were 41 percent versus 61 percent among other students.¹²

There are several potential reasons that inequity in college completion is outpacing expansions in need-based aid. Financial aid might be insufficient to cover rising costs. Overall, the net price of college is still rising, as tuition has increased faster than available aid.¹³ Living costs also matter. Among today's college students, independent adult learners returning to college to pursue postsecondary credentials outnumber dependent 18-year-olds transitioning from high school. Today's students of all ages are more likely to go through college juggling work and family responsibilities, and they often struggle to pay for basic needs like food and housing.¹⁴ Students who are eligible for aid might not access it because of administrative

⁷ State Higher Education Executive Officers Association (SHEEO), *State Higher Education Finance: FY 2018*, Boulder, Colo.: SHEEO, 2019.

⁸ Douglas A. Webber, "State Divestment and Tuition at Public Institutions," *Economics of Education Review*, Vol. 60, October 2017.

⁹ National Association of State Student Grant and Aid Programs (NASSGAP), *48th Annual Survey Report on State-Sponsored Student Financial Aid: 2016-2017 Academic Year*, Washington, D.C., 2018.

¹⁰ Phillippe Belley and Lance J. Lochner, "The Changing Role of Family Income and Ability in Determining Educational Achievement," *Journal of Human Capital*, Vol. 1, No. 1, Winter 2007; William G. Bowen, Matthew M. Chingos, and Michael S. McPherson, *Crossing the Finish Line: Completing College at America's Public Universities*, Princeton, N.J.: Princeton University Press, 2009.

¹¹ Sandy Baum, Jennifer Ma, Matea Pender, and C. J. Libassi, *Trends in Student Aid 2019*, New York: College Board, 2019.

¹² Scott A. Ginder, Janice E. Kelly-Reid, and Farrah B. Mann, *Graduation Rates for Selected Cohorts, 2009–14; Outcome Measures for Cohort Year 2009–10; Student Financial Aid, Academic Year 2016–17; and Admissions in Postsecondary Institutions, Fall 2017: First Look (Provisional Data)*, Washington, D.C.: U.S. Department of Education, 2018.

¹³ Jennifer Ma, Sandy Baum, Matea Pender, and C. J. Libassi, *Trends in College Pricing 2019*, New York: College Board, 2019.

¹⁴ Sara Goldrick-Rab, Christine Baker-Smith, Vanessa Coca, Elizabeth Looker, and Tiffani Williams. *College and University Basic Needs Insecurity: A National #RealCollege Survey Report*, Philadelphia, Pa.: Hope Center, Temple University, April 2019.

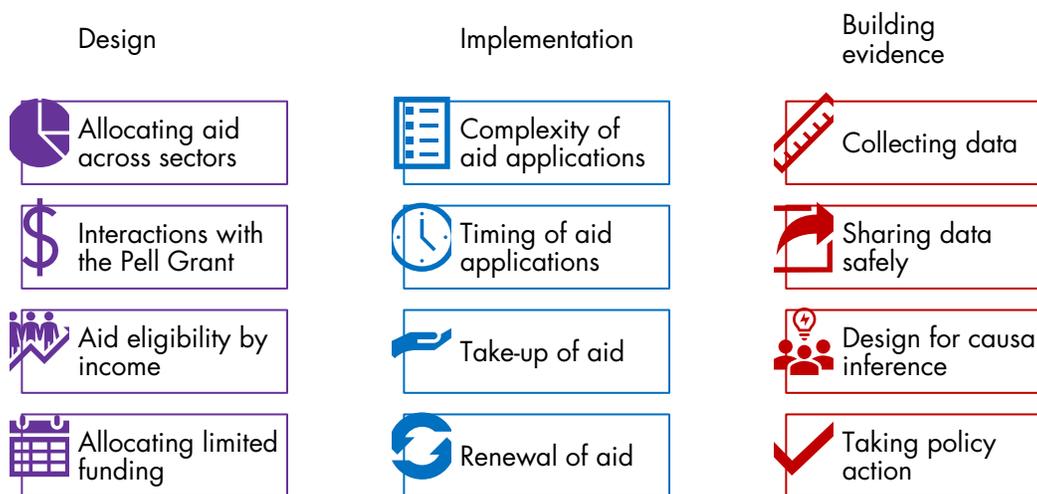
complexity. Finally, aid programs might not be designed to target scarce funds where they are needed most.

States have the potential to increase the effectiveness of their aid programs, but they face several challenges. The challenges fall into three key categories: design, implementation, and building evidence of effectiveness.

Designing Effective Aid Programs

States endeavor to make financial aid effective by designing aid programs to fit the needs of their population (see design challenges in Figure 1.1). The design choices include who is eligible for aid (i.e., what income ranges, ages, and attending which schools) and how much aid they are eligible for (typically a function of income, age, and other factors). These decisions interact with federal policy and with tuition and costs present in the state.

Figure 1.1. Challenges for State Need-Based Aid Programs



The most commonly used measure of whether families can afford college is the Expected Family Contribution (EFC), from the Free Application for Federal Student Aid (FAFSA).¹⁵ A lower EFC value means that the student’s family is expected to have fewer financial resources to

¹⁵ Sarah Pingel, “50-State Comparison: Need- and Merit-Based Financial Aid,” webpage, Education Commission of the States, June 17, 2019.

pay for college, and therefore greater financial need.¹⁶ Using the EFC provides a benefit to states because they are able to use the same index that determines Pell Grant aid, without requiring any additional application steps or calculations.¹⁷

But the EFC might not be a sufficient measure of financial need, for a few reasons. The EFC is also the basis for the Pell Grant, so the students with the lowest EFCs also get the largest federal grants, partially meeting their financial needs. The way the EFC is calculated results in a large number of students having an EFC of zero, the lowest possible value. Because there are so many individuals with EFCs of zero, they actually represent a wide range of family incomes despite being grouped together and treated identically for aid eligibility purposes.¹⁸ Perhaps because of the deficiencies of the EFC, two-thirds of states supplement FAFSA information with additional measures to determine eligibility.¹⁹ These measures include tuition and other sources of aid, such as the Pell Grant.

Implementing Aid Programs

Using the FAFSA system to deliver state aid presents some additional implementation challenges (see Figure 1.1). The FAFSA is a complicated form that deters some students from filing and receiving beneficial aid.²⁰ Even for students who have successfully filed the FAFSA, the problems continue. Many of those who initially benefit from need-based aid and then reenroll in college fail to refile the FAFSA and renew their aid.²¹ Even students who successfully file or refile might not take up grant aid for which they are eligible.²²

¹⁶ The EFC uses mainly income, the number of family members in college, and the student's dependency status. Students are considered independent of their parents for financial aid purposes if they are over 24, are married, have children or dependents, or have served in the military. The EFC considers parental resources for students who are considered dependent. It considers spousal income for independent students who are married. For details, see Federal Student Aid, "iLibrary—Federal Student Aid Handbook," webpage, undated b.

¹⁷ Federal Student Aid, "FAFSA Deadlines," webpage, undated a.

¹⁸ Robert Kelchen, "The Distributional and Cost Implications of Negative Expected Family Contributions," *Journal of Student Financial Aid*, Vol. 47, No. 1, April 2017.

¹⁹ Pingel, 2019.

²⁰ Eric P. Bettinger, Bridget Terry Long, Philip Oreopoulos, and Lisa Sanbonmatsu, "The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment," *Quarterly Journal of Economics*, Vol. 127, No. 3, August 2012; Susan Dynarski and Judith Scott-Clayton, "The Cost of Complexity in Federal Student Aid: Lessons from Optimal Tax Theory and Behavioral Economics," *National Tax Journal*, Vol. 59, No. 2, June 2006.

²¹ Kelli Bird and Benjamin L. Castleman, "Here Today, Gone Tomorrow? Investigating Rates and Patterns of Financial Aid Renewal Among College Freshmen," *Research in Higher Education*, Vol. 57, No. 4, June 2016; Michael Kofoed, "To Apply or Not to Apply: FAFSA Completion and Financial Aid Gaps," *Research in Higher Education*, No. 58, No. 1, February 2017. In Wisconsin, the prevalence of nonfiling among enrolled students who had filed the FAFSA and enrolled in the prior year was less than 10 percent for Pell-eligible applicants.

²² Paco Martorell and Elizabeth Friedmann, "Money Left on the Table: An Analysis of Pell Grant Receipt Among Financially Eligible Community College Students in California," Research Brief, Vol. 3, No. 3, Wheelhouse Center for Community College Leadership and Research, April 2018; Joyce Cleaver and Brendan Livingston, "What the

States also introduce complexity and uncertainty of their own. In many cases, eligibility formulas and the flow of applications result in a total demand for aid that is higher than the budget the state has allocated. To allocate limited budgets, at least 14 states give out aid on a first-come first-serve basis until funds are depleted, and 26 states announce a deadline for consideration of aid eligibility.²³ In these states, there are additional ways for students to miss out on state aid by filing late, even if they file in time to receive federal aid.²⁴ The consequences of timing-based allocation could disproportionately impact new college students or students enrolling in open-access institutions, who might not make the decision to apply until later in the year. In one national survey, nearly half of low-income students filed late in states with priority deadlines.²⁵

The full impact of FAFSA application timing constraints, including deadlines and first-come first-serve policies, is not well understood. Although national studies show that student characteristics predict timing of filing, there have been no state-level analyses to investigate the effects of state budget constraints.²⁶

Building Evidence on Effectiveness

As noted by the Commission on Evidence-Based Policymaking, “different types of evidence are relevant for policymaking and may involve a variety of methods. Descriptive statistics provide insights about trends and context. Performance metrics support monitoring of policy outputs and efficiency. Implementation and process studies can identify how well the application of programs and policies aligns with their intended design and goals. Impact evaluations provide insights about whether desired outcomes are achieved.”²⁷ This report focuses on describing trends to prepare the way for impact evaluations.

Many states lack the data systems that are required to describe and evaluate financial aid programs. Ideally, states would track the college attainment of students; link attainment to students’ income and other characteristics to identify attainment gaps; connect aid receipt to later

Pell!? Why Students Aren’t Taking Their Pell Award,” presentation to California Association for Institutional Research Conference, Davis, Calif., 2018.

²³ Federal Student Aid, undated a.

²⁴ Students can file the FAFSA any time before the end of the school year on June 30, and receive federal aid for that school year, including retroactively.

²⁵ Russell Cannon and Sara Goldrick-Rab, *Too Late? Too Little: The Timing of Financial Aid Applications*, Madison, Wisc.: Wisconsin HOPE Lab, June 2016.

²⁶ CampusLogic, *Timing is Everything: FAFSA Filing Trends*, Chandler, Ariz.: CampusLogic Data Snapshot, 2019; Lyle McKinney and Heather Novak, “FAFSA Filing Among First-Year College Students: Who Files on Time, Who Doesn’t, and Why Does It Matter?” *Research in Higher Education*, Vol. 56, No. 1, February 2015.

²⁷ Commission on Evidence-Based Policymaking, *The Promise of Evidence-Based Policymaking*, Washington, D.C., September 2017.

outcomes to design aid schedules effectively; track the rates of FAFSA filing and refiling; and monitor the timing of filing to assess which students are affected by aid implementation policies.

It is possible to link administrative records across multiple domains—such as K-12 education, college, and the workforce—into a single data system while protecting confidentiality and privacy.²⁸ The vast majority of states operate an education data system that tracks Pell Grant eligibility as a demographic variable indicating socioeconomic status.²⁹ Tracking the amount of state financial aid received is nearly as common. However, only half of the state databases include other FAFSA fields, such as dependency status and family income, which would allow for fine-grained analysis of the costs and consequences of alternative aid policies. It is even less clear how many states include the timing of FAFSA filing in their data systems.

Even with data, learning about the effects of college financial aid requires a research design that supports inference about cause and effect. Simply comparing the outcomes of aid recipients with those of non-recipients does not yield an accurate estimate of the effects of financial aid, because so many other factors differ between recipients and nonrecipients. For example, students from lower-income families are also less likely to have college-educated parents, are more likely to be racial or ethnic minorities, and are more likely to have lower standardized test scores. Even with financial aid, lower-income families devote a greater percentage of their incomes toward college than higher-income families do.³⁰

Causal inference typically involves comparing groups of students who were otherwise similar, but who then received different financial aid offers for an unrelated reason. The gold standard design is a randomized experiment where aid is allocated among eligible students using a lottery. This is rarely possible with public programs, so research designs usually rely on “natural experiments” arising from program eligibility cutoffs, program changes from year to year, program differences by location, or a combination of all three.

Studies of need-based financial aid generally show positive impacts on educational attainment.³¹ While there have been few studies of purely need-based aid at the state level,

²⁸ Data Quality Campaign, *Roadmap for K–12 and Postsecondary Linkages: Key Focus Areas to Ensure Quality Implementation*, Washington, D.C., July 2014.

²⁹ Christina Whitfield, John Armstrong, and Dustin Weeden, *The State of State Postsecondary Data Systems*, Boulder, Colo.: State Higher Education Executive Officers, 2018.

³⁰ National Center for Education Statistics (NCES), *2015–2016 National Postsecondary Student Aid Study (NPSAS:16) PowerStats*, July 15, 2018.

³¹ Tuan D. Nguyen, Jenna W. Kramer, and Brent J. Evans, “The Effects of Grant Aid on Student Persistence and Degree Attainment: A Systematic Review and Meta-Analysis of the Causal Evidence,” *Review of Educational Research*, Vol. 89, No. 6, December 2019; Lindsay Page and Judith Scott-Clayton, “Improving College Access in the United States: Barriers and Policy Responses,” *Economics of Education Review*, Vol. 51, 2016.

Florida's Student Access Grant program increased enrollment and degree completion at public universities.³²

Nearly every state currently operates a need-based financial aid program for undergraduates. Many of them operate using the same eligibility criteria as the Wisconsin Grant, measured with the same application system, and delivering similarly sized grants.³³ The remainder of this report uses the Wisconsin Grant as a case study to inform Wisconsin and other state-level policies.

There remain the following pressing questions about the Wisconsin Grant:

- What are the college attainment and college affordability gaps the Wisconsin Grant is intended to address? Where do students in this program enroll and graduate, and how is this shaped by their finances?
- What were the consequences when there were funding shortages for the Wisconsin Grant program? How many students who were financially eligible missed out on aid, what were their characteristics, and what were the potential impacts on their college success?
- How could the process of allocating Wisconsin Grant dollars be improved? Which students miss out on aid, and which students benefit the most from aid?

³² Benjamin L. Castleman and Bridget Terry Long, "Looking Beyond Enrollment: The Causal Effect of Need-Based Grants on College Access, Persistence, and Graduation," *Journal of Labor Economics*, Vol. 34, No. 4, October 2016.

³³ NASSGAP, 2018.

2. Student Pathways in Wisconsin

This chapter introduces the key problem motivating policymakers to award state student aid based on financial resources: gaps in college attainment between the rich and poor. The existing data available from Wisconsin's public school system show persistent gaps between rich and poor students in terms of college graduation rates; at all levels of academic preparation; in all race, ethnic, and gender groups; and all around the state. New data shed light on the same problem. The new database extends to older college students and measures student finances using the same criteria that are used to determine financial aid eligibility.

Higher Education in Wisconsin

Students in Wisconsin can choose from over 40 different public and private nonprofit institutions, all of which qualify for state grant aid.³⁴ The University of Wisconsin (UW) System is a set of 13 public universities, including two high-intensity research institutions, 13 two-year branch campuses, online programs, and extension education programs.³⁵ The private nonprofit colleges and universities are organized together under the Wisconsin Association of Independent Colleges and Universities (WAICU), with 24 member institutions spread across the state.³⁶ WAICU has the broadest range of tuition prices, sizes, and institutional character, with large research universities, liberal arts colleges, and schools of engineering, design, medicine, and theology. The Wisconsin Technical College System (WTCS) is a set of 16 institutions in districts covering the state.³⁷ Each institution typically has several campuses throughout the district. WTCS institutions grant short-term certificates and one- and two-year degrees in workforce-related fields, and offer liberal arts education and preparation to transfer and complete a four-year degree. There are two tribal colleges in Wisconsin: the two-year Lac Courte Oreilles Ojibwa Community College, and the four-year College of Menominee Nation. Tribal colleges pursue a mission of increasing access for Native students, often in remote areas near reservations, while maintaining cultural relevance.³⁸

³⁴ Aid from the Wisconsin Grant cannot be applied to proprietary for-profit colleges, though federal aid can.

³⁵ See University of Wisconsin System, homepage, undated.

³⁶ See WAICU, homepage, undated..

³⁷ See WTCS, homepage, undated.

³⁸ American Indian Higher Education Consortium, *Tribal Colleges, An Introduction*, Alexandria, Va.: American Indian Higher Education Commission, The Institute for Higher Education Policy, and The American Indian College Fund, 1999.

More than other states, Wisconsin decreased its per-student funding for public institutions of higher education following the 2008 recession.³⁹ The state did not increase spending on financial aid, though many other states and the federal government did so.⁴⁰ With lower revenues from state appropriations to fund instruction or keep prices low, the state relied more heavily on reducing price through aid as a tool to promote college completion.⁴¹

Wisconsin residents hold college degrees at higher rates than the national average: 50.5 percent of adults versus 47.6 percent nationwide in 2017.⁴² As with many other states and the country as a whole, degree completion is uneven. This chapter shows disparities in college attainment using characteristics of students and schools; first, by using public high school data, and then by introducing a new database from FAFSA records and replicating the analysis.

College Attainment Is Uneven by Family Poverty Status

The Wisconsin Department of Public Instruction (DPI) collects data on the roughly 65,000 students who graduate each year from one of the state's 516 public high schools, and links that information to degree completion data from the National Student Clearinghouse (NSC).⁴³ Students can opt out of having their data reported to the NSC, but fewer than 0.1 percent of students at Wisconsin Grant-eligible institutions opted out in the 2016–2017 school year.⁴⁴

This report uses the DPI database to track college degree completion after high school among the roughly 60 percent of students who matriculate to college in the year following high school graduation. Degree completion is defined broadly, including bachelor's degrees, associate degrees, and shorter technical degrees earned at any institution in the country up to six years after completing high school. Poverty is measured using eligibility for free or reduced-price lunch during school. Students qualify if their family income is at or below 185 percent of the federal poverty level, about \$45,000 per year for a family of four in the 2017–2018 school year.⁴⁵ This measure is more stringent than the measure of poverty used for need-based financial aid.

³⁹ David A. Tandberg and Sophia A. Laderman, "Evaluating State Funding Effort for Higher Education," *Midwestern Higher Education Compact Policy Brief*, June 2018; John Bound, Breno Braga, Guarav Khanna, and Sarah Turner, "Public Universities: The Supply Side of Building a Skilled Workforce," *Russell Sage Foundation Journal of the Social Sciences*, Vol. 5, No. 5, December 2019.

⁴⁰ Baum et al., 2019; NASSGAP, 2018.

⁴¹ David J. Deming and Christopher R. Walters, "The Impact of Price Caps and Spending Cuts on U.S. Postsecondary Attainment," National Bureau of Economic Research, Working Paper No. 23736, August 2017.

⁴² Lumina Foundation, "A Stronger Nation," webpage, 2019.

⁴³ NSC, "Working With Our Data," webpage, undated.

⁴⁴ NSC, undated.

⁴⁵ U.S. Department of Agriculture, "National School Lunch Program: Income Eligibility Guidelines," webpage, undated.

Table 2.1 shows the characteristics of students in the sample, focusing on the high school classes of spring 2008 to 2012. About 15 percent were poor (receiving free or reduced-price lunch). Four out of five took the ACT[®] test (a standardized test for college admission). The ACT College Readiness Benchmarks are subject-specific cutoffs that indicate that a student is more than likely to get a B in credit-bearing coursework in that subject. Focusing on the mathematics cutoff (a score of 22 out of 36), about three out of five ACT takers were considered college-ready. Rates of college readiness were similar in reading and science and higher in English, with about four out of five students being college-ready. The Wisconsin population is predominantly white and non-Hispanic, with 14 percent of rising high school seniors coming from racial or ethnic minorities, primarily Asian, Hispanic, and non-Hispanic Black.

Table 2.1 also highlights some qualities of the high schools students attended. High schools are about evenly split among cities, suburbs, towns, and rural locations. Location is relevant for college attainment, because funding, peers, and teachers could all differ across location types, leading to differences in college attainment.⁴⁶ As part of the Wisconsin state accountability system, every high school is graded on student achievement, achievement growth, closing gaps, and postsecondary success, and schools are found to exceed expectations, meet them, or fail to meet them.⁴⁷ About 14 percent of students attended a high school that did not meet expectations, with the rest about evenly split between meeting expectations and exceeding them.

Finally, Table 2.1 shows where students enrolled in college in the school year following high school graduation. The majority went to public institutions, with 49 percent going to the UW System and 23 percent going to WTCS. Less than one percent went to tribal colleges. About 8 percent went to WAICU institutions, and 21 percent went to out-of-state institutions or to a combination of in-state institutions.

⁴⁶ Jennifer Imazeki and Andrew Reschovsky, "Financing Adequate Education in Rural Settings," *Journal of Education Finance*, Vol. 29, 2003.

⁴⁷ DPI, "Report Cards Home," webpage, undated.

Table 2.1. Characteristics of Public High School Graduates in Wisconsin

Demographic Characteristic	Percentage of High School Completers Who Matriculated to College
Poverty status	
Free or reduced-price lunch	15.1
No lunch benefit	84.9
ACT test	
No ACT	18.4
ACT taker	81.6
ACT scores among takers	
College-ready math	58.2
Not college-ready math	41.8
Race or ethnicity	
Non-Hispanic white	86.3
Non-Hispanic Black	5.6
Hispanic	3.4
Asian	3.5
American Indian	0.8
Other and multiple	0.4
Gender	
Men	46.1
Women	53.9
High school location	
City	21.2
Suburb	26.2
Town	21.8
Rural	30.8
High school report card	
Below expectations	13.9
Meets expectations	41.5
Exceeds expectations	44.6
College enrollment	
UW	48.6
WAICU	7.9
WTCS	22.6
Tribal colleges	0.1
Other and multiple	20.8

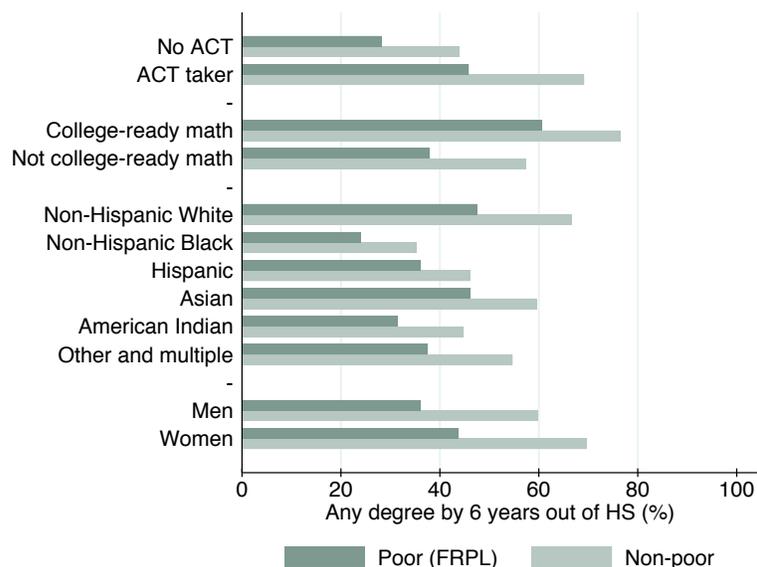
SOURCE: RAND analysis using data provided by DPI, including all public high school completers between spring 2008 and spring 2012 who enrolled in postsecondary education in the following school year. Includes a total of 195,874 students.

NOTE: Each grouping is mutually exclusive and comprehensive within a column so that percentages add up to 100 percent. *Below expectations* denotes failing or meeting few expectations. *Exceeds expectations* denotes exceeding or significantly exceeding expectations.

The analysis in this chapter shows that students with lower academic preparation, from disadvantaged demographic groups, and from lower-resourced high schools all completed college degrees at lower rates, but that poverty was an important predictor of success across all subgroups. Figure 2.1 and Figure 2.2 plot rates of college completion by poverty within different student subgroups. The differences between bars in the figures in this chapter are statistically significant in nearly all comparisons, and in all differences highlighted in the text. If 95 percent confidence intervals were added around the mean estimates that generate the bars, they would typically be under one percentage point above or below the bar height.

Students with higher scores on the ACT tended to complete college degrees at higher rates. By taking the ACT, students had indicated an interest in admission to selective colleges. Among students from higher-income families, a large majority of test-takers graduated within six years. Among students from lower-income families, less than half of test-takers graduated. College readiness in math was a strong predictor of graduation, increasing rates by around 20 percentage points. But among college-ready test-takers, there was a 20 percentage point gap between students from lower-income and higher-income families.

Figure 2.1. Six-Year Graduation Rates by Poverty and Student Characteristics



SOURCE: RAND analysis using data provided by DPI, including all public high school completers between spring 2008 and spring 2012 who enrolled in postsecondary education in the following school year.
 NOTE: FRPL = free or reduced-price lunch; HS = high school. College degree completion includes all types of degree at any institution in the United States from the NSC. Estimates are raw conditional averages without statistical adjustment. College readiness benchmarks are set by ACT using the probability of success in college coursework. A college-ready math score is 22 or above on that subject.

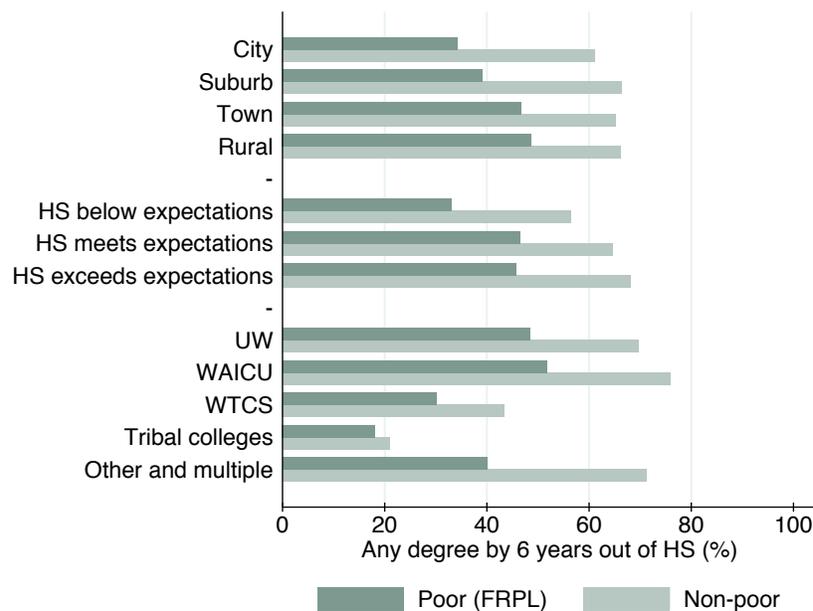
Examining completion rates by race and ethnicity or gender, the rates of college completion varied significantly and exhibited large poverty gaps. The gap between rich and poor students

was the largest among non-Hispanic white students. Still, the white students from poor backgrounds had higher graduation rates than Black students or Hispanic students did, regardless of family income. Men graduated at lower rates than women did, but again, the groups of both men and women who were poor were far less likely to graduate.

Figure 2.2 uses institutional categorizations to plot rates of college completion. The rates of completion among nonpoor students were similar across high school locations, but poor students had lower rates in more-densely populated areas (poor students were relatively evenly distributed among cities, suburbs, towns, and rural areas, though there were slightly more poor students in cities). Rates of completion were slightly higher at schools with higher report card grades, and there were large poverty gaps in all high school report card categories.

Students matriculating at the private nonprofit colleges and universities had the highest completion rates, with those at public universities just behind. Students from lower-income backgrounds at four-year institutions graduated at rates that were more than 20 percentage points lower than their higher-income peers. Students seeking shorter degrees and certificates nonetheless had lower completion rates over six years, but the income gap was still substantial (13 percentage points) at WTCS. The Tribal colleges had the smallest gap, owing to the low completion rates of higher-income students there. Though not a focus of this study, there was a large income gap among students who enrolled out of state.

Figure 2.2. Six-Year Graduation Rates by Poverty and Institutional Characteristics



SOURCE: Author’s calculations using data provided by DPI, including all public high school completers between spring 2008 and spring 2012 who enrolled in postsecondary education in the following school year.
 NOTE: College degree completion includes all types of degree at any institution in the United States from the NSC. Estimates are raw conditional averages without statistical adjustment.

These results suggest that despite having access to state and federal aid in theory, students from the lowest-income families still faced barriers to completing college. However, this database does not identify which poor students actually applied for, qualified for, and ultimately received Wisconsin Grant aid. Also, the database is limited to recent high school graduates.

New Data on State Aid and College Attainment

The database used for this report was built with the cooperation of multiple sources. The Wisconsin Higher Educational Aids Board (HEAB) owns the database and oversaw linking of its administrative FAFSA and aid records to the DPI data described previously and to additional NSC data. The database was compiled under strict privacy, confidentiality, and human subjects protections, and it can only be used by designees of HEAB to undertake research that informs their programs.

The database includes all FAFSA filers who were state residents and applied to a Wisconsin Grant-eligible institution during academic year 2007–2008 through academic year 2017–2018, except for academic year 2009–2010, in which the files were incomplete. The database excludes any student who enrolls in college without ever filing a FAFSA; this could be because, for example, they do not know about or do not think they would qualify for federal loans or income-based grants. Among rising high school seniors in Wisconsin, about one in four higher-income

college students does not file the FAFSA initially, and about one in eight lower-income students does not file.

Table 2.2 describes the student sample using their characteristics, FAFSA elements, and intended colleges. To describe the college-going population in a consistent group as they proceed towards degrees, Table 2.2 and the other figures in this chapter focus on cohorts of individual FAFSA filers who were applying to attend college for the first time in years 2007–2008 through 2012–2013. Thus, the NSC data through 2017–2018 include their six-year graduation rates.

Of around 240,000 FAFSAs received each year from Wisconsin residents applying to Wisconsin institutions, 40 percent are from first-time college students. The distribution of FAFSA filing across sectors within this group is notably different from the distribution described previously for students who matriculated after completing high school. About half of the FAFSAs target WTCS, a quarter target UW, and the remainder are divided among targeting WAICU institutions, multiple Wisconsin schools, and a small number of the Tribal colleges.

Table 2.2 shows some key differences. Students in different sectors filed the FAFSA at different times. Students considering multiple schools or considering private colleges and universities filed the earliest. At four-year universities, FAFSA filing volume peaked in February and March, and over half of the year's FAFSAs were filed in just the first three months. Technical school applicants filed later, peaking in April (12 percent), with nearly as large of volumes in July (11 percent) and August (10 percent), just before the beginning of the fall semester.

Table 2.2. Characteristics of FAFSA Filers in Wisconsin

	Total	UW	WAICU	WTCS	Tribal	Multiple
Finances (percent)						
Poorest (zero EFC)	34.5	16.9	21.1	46.7	70.9	32.3
Poor (Pell)	21.1	20.2	20.7	22.0	16.2	20.6
Nonpoor	44.3	62.9	58.2	31.3	12.9	47.1
Gender (percent)						
Men	42.8	45.4	32.0	42.7	38.9	42.7
Women	57.2	54.6	68.0	57.3	61.1	57.3
Age groupings (percent)						
Just out of HS	35.9	65.8	44.0	14.3	7.5	47.8
Dependent	22.4	21.7	27.5	21.9	16.5	26.6
Independent	41.8	12.5	28.4	64.8	76.0	25.6
Timing of filing (percent)						
January	8.8	9.4	14.2	6.0	14.2	15.7
February	17.9	26.8	31.1	8.2	6.2	28.6
March	17.8	26.7	18.9	11.6	5.3	20.3
April	11.0	10.9	8.3	12.0	6.2	9.2
May	7.9	5.8	5.2	10.1	7.6	5.6
June	7.5	5.3	4.5	9.9	6.6	4.7
July	7.9	4.5	4.6	11.3	9.1	4.5
August	7.3	4.4	5.0	10.3	20.1	3.6
September	3.3	1.9	2.2	4.4	11.5	2.1
October or later	10.6	4.3	6.0	16.2	13.2	5.7

SOURCE: RAND analysis using data provided by HEAB, including all first-time FAFSA filers who were state residents applying to Wisconsin institutions in academic years 2007–2008 through 2017–2018.

NOTE: Each grouping is mutually exclusive and comprehensive within a column so that percentages add up to 100 percent.

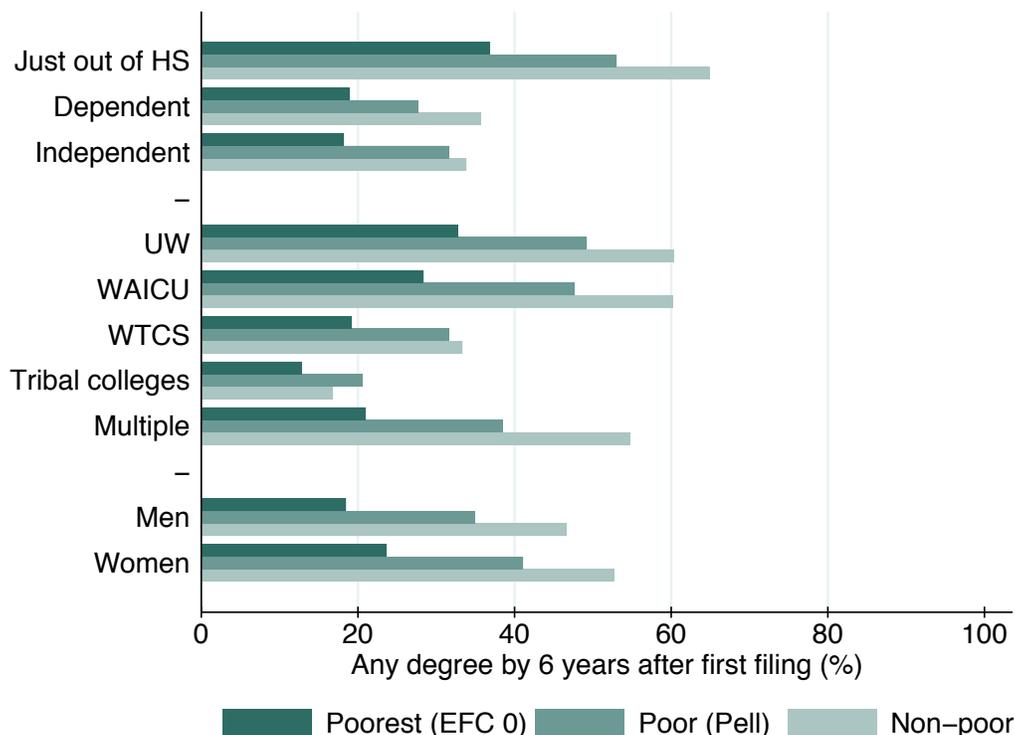
College Attainment Is Uneven by Levels of Family Income and Aid Eligibility

As with the graduation data from the public school system, these data show persistent gaps when sorted by student poverty, and these gaps are not fully explained by other factors correlated with poverty. Income levels among FAFSA filers are defined by sorting student applicants into a zero-EFC group, a positive-EFC group in which students are eligible for Pell Grants, and a group with EFCs higher than the Pell Grant maximum.

Figure 2.3 shows that students matriculating just out of high school were more likely to complete degrees, and that completion rates went down with the student’s age at the time of first FAFSA filing and women graduated at higher rates than men. Furthermore, within all age and

gender groups, there was a visible negative relationship between degree completion rates and income. The trends by age and gender are somewhat related to where students attend, since older students are more likely to attend two-year institutions and men are much less likely to attend private institutions. Looking at sector directly, there were clear differences in graduation rates across sectors and large poverty gaps within each sector, except for within the tribal colleges.

Figure 2.3. Six-Year Graduation Rates by Aid Eligibility and FAFSA Characteristics



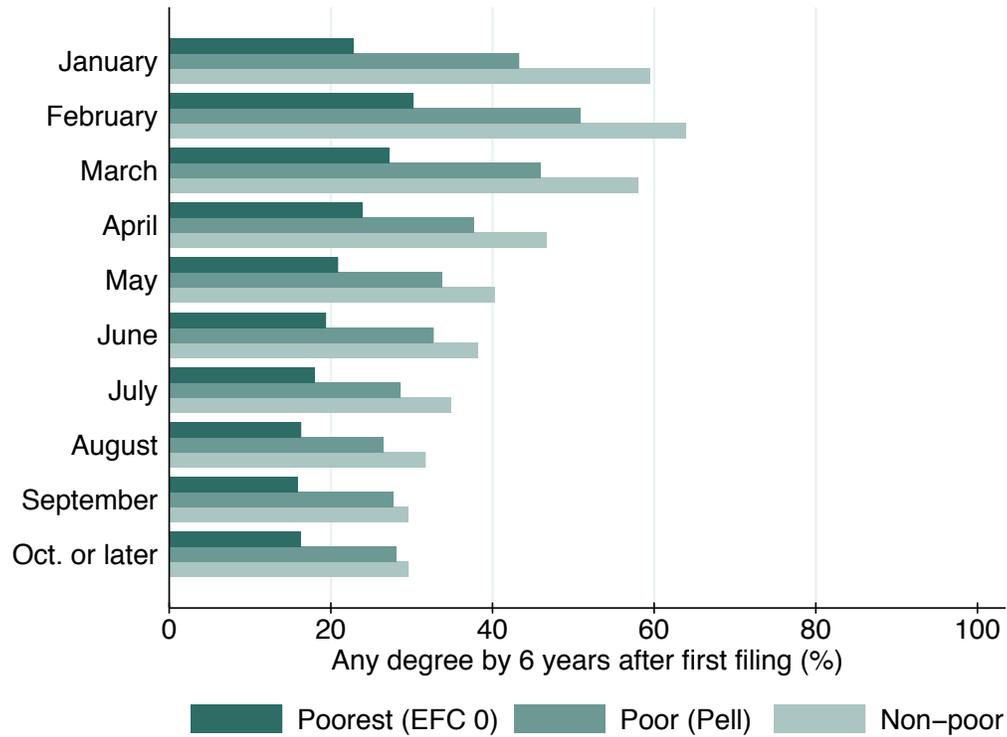
SOURCE: RAND analysis using data provided by HEAB and DPI, including all FAFSA filers in academic years 2007–2008 through 2017–2018.

NOTE: College degree completion includes all types of degree at any institution in the United States from the NSC. The three groupings are each mutually exclusive and comprehensive. Estimates are raw conditional averages without statistical adjustment.

Figure 2.4 reports differences in graduation rate based on the timing of FAFSA filing. Earlier filing could indicate greater financial need (potentially associated with lower attainment) or greater engagement with the application process (potentially associated with higher attainment). On balance, there was a visible positive relationship between early filing and graduation. There were clear gaps by financial need within all months of filing.

Across several categorizations, there were generally larger gaps between students with a zero EFC and a positive EFC than between a positive EFC and a higher EFC, suggesting particular challenges faced by the zero-EFC (poorest) group. These differences are statistically significant.

Figure 2.4. Six-Year Graduation Rates by Poverty and FAFSA Filing Timing



SOURCE: RAND analysis using data provided by HEAB and DPI, including all FAFSA filers in academic years 2007–2008 through 2017–2018.

NOTE: College degree completion includes all types of degree at any institution in the United States from the NSC. The three groupings are each mutually exclusive and comprehensive. Estimates are raw conditional averages without statistical adjustment.

These results from longitudinal data demonstrate for the first time some of the relationships between characteristics at the time of aid application and outcomes in later years. These gaps motivate the design of grant programs, which this report turns to in Chapter 3.

3. Design of the Wisconsin Grant

In this chapter, we describe the design of the Wisconsin Grant, formerly called the Wisconsin Higher Education Grant or WHEG, and how it interacts with the federal Pell Grant program and college costs across four sectors of higher education.

Policymaking Board

About half of states maintain separate state agencies to administer student financial aid, outside of the agencies or systems that govern public institutions of higher education.⁴⁸ Wisconsin is one of those states, where HEAB exists independently of the UW System and WTCS. The governor appoints an executive secretary for HEAB and 11 board members. The members represent the general public, DPI, college students, financial administrators, and leaders of the public institutions and the private nonprofit colleges and universities. HEAB has a small staff responsible for carrying out policy directives from the governor, the state legislature, and its board, and its largest program in terms of dollars and students is the Wisconsin Grant.⁴⁹

The policy directives for the Wisconsin Grant are formed in an interactive process. The executive secretary makes recommendations to the board, which proposes budgets to the legislature for approval. Within the overall budget approved by the legislature and the governor, the leaders of each higher education sector decide on design parameters, which are then approved by the board.

Design Parameters

As discussed previously, some key decisions include the size of the grant and the eligible population, both of which interact with Pell Grant aid, tuition, and the overall program budget. The implementation and allocation of each sector's Wisconsin Grant aid follows the same overarching structure, which is the same as that of the Pell Grant: Measure student costs and student resources, then offset any lack of resources using financial aid. The structure can be expressed as:

$$Aid = Costs - Resources$$

⁴⁸ NASSGAP, "State Grant Agency Websites," webpage, undated.

⁴⁹ HEAB, *2017-2019 Biennial Report*, Madison, Wisc., October 2019.

The EFC measures financial resources. Introducing the EFC as a key input allows sectors to define grant amounts and at the same time define the eligible population. In practice, the formula is a linear function of the EFC. The intercept at an EFC of zero corresponds to the maximum grant amount. The slope, or EFC factor, corresponds to how many dollars of aid a student gains when they have one dollar less in the EFC (or equivalently, how many dollars a student loses as the EFC goes up). The grant drops to zero at a maximum EFC value.

$$\text{Grant} = \text{Maximum Grant} - \text{EFC} * \text{EFC factor}$$

(if the EFC is in eligible range)

There are some key differences across sectors in the details of this formula, partly driven by differences in tuition prices. Table 3.1 shows the range of costs within each sector and across sectors, using data from the U.S. Department of Education’s College Scorecard.⁵⁰ The tables and figures in this chapter use the 2017–2018 school year as an example. There have been some changes in the formulas and tuition levels over the years, but the general relationships have remained stable.

Table 3.1 shows that the price of college varied both within and across sectors. Tuition and fees for a full-time year of enrollment within the UW System ranged from \$5,172 at two-year branch campuses to \$10,533 at the flagship campus. There was less variation at WTCS, with a range from \$3,497 to \$4,877. At the two tribal colleges, tuition and fees were \$4,590 for two-year students and \$6,270 for four-year students. The widest range of variation was at private colleges and universities, with a minimum tuition and fee charge of \$14,910 and a maximum of \$48,706. These prices were similar to national averages for similar colleges.⁵¹

The total cost includes an estimate of expenses for books and supplies, transportation, and living expenses. Averaging across all students in each sector, the total cost ranged from roughly \$15,000 at technical colleges and tribal colleges, up to roughly \$20,000 at UW’s flagship campus, and roughly \$45,000 at private nonprofit institutions. After subtracting grant and scholarship aid, students paid a net price less than the full cost of attendance. Table 3.1 reports the average net price for students in the lowest income bracket for the College Scorecard data, those with family incomes of \$30,000 or less. Their net price was below \$10,000 in the UW System and WTCS, and roughly \$17,500 at private institutions. Private colleges tend to give more institutional aid in the form of discounts or scholarships, which explains the much larger drop from tuition to net price in that sector.

⁵⁰ U.S. Department of Education, “College Scorecard Data,” webpage, last updated December 12, 2019.

⁵¹ U.S. Department of Education, 2019.

Table 3.1. College Prices in Wisconsin, Academic Year 2017–2018

	Tuition and Fees for Full Time (\$)		Student-Weighted Average (\$)	
	Minimum	Maximum	Total Cost	Net Price for Low-Income
Sector				
UW System	5,172	10,533	19,740	8,532
WAICU	14,910	48,706	46,065	17,546
WTCS	3,497	4,877	13,879	8,481
Tribal	4,590	6,200	15,508	10,556

SOURCE: U.S. Department of Education, 2019.

NOTE: Student-weighted averages use the total undergraduate enrollment in fall 2017. The low-income group had family income below \$30,000.

Table 3.2 describes how the Wisconsin Grant contributed to net price in each sector, and these parameters are shown graphically in Figure 3.1 and Figure 3.2. Table 3.2 shows the maximum grant amount, EFC factor, and EFC bounds. At WAICU institutions, the EFC and the EFC factor differed across colleges based on a tuition-driven formula, and also differed across students based on dependent or independent status.

The Pell Grant maximum amount was the largest at \$5,920, compared with Wisconsin Grant maximum amounts of \$2,714 in the UW System, \$2,900 at WAICU institutions, \$1,084 at WTCS, and \$1,800 at the tribal colleges. The steeper slope of the Pell Grant schedule means that as family resources increase, more of the grant dollars are reduced per additional unit of EFC. The Pell Grant also takes on a staircase pattern, dropping in \$100 increments.

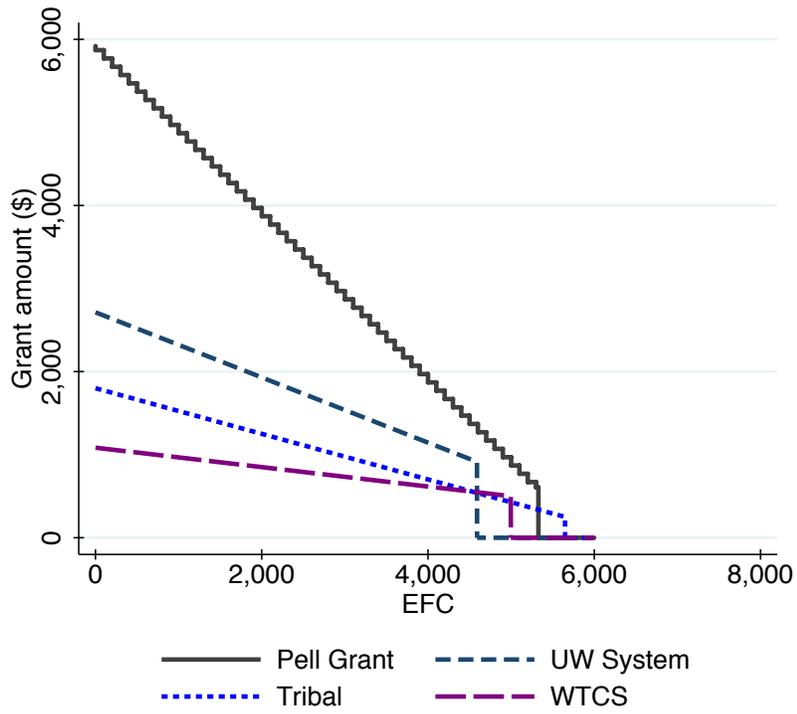
Figure 3.1 plots the Wisconsin Grant in the UW System, at WTCS, and at the tribal colleges, using the Pell Grant for comparison. The maximum EFC was close to \$5,000 for all four schedules.

Table 3.2. Wisconsin Grant and Pell Grant Parameters, Academic Year 2017–2018

	Maximum Grant (\$)	Minimum Grant (\$)	Maximum EFC	EFC Factor (slope)
Sector				
UW System	2,714	914	4,590	0.4
WAICU, dependent	2,900	1,000	5,380–14,382	0.7–2.1
WAICU, independent	2,900	1,000	2,427–6,608	1.4–4.6
WTCS	1,084	500	4,996	0.1170
Tribal	1,800	250	5,649	0.2744
Pell Grant	5,920	606	5,329	Stairstep 1.0

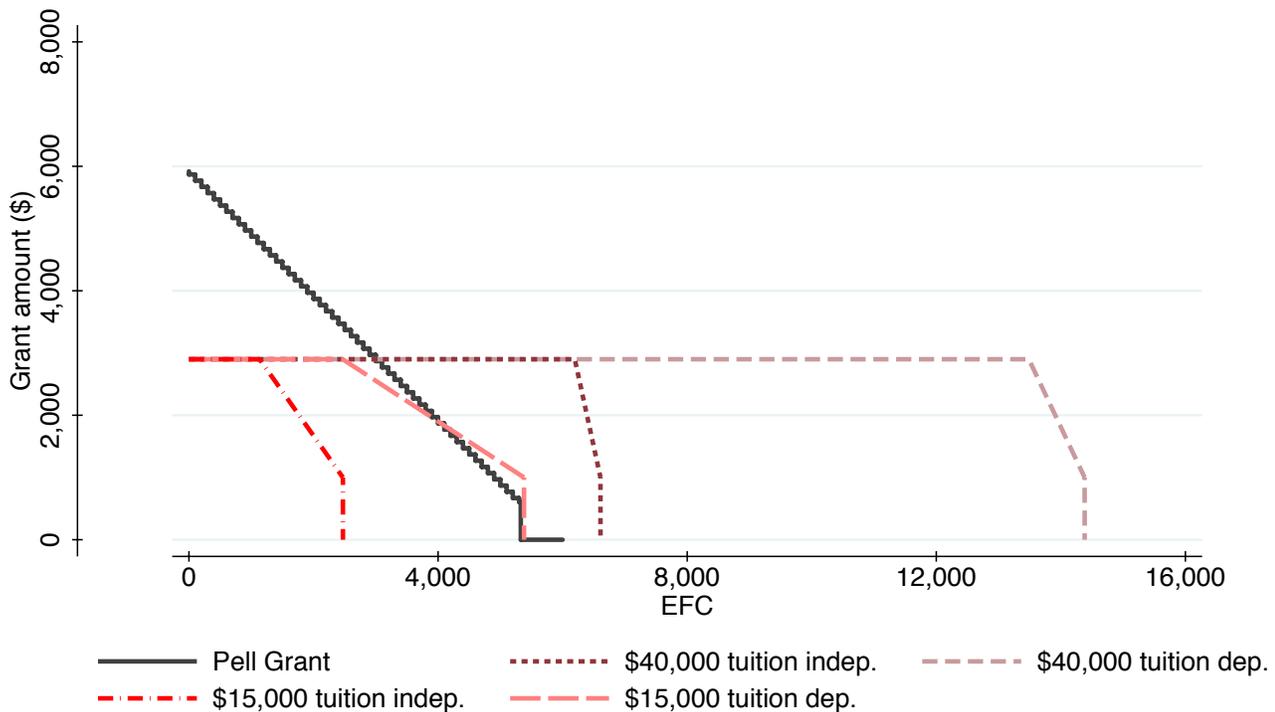
SOURCE: HEAB, 2019; Federal Student Aid, undated b.

Figure 3.1. Wisconsin Grant Eligibility Schedule, Public Institutions



SOURCE: HEAB, 2019; Federal Student Aid, undated b.

Figure 3.2. Wisconsin Grant Eligibility Schedule, Private Nonprofit Institutions, by Tuition and Dependency Status



SOURCE: HEAB, 2019; Federal Student Aid, undated b.

Figure 3.2 plots the Pell Grant again, plus four Wisconsin Grant scenarios at WAICU: both a high-tuition and a low-tuition institution, with a dependent and an independent student at each. The maximum EFC is much higher at high-tuition institutions, and lower for independent students than for dependent students. A large majority of private nonprofit students who are Wisconsin Grant–eligible are awarded the maximum grant amount of \$2,900. Very few students fall on the steeply sloping parts of the schedule.

Implications of Design Choices

Both the size of the grant and the eligible population can be somewhat abstract when only compared with the EFC. It is useful to compare the grant size with student costs, and to describe the eligible population in terms of family income to better understand the purchasing power of the grant. The maximum Pell Grant amount covered 13 percent of tuition at WAICU, 30 percent in the UW System, 38 percent at tribal colleges, and 43 percent at WTCS. The Wisconsin Grant amount then covered 6 percent at WAICU, 8 percent in the UW System, 12 percent at tribal colleges, and 14 percent at WTCS. The Wisconsin Grant amount was therefore not enough to make college tuition-free, considering living expenses in addition to tuition. The state had

decided to make the trade-off between helping more students with some of their costs versus helping fewer students meet a more-substantial portion of costs.

Generally, the eligible population had family income below \$60,000 (over 95 percent of applicants). In the zero-EFC group, a quarter of applicants had zero family income, and the median income was \$9,900. In the group with a positive EFC eligible for Pell Grant aid, the median income was \$36,900.

It is possible for a grant amount smaller than the Wisconsin Grant amount to have meaningful effects, as researchers found for the minimum-size Pell Grant.⁵² In some other studies, large public programs have not shown strong positive results.⁵³ In these cases, aid might be insufficient to meet costs, or might not be targeted to meet financial need.

There might also be friction between the design of eligibility standards and the actual receipt of aid. All of the statistics in the prior section come from years in which low-income students qualified for thousands of dollars of Pell Grant and Wisconsin Grant aid, but they still achieved lower college attainment. Part of the reason could be that not some of the students financially eligible for the Wisconsin Grant did not actually receive aid or did not receive it for many years during their tenure in college. Nonreceipt of aid could stem from the state underfunding the program or from students underfiling (i.e., failing to file the FAFSA, refiling, or not filing early enough). The next chapter discusses these frictions in the context of the Wisconsin Grant.

⁵² Jeffrey T. Denning, Benjamin M. Marx, and Lesley J. Turner, “ProPelled: The Effects of Grants on Graduation, Earnings, and Welfare,” *American Economic Journal: Applied Economics*, Vol. 11, No. 3, July 2019.

⁵³ Oded Gurantz, “Impacts of State Aid for Non-Traditional Students,” Stanford Center for Education Policy Analysis, 2019.

4. Implementation of the Wisconsin Grant

The Wisconsin Grant has long operated under a “first-come, first-serve” policy. The state allocates aid within the limits of its budget chronologically until funds are depleted. Therefore, the timing of filing a financial aid application mattered for state aid, particularly during the years following the 2008 recession when funding was in short supply relative to student demand. This chapter discusses which students filed early enough to avoid the dropoff in funding, and which students applied later and risked losing out on first-come first-serve funding.

Underfunding and Shortages in Wisconsin

States faced lower revenues and greater demands on their funds following the financial crisis. The budget crunch directly affected higher education.⁵⁴ Totalling all state spending, higher education is the third-largest item, after K-12 education and Medicaid.⁵⁵ In Wisconsin, the budget for need-based financial aid was not cut following the recession, but it did not grow to match student demand.

Student demand for financial aid is naturally countercyclical—it rises when the economy is poor and falls when the economy recovers. When job opportunities decrease, the implicit cost of going to college or staying in college is lower, so more students will be enrolled.⁵⁶ Those students are also more likely to have low incomes, with fewer opportunities for full-time or part-time work, and therefore are more likely to qualify for need-based financial aid. Colleges also might experience less direct support and might rely more heavily on increasing tuition.⁵⁷ Higher tuition charges might induce more students to undertake the administrative task of filing the FAFSA to seek aid.⁵⁸ The surge in demand for aid likely does not affect all students or institutions equally. The market is more volatile for jobs that require lower levels of education,

⁵⁴ Michael Mitchell, Michael Leachman, Kathleen Masterson, and Samantha Waxman, *Unkept Promises: State Cuts to Higher Education Threaten Access and Equity*, Washington, D.C.: Center on Budget and Policy Priorities, October 4, 2018.

⁵⁵ Pew Charitable Trusts, 2019.

⁵⁶ Bridget T. Long, “The Financial Crisis and College Enrollment: How Have Students and Their Families Responded?” in Jeffrey R. Brown and Caroline M. Hoxby, eds., *How the Financial Crisis and Great Recession Affected Higher Education*, Chicago, Ill. and London: University of Chicago Press, 2015.

⁵⁷ Webber, 2017.

⁵⁸ In Wisconsin, FAFSA filing became more prevalent in general following the financial crisis, even among higher-income students who were able to only access loans. The rate of FAFSA filing among high school seniors who transitioned to college was consistently over 70 percent for poor students. The rate for nonpoor students rose steadily in the early 2010s, from 60 percent to 65 percent.

suggesting that institutions delivering shorter degrees might also be most affected by economic downturns.⁵⁹

Wisconsin meets the demand for student aid on a first-come, first-serve basis within its budget. During the period of this analysis, students were able to file the FAFSA starting on January 1, before the start of the school year. Starting in academic year 2017–2018, students could file three starting months earlier, on October 1. HEAB received eligible applications and sent award notifications to colleges.⁶⁰ Even though aid take-up occurs later when a student accepts their aid package and enrolls, the process of allocating funds is based on the date of FAFSA filing. For WTCS, WAICU, and the tribal colleges, HEAB centrally managed each sector's budget and made Wisconsin Grant award offers until the budget was depleted. For the UW System, allocation was decentralized, and a similar process took place at each of the 14 institutions in the system.

Funds were depleted at different rates depending on the supply of funding and demand for aid, implying different cutoff dates in each sector and each year. After the cutoff, FAFSA filers would not receive offers regardless of income. Before the cutoff, eligible students would receive offers, but might not choose to take up those offers.⁶¹

Figure 4.1 and Figure 4.2 show some of the elements of this process in the aggregate for two key periods at WAICU and WTCS. For each year, the graph plots the total dollars of eligibility (demand) of every financially eligible student who listed an institution in that sector. The graph then plots the total dollars of eligibility among FAFSAs filed before the cutoff date in that year (students who avoided underfiling and received offers, but who might not have taken up aid), and finally the total dollars of grants paid to students (award amount). Focusing on award acceptance and spending, the awards were relatively flat in both WAICU and WTCS during the early 2010s.

At WAICU from 2011–2012 to 2013–2014, the shortage (the difference between demand and offers before the cutoff) was never more than around 20 percent, meaning at most one in five students missed an aid offer by underfiling. Even with a slight uptick in eligible applications, cutoffs moved later in the year and included more students. Meanwhile, the number of students taking up offers remained relatively constant. The majority of offers went to students who

⁵⁹ Hilary Hoynes, Douglas L. Miller, and Jessamyn Schaller, “Who Suffers During Recessions?” *Journal of Economic Perspectives*, Vol. 26, 2012.

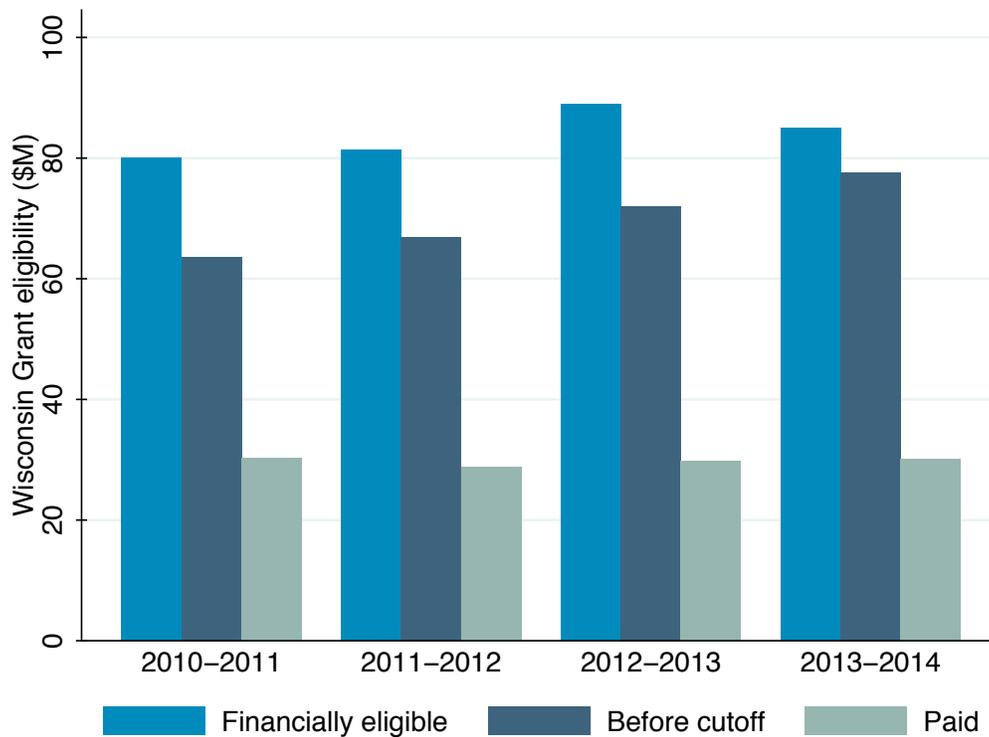
⁶⁰ To apply for the Wisconsin Grant, students did not need to take any additional steps beyond submitting the standard FAFSA. They did not need to indicate that they were applying for Wisconsin Grant aid, or even know the program exists. To take up the grant, a student must accept it as part of a financial aid package put together by their college financial aid office. To receive Wisconsin Grant aid, a student must enroll full-time, except at the private nonprofit institutions where the award is prorated for students enrolling part-time. A student can only use Wisconsin Grant funds at one institution at a time.

⁶¹ HEAB applied an expected aid acceptance rate to determine the last eligible FAFSA filing date. For example, if about half of a particular sector's offers were taken in past years, then HEAB would allocate about twice the budget before setting the cutoff date.

applied to WAICU institutions but ended up enrolling elsewhere (or not enrolling) and therefore did not use the Wisconsin Grant. Many of the eligible students had listed other colleges on the FAFSA, including out-of-state institutions, and ended up attending elsewhere.

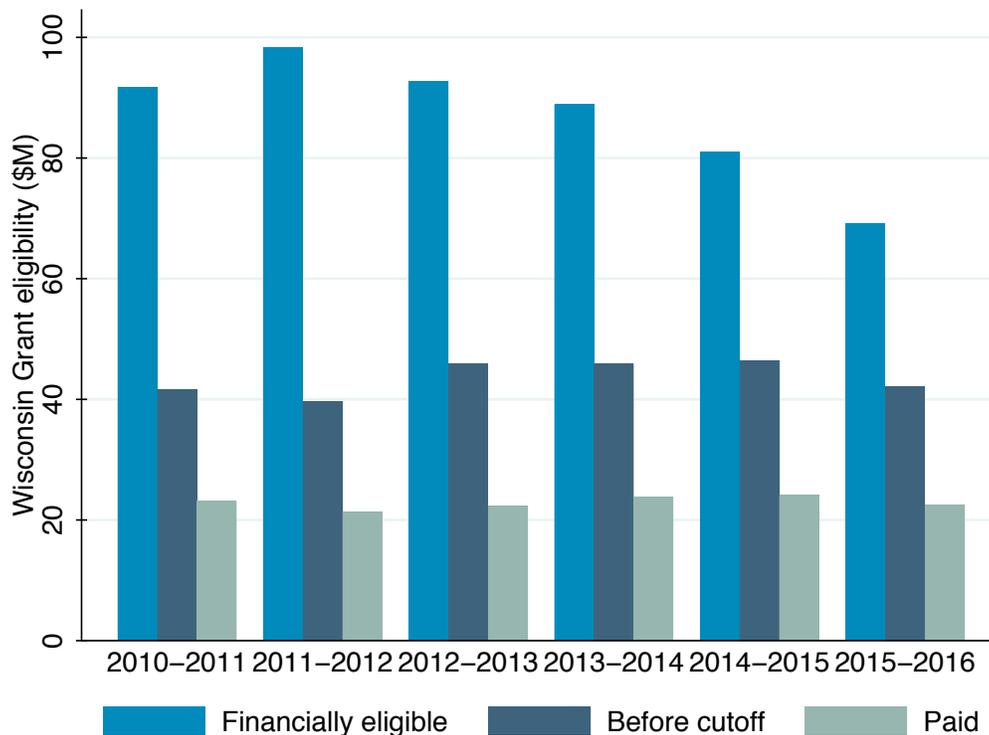
Figure 4.2 tells a different story. At WTCS from 2011–2012 to 2015–2016, demand peaked near \$100 million, while the budget was near \$20 million. Three in five students missed an aid offer by underfiling in the peak year, 2011–2012. The demand fell by about 30 percent over the next four years. Acceptance of offers was consistent at around 50 percent.

Figure 4.1. Shortage of Wisconsin Grant Funds at WAICU



SOURCE: RAND analysis using data provided by HEAB.

Figure 4.2. Shortage of Wisconsin Grant Funds at WTCS



SOURCE: RAND analysis using data provided by HEAB.

Which Students Are Affected by Shortages?

First-come first-serve and deadline-based allocation of state aid is common, and these processes change the nature of need-based programs. Instead of only financial criteria, these added criteria allocate aid based on early action and decisiveness by students. Studies have shown that students tend to file later if they are older when first enrolling, attending college part-time, from racial or ethnic minorities, or from lower-income families.⁶² One study found that among older adult students, the lower-income students actually filed earlier.⁶³ Beyond these descriptive trends, little is known about the consequences of state policies rewarding early action. Wisconsin is a useful context in which to study FAFSA filing, because the state has both filing rates and tuition charges near the national median for each statistic.⁶⁴

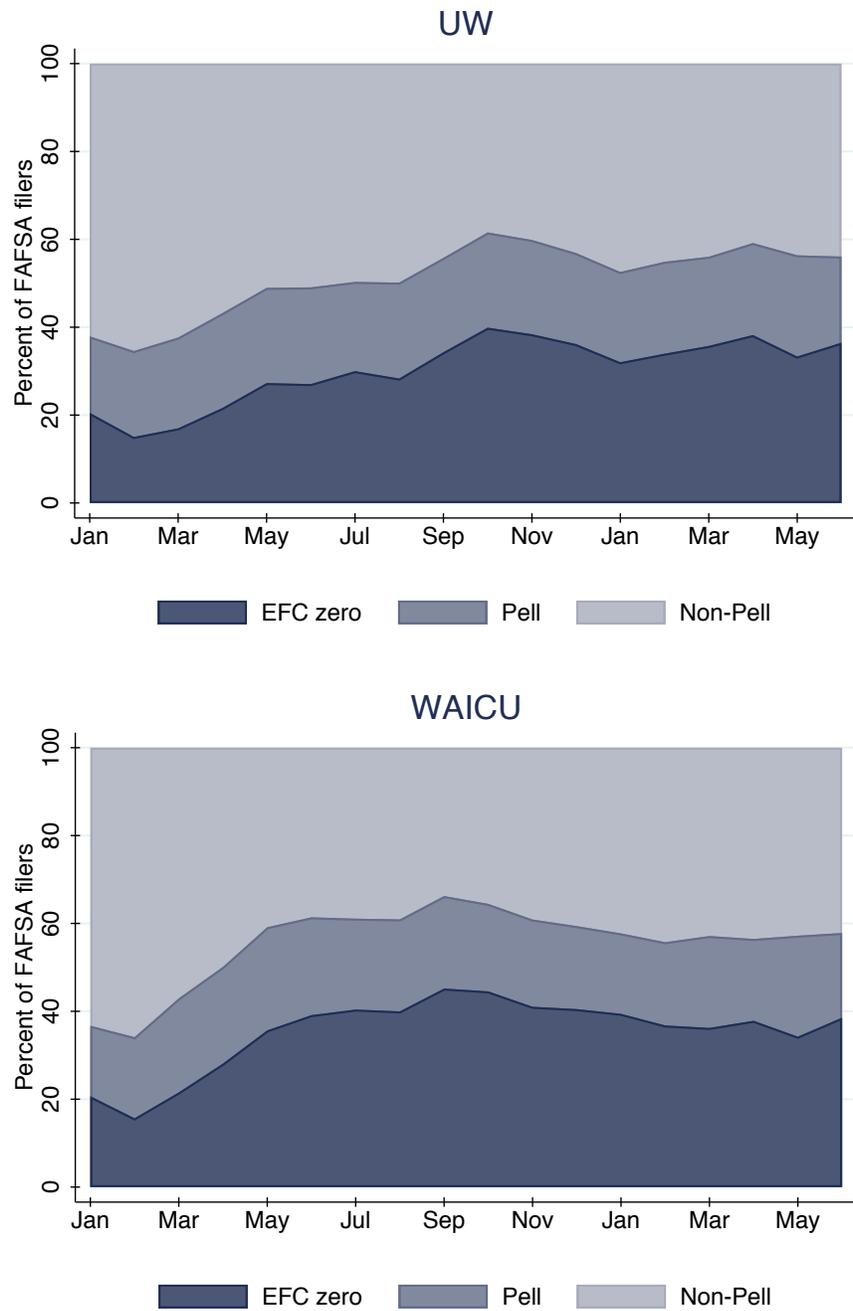
⁶² McKinney and Novak, 2015.

⁶³ CampusLogic, 2019.

⁶⁴ Ma et al., 2019; Danielle Lowry, *An Analysis of the Relationship Between School District Poverty and FAFSA Completion in June 2016-2018*, Washington, D.C.: National College Access Network, October 2018.

Figure 4.3, Figure 4.4, Figure 4.5, and Figure 4.6 show how student characteristics varied throughout the 18-month filing cycle in Wisconsin, pooling together the applicants from aid years 2007–2008 through 2016–2017, before the shift to October filing. Each plot reports a percent breakdown into categories among students who filed the FAFSA in a particular month. The figures focus on financial need within each of the four sectors, then on age and dependency status within each of the four sectors. Financial need and age were the two most-important factors affecting timing of filing in this database, and they were important in prior research.

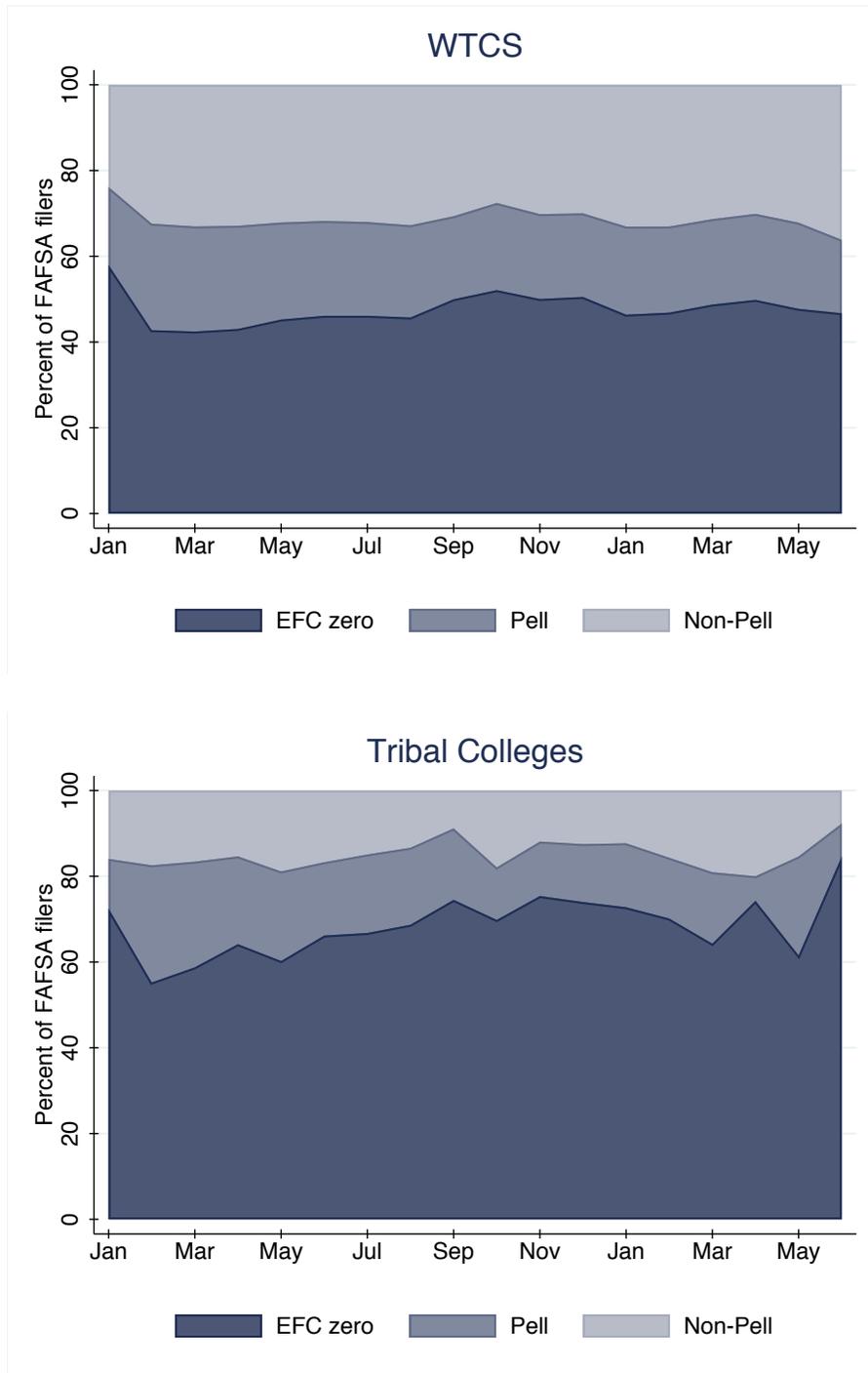
Figure 4.3. Financial Need Varies Substantially by Month of Filing at UW and WAICU



SOURCE: RAND analysis from data provided by HEAB.

NOTE: Data are pooled together from aid years 2007–2008 through 2016–2017, before the shift to October filing.

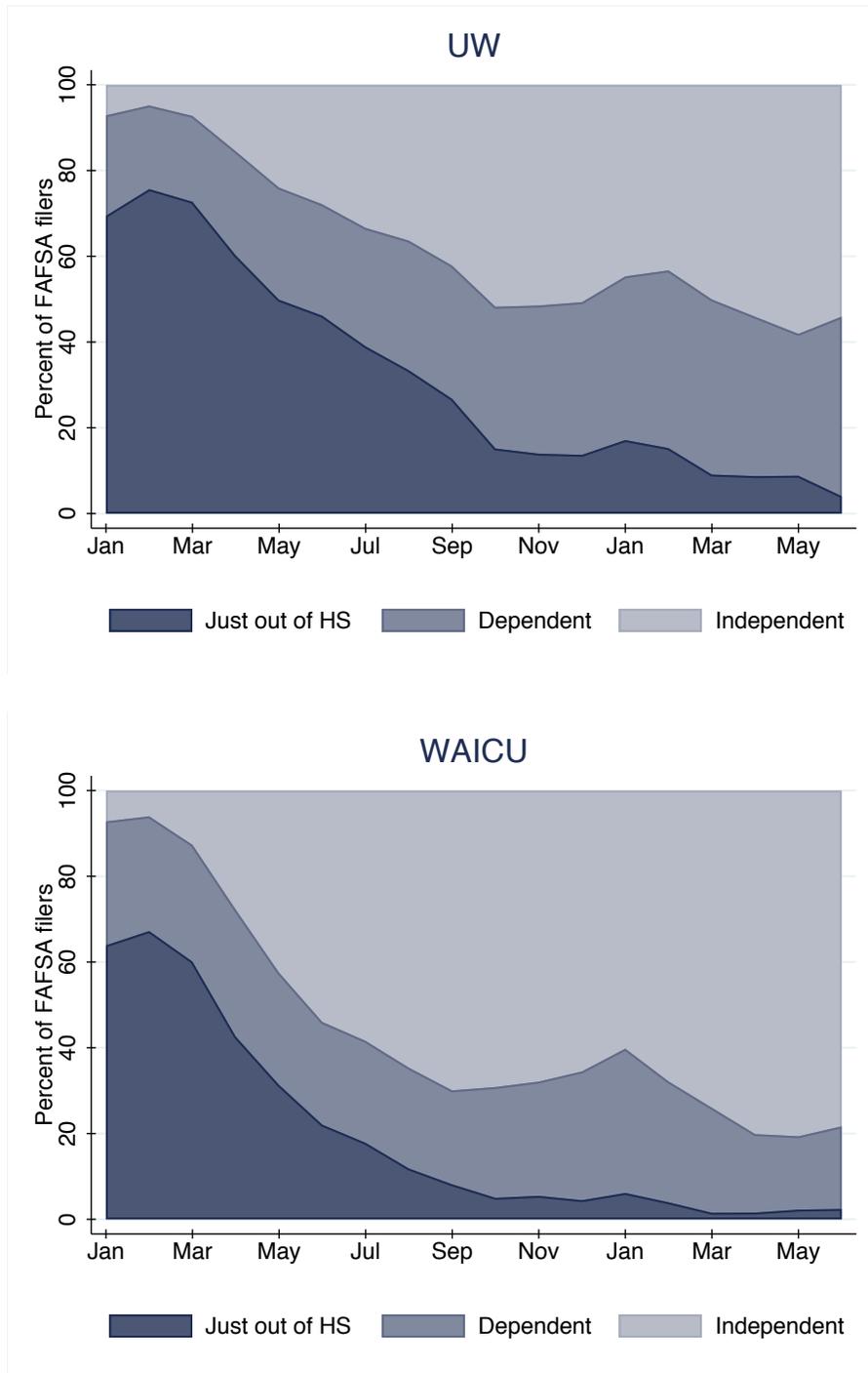
Figure 4.4. Financial Need Varies Little by Month of Filing at WTCS and Tribal Colleges



SOURCE: RAND analysis from data provided by HEAB.

NOTE: Data are pooled together from aid years 2007–2008 through 2016–2017, before the shift to October filing.

Figure 4.5. Age and Dependency Vary Substantially by Month of Filing at UW and WAICU



SOURCE: RAND analysis from data provided by HEAB.
 NOTE: Data are pooled together from aid years 2007–2008 through 2016–2017, before the shift to October filing.

Figure 4.6. Age and Dependency Vary Substantially by Month of Filing at WTCS and Tribal Colleges

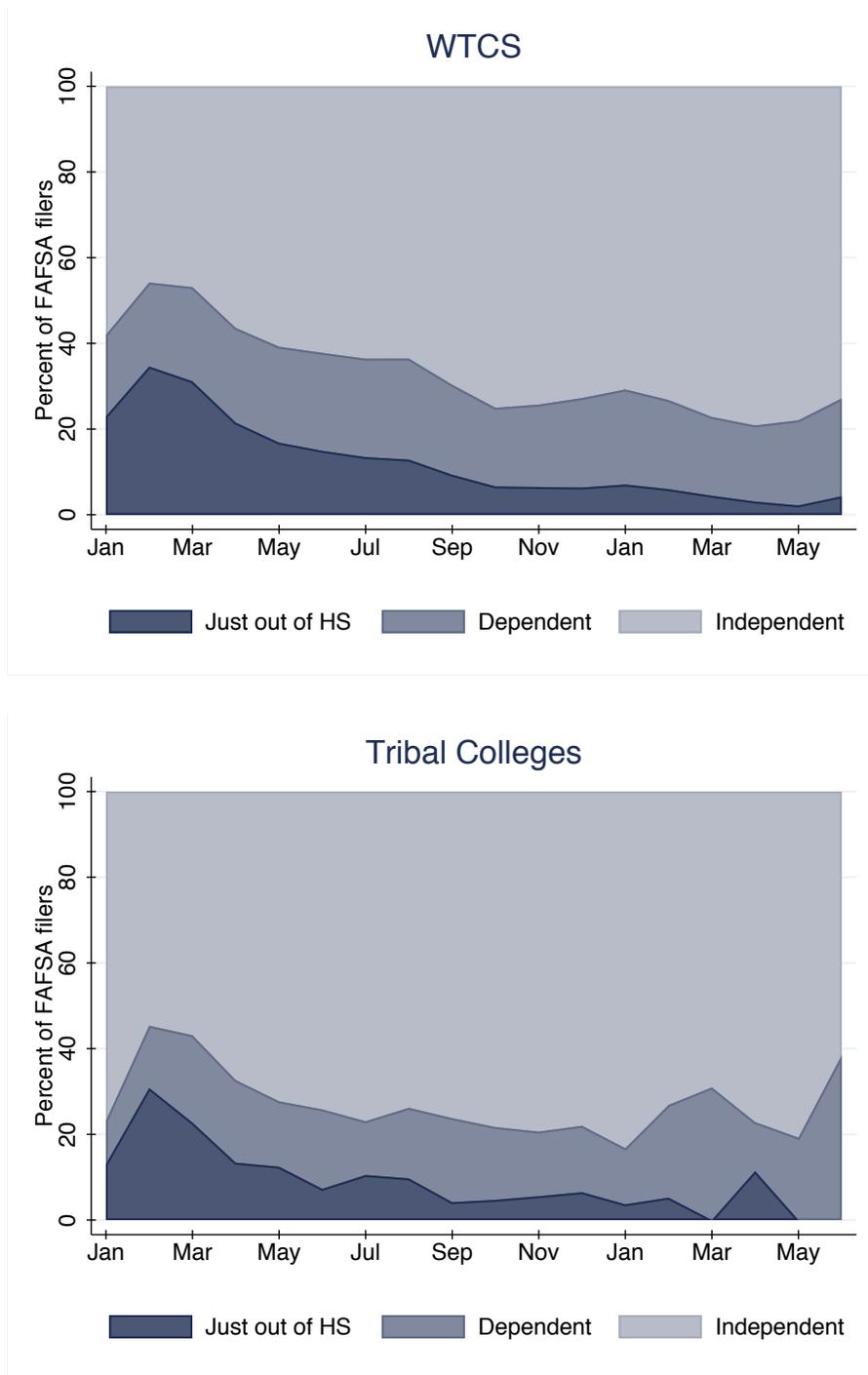


Figure 4.3 shows that lower-income students filed later in the UW System and at WAICU. The increase was driven by more students with a zero EFC, while the percent with a Pell-eligible positive EFC remained constant. The makeup by income was relatively constant throughout the filing cycle at WTCS and tribal colleges, as shown in Figure 4.4.

Figure 4.5 and Figure 4.6 show that students out of high school filed earlier in all sectors. Independent students, and dependent students who were younger but not right out of high school, made up an increasing proportion of filers later in the filing cycle. In this sample, higher financial need was predictive of later filing for both dependent and independent students, without the reversal present for older adults in earlier studies.

These results imply that students with zero EFCs and older adults will be more likely to lose out on financial aid when there are shortages. Chapter 5 discusses how to evaluate the impacts of the shortage.

5. Building Evidence for Wisconsin Grant Policy

Evidence-based policymaking can be informed by several types of information. This report and a related technical paper used large-scale quantitative data (as opposed to surveys or interviews) to draw new conclusions. The goal of this report is to build a foundation of information about the problem of college affordability, describe Wisconsin’s approach and potential pitfalls, and use new data to illustrate key facts. The goal of the technical paper is more specific: to estimate causal effects of aid at technical colleges. Many state programs lack either kind of analysis. This chapter describes an approach to estimating causal effects, why that approach was fruitful at WTCS, why other approaches were not robust, and what can be done in the future.

Evaluation Research on the Wisconsin Grant

Research on the effects of public financial aid programs typically does not have the opportunity to draw on randomized assignment of aid. Randomization creates balanced groups of aid recipients and nonrecipients, and it allows for unbiased estimates of the effects of aid when the group outcomes are compared. A privately funded need-based aid program in Wisconsin used random assignment, and studies of that program have shown it has mixed results in increasing completion of two- and four-year degrees.⁶⁵ Given the mixed results, it is unclear if public aid that uses similar income eligibility criteria (but without random assignment) can be shown to have robust positive impacts.

Research on large ongoing public programs typically has to rely on natural experiments. A useful natural experiment is called a regression discontinuity design, where a cutoff value in a continuous measure determines who is eligible for aid. Comparing students just above and just below the cutoff creates comparison groups of students receiving different amounts of aid despite starting in similar circumstances, much like a randomized experiment would.

Existing regression discontinuity designs to evaluate need-based aid have focused on the maximum EFC eligible for aid, the maximum income value eligible for a zero EFC, or on age cutoffs significantly lowering the EFC.⁶⁶ Some of these studies have found positive effects of financial aid increasing enrollment and degree completion, but others have not. None of these studies have estimated the effects of aid for the poorest students, who are not near these cutoffs

⁶⁵ See the most recent analysis, and some discussion of earlier analysis, in Drew M. Anderson, Katharine M. Broton, Sara Goldrick-Rab, and Robert Kelchen, “Experimental Evidence on the Impacts of Need-Based Financial Aid: Longitudinal Assessment of the Wisconsin Scholars Grant,” *Journal of Policy Analysis and Management*, 2019.

⁶⁶ See discussion in Drew M. Anderson, “When Financial Aid Is Scarce: The Challenge of Allocating College Aid Where It Is Needed Most,” Santa Monica, Calif.: RAND Corporation, WR-1307, 2019.

or affected by these natural experiments. Most of these studies also focus on four-year college students, ignoring the large and important two-year sector.

A companion technical report on the Wisconsin Grant used a regression discontinuity design to fill both these gaps, and study the lowest-income group applying to WTCS. The data and implementation features described in this report were exploited to set up the design around FAFSA filing date cutoffs.⁶⁷ Students had no way of predicting this date or reacting to it, so there was no danger that more-motivated students would be more likely to file just before the cutoff and skew the results. The only difference across the cutoff was additional financial aid.

The analysis found that eligibility for Wisconsin Grant aid did increase completion of technical degrees and certificates over a three-year period. It did not affect whether students enrolled initially, but it supported completion among continuing students. The increases in degree completion were strongest among zero-EFC students and continuing students who were closer to a degree. The zero-EFC filers in this sample achieved a baseline degree completion rate of 19.0 percent, and the Wisconsin Grant aid offer increased that rate by 1.5 percentage points, on average. The increase in degree completion was 2.6 percentage points for students who had been enrolled for at least a year.

Besides benefiting individual recipients and promoting equity in college attainment, the Wisconsin Grant program could also yield higher tax revenues for the state, because the program helps students earn valuable degrees and, later, earn more taxable income. Under conservative assumptions about the wage returns to technical degrees, the results imply that a dollar spent on the program is more than paid back during the working years of low-income grant recipients.

Following the same regression discontinuity strategy, the results were not conclusive at the private nonprofit institutions of WAICU because the restrictive conditions of the regression discontinuity design were not as clearly met. One potential reason for the imprecision is the diversity within this sector. Students face very different prices and have different backgrounds and educational goals. Combining them into one analysis yielded noisy estimates.

There were generally too few observations to undertake a regression discontinuity design using the tribal college data. Filing after the Wisconsin Grant aid cutoff date was associated with lower degree completion, but the effects of the grant could not be disentangled from other differences across students on average.

As noted previously, the filing date strategy is more complicated in the UW System because the cutoff dates were distributed across campuses in later years, or not sharp in earlier years. Future work should explore other potential sources of variation in aid that can be used to estimate causal effects. The UW System is the largest recipient of Wisconsin Grant aid. A key question at universities is whether state need-based aid can substitute for other types of assistance given by the institution. At WTCS, where the research design worked well, future research should refine the estimates of increased earnings by linking to actual earnings data.

⁶⁷ Anderson, 2019.

The limitations of the regression discontinuity research design are that the results apply to students affected by the cutoff, and might not extrapolate to others. The results do not necessarily indicate what would happen if the grant were increased drastically or whether the grant is helpful to very early or very late FAFSA filers who might differ in unobserved ways.

However, the research is useful in understanding how financial aid can work better. The results at WTCS indicate that the lowest-income students have significant living costs to meet, even though the maximum Pell Grant already covers more than their tuition costs. The fact that the grant improved degree completion but not initial enrollment is consistent with the uncertainty students have about grant amounts until just before enrollment. Giving students more clarity and early information could increase the potential for aid to impact their initial enrollment choices.

6. Ways Forward and Report Implications

This report examined a longstanding program in the state of Wisconsin, focusing on the period from 2008 to 2018. If, in the future, funding for the program is increased, these findings suggest prioritizing the zero-EFC group. The state of Wisconsin could choose to complicate the EFC schedule or add additional criteria to differentiate among zero-EFC students to more finely target aid. These efforts could be hindered by federal efforts to simplify the FAFSA system and gather less information from students.⁶⁸ As questions are removed from the FAFSA, the EFC might become an even-less-accurate measure of financial need, and will make less additional information available to supplement the EFC. Some states have implemented universal aid policies, choosing to forgo specific targeting and reduce complexity.⁶⁹ Broader policy research suggests that the state should align college affordability policy across agencies within the state, and should align state policies with federal policies.⁷⁰

As the conversation on higher education policy continues, the role of state aid agencies should not be overlooked. Aid agencies design programs for states, and states run the public university systems and community college systems that educate the vast majority of college students. Through a combination of tuition policy, public institution funding, financial aid, and other policies, states have a large degree of control over college affordability. Though they can be hindered by the administrative burden of the aid system, by limited budgets, and by a lack of connected data, there is promise that states can continue to build on the benefits of the Pell Grant to provide efficiently targeted subsidies to close gaps in college completion.

⁶⁸ Sarah Pingel, *Simplification May Not Be So Simple: Gauging State Alignment with the FAFSA*, Denver, Colo.: Education Commission of the States, April 2017.

⁶⁹ Meredith Billings, “Understanding the Design of College Promise Programs, and Where to Go from Here,” Washington, D.C.: Brookings Institution, Brown Center Chalkboard, September 2018; Jen Mishory, *The Future of Statewide College Promise Programs*, New York: Century Foundation, March 2018; W.E. Upjohn Institute for Employment Research, “Promise Programs Database,” webpage, undated.

⁷⁰ James Dean Ward, Cindy Le, Elizabeth Davidson Pisacreta, and Jesse Margolis, *The Strategic Alignment of State Appropriations, Tuition, and Financial Aid Policies*, New York, N.Y.: Ithaca S-R, October 2019; Matthew M. Chingos and Sandy Baum, *The Federal-State Higher Education Partnership: How States Manage Their Roles*, Washington, D.C.: Urban Institute, May 2017.

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