Need-Based Financial Aid in Wisconsin

State Policy and Student Pathways

DREW M. ANDERSON

Sponsored by Ascendium Education Group
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.

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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.


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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>DPI</td>
<td>Wisconsin Department of Public Instruction</td>
</tr>
<tr>
<td>EFC</td>
<td>Expected Family Contribution</td>
</tr>
<tr>
<td>FAFSA</td>
<td>Free Application for Federal Student Aid</td>
</tr>
<tr>
<td>FRPL</td>
<td>free or reduced-price lunch</td>
</tr>
<tr>
<td>HEAB</td>
<td>Wisconsin Higher Educational Aids Board</td>
</tr>
<tr>
<td>HS</td>
<td>high school</td>
</tr>
<tr>
<td>NSC</td>
<td>National Student Clearinghouse</td>
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<tr>
<td>UW</td>
<td>University of Wisconsin</td>
</tr>
<tr>
<td>WAICU</td>
<td>Wisconsin Association of Independent Colleges and Universities</td>
</tr>
<tr>
<td>WTCS</td>
<td>Wisconsin Technical College System</td>
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</table>
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. 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.

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. That overall balance is still in effect, but in the wake of the 2008 recession, states began increasingly offering targeted grants to

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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

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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](image)

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). A lower EFC value means that the student’s family is expected to have fewer financial resources to

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pay for college, and therefore greater financial need. 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.

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. Perhaps because of the deficiencies of the EFC, two-thirds of states supplement FAFSA information with additional measures to determine eligibility. 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. 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. Even students who successfully file or refile might not take up grant aid for which they are eligible.
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

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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.


\(^{27}\) 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. The vast majority of states operate an education data system that tracks Pell Grant eligibility as a demographic variable indicating socioeconomic status. 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 high school grades and standardized test scores. Even with financial aid, lower-income families devote a greater percentage of their incomes toward college than higher-income families do.

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. While there have been few studies of purely need-based aid at the state level,

\[ \text{Data Quality Campaign, } \textit{Roadmap for K–12 and Postsecondary Linkages: Key Focus Areas to Ensure Quality Implementation}, \text{ Washington, D.C., July 2014.} \]
\[ \text{Christina Whitfield, John Armstrong, and Dustin Weeden, } \textit{The State of State Postsecondary Data Systems}, \text{ Boulder, Colo.: State Higher Education Executive Officers, 2018.} \]
\[ \text{National Center for Education Statistics (NCES), } \textit{2015–2016 National Postsecondary Student Aid Study (NPSAS:16) PowerStats}, \text{ July 15, 2018.} \]
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?


\(^{33}\) 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. 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. 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. 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. 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.

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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.
More than other states, Wisconsin decreased its per-student funding for public institutions of higher education following the 2008 recession.\textsuperscript{39} The state did not increase spending on financial aid, though many other states and the federal government did so.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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 48,000 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).\textsuperscript{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.\textsuperscript{44}

This report uses the DPI database to track college degree completion after high school. 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.\textsuperscript{45} This measure is more stringent than the measure of poverty used for need-based financial aid.

Table 2.1 shows the characteristics of students in the sample, focusing on the high school classes of spring 2008 to 2012. About one in five were poor (receiving free or reduced-price


\textsuperscript{40} Baum et al., 2019; NASSGAP, 2018.


\textsuperscript{43} NSC, “Working With Our Data,” webpage, undated.

\textsuperscript{44} NSC, undated.

lunch). Three out of four took the ACT® test (a standardized test for college admission). The scores are divided into four ranges relating to DPI proficiency standards. Wisconsin residents are predominantly white and non-Hispanic (84 percent white and non-Hispanic in Wisconsin versus 60 percent in the United States), with 15 percent of students coming from racial or ethnic minorities, primarily non-Hispanic black, Hispanic, and Asian.46

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.47 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.48 About 15 percent of students attended a high school that did not meet expectations, with the rest split between meeting expectations and exceeding them.

Finally, the table shows where students enrolled in college in the school year following high school graduation. The majority went to public institutions, with 40 percent going to the UW System and 18 percent going to WTCS. Less than one percent went to tribal colleges. About 6 percent went to WAICU institutions, and 17 percent went to out-of-state institutions or to a combination of in-state institutions. The remaining 19 percent did not attend college right away.

46 U.S. Census Bureau, “QuickFacts, United States,” webpage, undated.
### Table 2.1. Characteristics of Public High School Graduates in Wisconsin

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number or Percentage of High School Completers</th>
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</thead>
<tbody>
<tr>
<td>Average completers per year</td>
<td>48,112</td>
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<tr>
<td>Poverty determinant (percent)</td>
<td></td>
</tr>
<tr>
<td>Free or reduced-price lunch</td>
<td>18.1</td>
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<tr>
<td>No lunch benefit</td>
<td>81.9</td>
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<tr>
<td>ACT scores (percent)</td>
<td></td>
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<tr>
<td>No ACT</td>
<td>26.7</td>
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<tr>
<td>0–16</td>
<td>6.8</td>
</tr>
<tr>
<td>17–21</td>
<td>24.7</td>
</tr>
<tr>
<td>22–27</td>
<td>31.2</td>
</tr>
<tr>
<td>28–36</td>
<td>10.6</td>
</tr>
<tr>
<td>Race or ethnicity (percent)</td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic white</td>
<td>84.1</td>
</tr>
<tr>
<td>Non-Hispanic black</td>
<td>6.8</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4.1</td>
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<tr>
<td>Asian</td>
<td>3.5</td>
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<tr>
<td>American Indian</td>
<td>1.0</td>
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<tr>
<td>Other and multiple</td>
<td>0.4</td>
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<tr>
<td>Gender (percent)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>47.1</td>
</tr>
<tr>
<td>Women</td>
<td>52.9</td>
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<tr>
<td>High school location (percent)</td>
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<tr>
<td>City</td>
<td>22.5</td>
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<tr>
<td>Suburb</td>
<td>25.2</td>
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<tr>
<td>Town</td>
<td>21.8</td>
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<tr>
<td>Rural</td>
<td>30.5</td>
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<tr>
<td>High school report card (percent)</td>
<td></td>
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<tr>
<td>Below expectations</td>
<td>15.3</td>
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<tr>
<td>Meets expectations</td>
<td>41.8</td>
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<tr>
<td>Exceeds expectations</td>
<td>42.9</td>
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<tr>
<td>College enrollment (percent)</td>
<td></td>
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<tr>
<td>No immediate enrollment</td>
<td>18.6</td>
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<tr>
<td>UW</td>
<td>39.5</td>
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<tr>
<td>WAICU</td>
<td>6.4</td>
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<tr>
<td>WTCS</td>
<td>18.4</td>
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<tr>
<td>Tribal colleges</td>
<td>0.1</td>
</tr>
<tr>
<td>Other and multiple</td>
<td>17.0</td>
</tr>
</tbody>
</table>

**SOURCE:** RAND analysis using data provided by DPI, including all public high school completers between spring 2008 and spring 2012.
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. For example, 81 percent of students who achieved a score of 28 or higher obtained a degree within six years of high school graduation. This rate fell to 70 percent for those with a score of 22–27, 53 percent for those with a score of 17–21, and 32 percent for those with a score of 16 or lower. But within each category, the students with lower family incomes had graduation rates at least 10 percentage points lower. Even in the highest-scoring category, just 68 percent of poor students completed a degree. The graph does not show that only 2.8 percent of poor students scored in this range (scores 28 and over), compared with 12.3 percent of nonpoor students who scored in this range.
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. One in nine white students was poor, and their college graduation rate was over 20 percentage points lower than that of nonpoor white students. Notably, racial and ethnic minorities who did not come from poor families were less likely to graduate than poor white students. 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 categories.
Students matriculating at the private nonprofit colleges and universities had the highest completion rates, with those at public universities just behind. The next set of analyses shows that overall rates of poverty were much lower at four-year institutions, which is not clear from these figures and could potentially explain the higher overall rates of completion at four-year institutions. Students who did not go to college right away unsurprisingly had generally lower rates of completion. The Tribal colleges were an exception; poor and nonpoor students had similar completion rates. In all other sectors, there were poverty gaps.

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

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 overlap between the FAFSA data and the high school data allows for a description of aggregate FAFSA filing rates over a decade. Among the high school graduating class of 2007, 60 percent filed the FAFSA in the following year. This rate grew to 78 percent ten years later among the class of 2017. The rate of FAFSA filing was about equal between poor and nonpoor students.

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.

Out of 245,100 FAFSAs received each year, students who listed only UW institutions made up the largest group, around 103,000. WTCS made up the second-largest group (around 85,000), and WAICU made up the third-largest group (around 33,000). About 1,000 students per year listed Tribal colleges, and about 24,000 students listed institutions in multiple sectors. Many of these applications were from continuing students who had filed before. The table shows some key differences in characteristics and FAFSA elements by sector. The overall gender balance was 57 percent women, but at WAICU, 68 percent of students were women. The overall percent of beginning students who came straight from public high schools was about 36 percent, with 22 percent starting college later while still dependent, and 42 percent starting college after becoming independent (either by turning 24, having children, marrying, or serving in the military). Students coming from high school made up the majority of UW first-time FAFSA filers, but only a small minority at WTCS. Poverty was more prevalent at WTCS and particularly at the Tribal colleges, where a majority of students qualified for Pell Grants.

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

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>UW</th>
<th>WAICU</th>
<th>WTCS</th>
<th>Tribal</th>
<th>Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average FAFSAs per year</td>
<td>245,106</td>
<td>103,057</td>
<td>32,825</td>
<td>84,370</td>
<td>1,192</td>
<td>23,553</td>
</tr>
<tr>
<td>Initial students (percent)</td>
<td>31.8</td>
<td>21.9</td>
<td>15.3</td>
<td>45.7</td>
<td>47.4</td>
<td>47.6</td>
</tr>
</tbody>
</table>


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

SOURCE: RAND analysis using data provided by HEAB and DPI, including all FAFSA filers 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

![Graph showing graduation rates](image)

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

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.\textsuperscript{49} 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.\textsuperscript{50}

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:

\[ \text{Aid} = \text{Costs} - \text{Resources} \]

\textsuperscript{49} NASSGAP, “State Grant Agency Websites,” webpage, undated.

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.

\[
Grant = Maximum\ Grant - EFC \times EFC\ factor
\]

(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.\textsuperscript{51} 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.\textsuperscript{52}

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.

\textsuperscript{52} U.S. Department of Education, 2019.
Table 3.1. College Prices in Wisconsin, Academic Year 2017–2018

<table>
<thead>
<tr>
<th>Sector</th>
<th>Tuition and Fees for Full Time ($)</th>
<th>Student-Weighted Average ($)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Total cost</th>
<th>Net price for low-income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UW System</td>
<td>5,172</td>
<td>10,533</td>
<td>19,740</td>
<td>8,532</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAICU</td>
<td>14,910</td>
<td>48,706</td>
<td>46,065</td>
<td>17,546</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTCS</td>
<td>3,497</td>
<td>4,877</td>
<td>13,879</td>
<td>8,481</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tribal</td>
<td>4,590</td>
<td>6,200</td>
<td>15,508</td>
<td>10,556</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 stairstep 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

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

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

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

SOURCE: HEAB, 2019; Federal Student Aid, undated b.
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. In some other studies, large public programs have not shown strong positive results. 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, refile, or not filing early enough). The next chapter discusses these frictions in the context of the Wisconsin Grant.


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.\(^55\) Totaling all state spending, higher education is the third-largest item, after K-12 education and Medicaid.\(^56\) 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.\(^57\) 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.\(^58\) Higher tuition charges might induce more students to undertake the administrative task of filing the FAFSA to seek aid.\(^59\) 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.


\(^{58}\) Webber, 2017.

\(^{59}\) 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.\textsuperscript{60}

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.\textsuperscript{61} 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.\textsuperscript{62}

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


\textsuperscript{61} 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.

\textsuperscript{62} 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**

![Bar chart showing shortage of Wisconsin Grant Funds at WAICU from 2010-2011 to 2013-2014.](source: RAND analysis using data provided by HEAB.)
Figure 4.2. Shortage of Wisconsin Grant Funds at WTCS

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.\textsuperscript{63} One study found that among older adult students, the lower-income students actually filed earlier.\textsuperscript{64} 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.\textsuperscript{65}

\textsuperscript{63} McKinney and Novak, 2015.

\textsuperscript{64} CampusLogic, 2019.

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

**WTCS**

![WTCS Graph](image)

**Tribal Colleges**

![Tribal Colleges Graph](image)

**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 4.3 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.
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. 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. 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.

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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. 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.

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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.69 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.70 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.71

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.

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