

# An Untapped Resource for Increasing College Attainment: Estimating the Population of Potential First-Generation Students in Wisconsin

By Sara Lazenby

## SUMMARY

Potential first-generation students make up a large segment of Wisconsin's teenage population. To increase the pool of educated workers in Wisconsin, policymakers must work to recruit, retain, and graduate these students. Estimates of the size of the first-generation student population in the state are crucial for these efforts.

This brief presents a first-of-its-kind method for estimating the number of potential first-generation students in Wisconsin, discusses the primary characteristics of this population, and provides implications for policymakers and practitioners.

## ABOUT THE AUTHOR

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Lazenby gained experience in demographic research through her work at the UW–Madison Applied Population Laboratory, where she completed the research that serves as the basis for this policy brief.

## Introduction

Students whose parents did not attend or complete college (*first-generation students*) generally experience lower rates of college access and completion than students whose parents completed college (*continuing-generation students*), and this holds true when taking into account differences in academic preparation.<sup>1</sup> At the same time, national policy and rhetoric have shifted toward increasing the number of college graduates within the United States, an effort in which first-generation students must play a vital role.<sup>2</sup> First-generation students represent an untapped resource of individuals who could increase college attainment in the state and nation. Developing incentives and policies with these individuals in mind is a logical step toward improving college access and completion rates.

However, as state and federal officials create and adopt these policies, it is important for them to consider that the percentages of adults who hold a bachelor's degree vary by state.

Wisconsin, for example, with approximately 25% of individuals age 25 and older holding a bachelor's degree, ranks 30th in the nation for bachelor's degree completion as of 2007.<sup>3</sup> Given this statistic, it comes as no surprise that higher education stakeholders in Wisconsin have focused on first-generation college students in their efforts to boost the state's degree attainment levels.

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With the Wisconsin Covenant initiative,<sup>4</sup> scholarship donations targeted towards low-income and first-generation students, and commitments to increase the pool of skilled labor throughout the state, stakeholders are sending the message that parental education should not be a barrier to college access in Wisconsin. The University of Wisconsin System recently began an initiative to collect parental education data for all applicants, admits, and enrolled freshman at all of its two- and four-year campuses. This, along with a nationwide initiative to increase the pool of college-educated adults in the United States via the American Graduation Initiative, puts students whose parents did not complete college in the spotlight of college access and completion issues.

Despite the increased focus on improving college access among first-generation students in Wisconsin, there has been no estimate of the number of students who live in households where no parent or guardian holds a bachelor's degree. Consequently, stakeholders have identified the population that should receive targeted resources, but they have no estimate of the number of students they are trying to help. The lack of knowledge of the size and characteristics of this population makes it difficult to measure success or improvement in college access and completion.

Different strategies for improving attendance and completion rates may work for different populations of students, and resources can be used more effectively and efficiently in light of proper background knowledge.

For example, research indicates that first-generation students are more likely to work—and more likely to work a greater number of hours.<sup>5</sup> This suggests that resources should be dedicated to helping these students balance school and work, and providing job placement that better aligns their work schedules with class schedules.

To aid in such efforts, presented here is a method for gauging the size and characteristics of the population of *potential first-generation students* in Wisconsin. Specifically, the method uses existing data to estimate the number of *pre-college teens* in the state and then groups them by parental education levels. Furthermore, the method produces estimates of the demographic and socioeconomic characteristics of this population. The description of the method is followed by implications and recommendations for educational policymakers and practitioners in Wisconsin.

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Table 1  
 Number of Wisconsin Resident Pre-College Teens by Age, Year, and Parent/Guardian Education Level

Age	Total			No Parent with a Bachelor's Degree			1+ Parents with a Bachelor's Degree		
	2006	2007	2008	2006	2007	2008	2006	2007	2008
13	77,069	74,922	74,058	58,025	56,409	55,758	17,903	17,404	17,204
14	78,222	77,268	75,072	59,270	58,175	56,522	18,287	17,949	17,439
15	80,985	78,904	77,415	60,974	59,407	58,286	18,813	18,329	17,983
16	80,836	80,911	78,807	62,367	60,918	59,334	19,243	18,796	18,307
17	80,492	82,451	80,555	60,603	62,078	60,650	18,698	19,153	18,713
<b>Totals:</b>	<b>400,104</b>	<b>394,456</b>	<b>385,907</b>	<b>301,239</b>	<b>296,987</b>	<b>290,550</b>	<b>92,944</b>	<b>91,632</b>	<b>89,646</b>

Source: Population Estimate Program, U.S. Census Bureau, and American Community Survey Estimates (2005-2007)

### Method<sup>6</sup>

This study utilizes the American Community Survey's 2005-2007 period estimates. The American Community Survey (ACS) is a product of the U.S. Census Bureau and polls a representative sample of 1% of the population each year. The survey is intended to replace the long form of the U.S. Census and provide an estimate of various population characteristics between Censuses.

This study matched 13- to 17-year-old individuals (*pre-college teens*) with parents/guardians via a unique household identifier within the ACS data. In order to determine parental education levels in the household, relationship identifiers were used to append education data of parents/guardians within the household to pre-college teen records. Individuals from the pre-college teen cohort were then separated into three categories:

1. At least one parent/guardian holds a bachelor's degree (*potential continuing-generation students*)
2. No parent/guardian holds a bachelor's degree (*potential first-generation students*)
3. No parent/guardian education data available

It is important to note that in naming these individuals "potential students," this method does not assume they are currently enrolled in school or adequately prepared for college.

The percentage estimates compiled from the ACS are then applied to population estimates, by age, which are produced by the U.S. Census Bureau's Population Estimates Program. Table 1 shows these estimates broken down by year and age of individuals.



Additional results showing population estimates broken down by geographic regions are also available. These results are calculated using Public Use Microdata Areas (PUMAs), which the U.S. Census Bureau defines as an area having at least a population of 100,000.

Based on estimates from 2005-2007 ACS data, approximately 75% of individuals in the pre-college teen cohort live in households where no parent or guardian holds a bachelor's degree (i.e., are potential first-generation students). This represents an average of 296,259 potential first-generation students each year over the three-year period.<sup>7</sup>

### **Parental Education and Other Factors**

Estimates of the demographic and socioeconomic characteristics of potential first-generation students are also calculated from this data. These calculations, however, reveal one of the disadvantages of relying on the ACS for these estimates.

Due to the sampling methods and the number of individuals sampled each year, when estimates with demographic/socioeconomic characteristics are added to these tabulations, the margins of error can be quite large, making meaningful comparisons of results difficult.<sup>8</sup> However, broader trends can be analyzed to conceptualize the characteristics of Wisconsin's potential first-generation students.

### **Income and Parental Education Levels**

Among potential first-generation students, 15% (+/- 5%)<sup>9</sup> live in households where the household income is at or below the poverty level. In comparison, only 3% (+/- 3%) of potential continuing-generation students live at or below the poverty level. When using the income cutoffs for free/reduced lunch, 34% (+/- 5%) of potential first-generation students qualify for the program, while only 8% (+/- 8%) of potential continuing-generation students qualify.

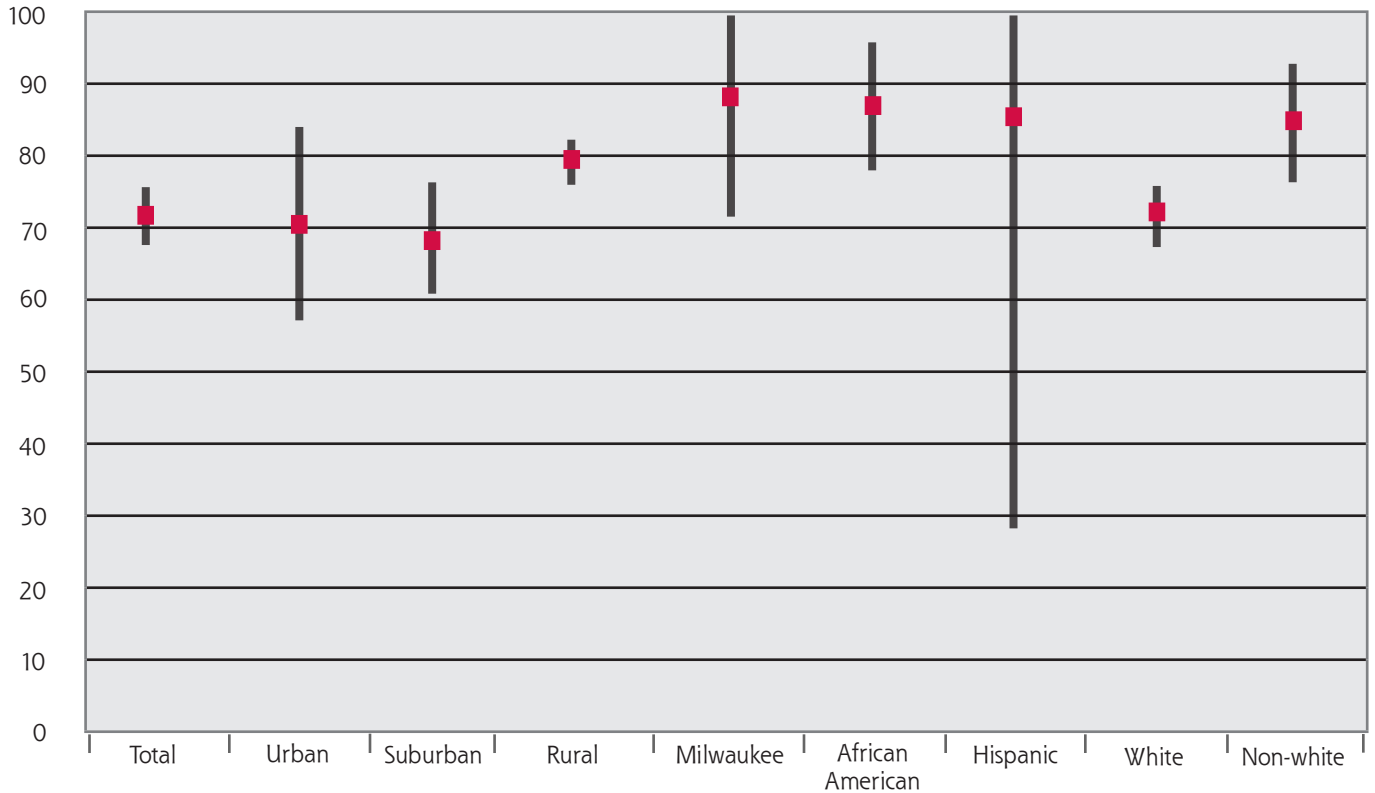
### **Race/Ethnicity and Parental Education Levels**

Estimates show that a higher percentage of non-white,<sup>10</sup> African-American, and Hispanic pre-college teens live in households where no parent or guardian holds a bachelor's degree as compared to white individuals in the cohort (see Table 2).

### **Multiplicative Effects**

It is important to note that these factors can produce multiplicative effects. One study shows that *first-generation* students who are non-white, low-income, or female are even less likely to persist than other first-generation students, even after controlling for pre-college achievement and other in-college experiences.<sup>11</sup> However, the same study does not find lower persistence rates within their sample of *continuing*

Table 2  
 Percentage of Wisconsin Pre-College Teens who are Potential First-Generation Students, by Select Characteristics



Note: Red squares indicate the estimated percentage; black lines indicate the range of the margin of error.

generation students who were non-white, low-income, or female, suggesting that there are multiplicative effects between being first-generation students and being a member of one of the subgroups identified.

### Geographic Differences in Parental Education

As shown in Table 2 and Figure 1 (see page 6), proportions of potential first-generation students vary by geographic region. The city of Milwaukee in particular has high concentrations, as compared to the statewide average.

Pre-college teens living in rural areas also are more likely to be potential first-generation students, whereas those living in suburban Wisconsin PUMAs are the least likely to be potential first-generation students.

### Limitations

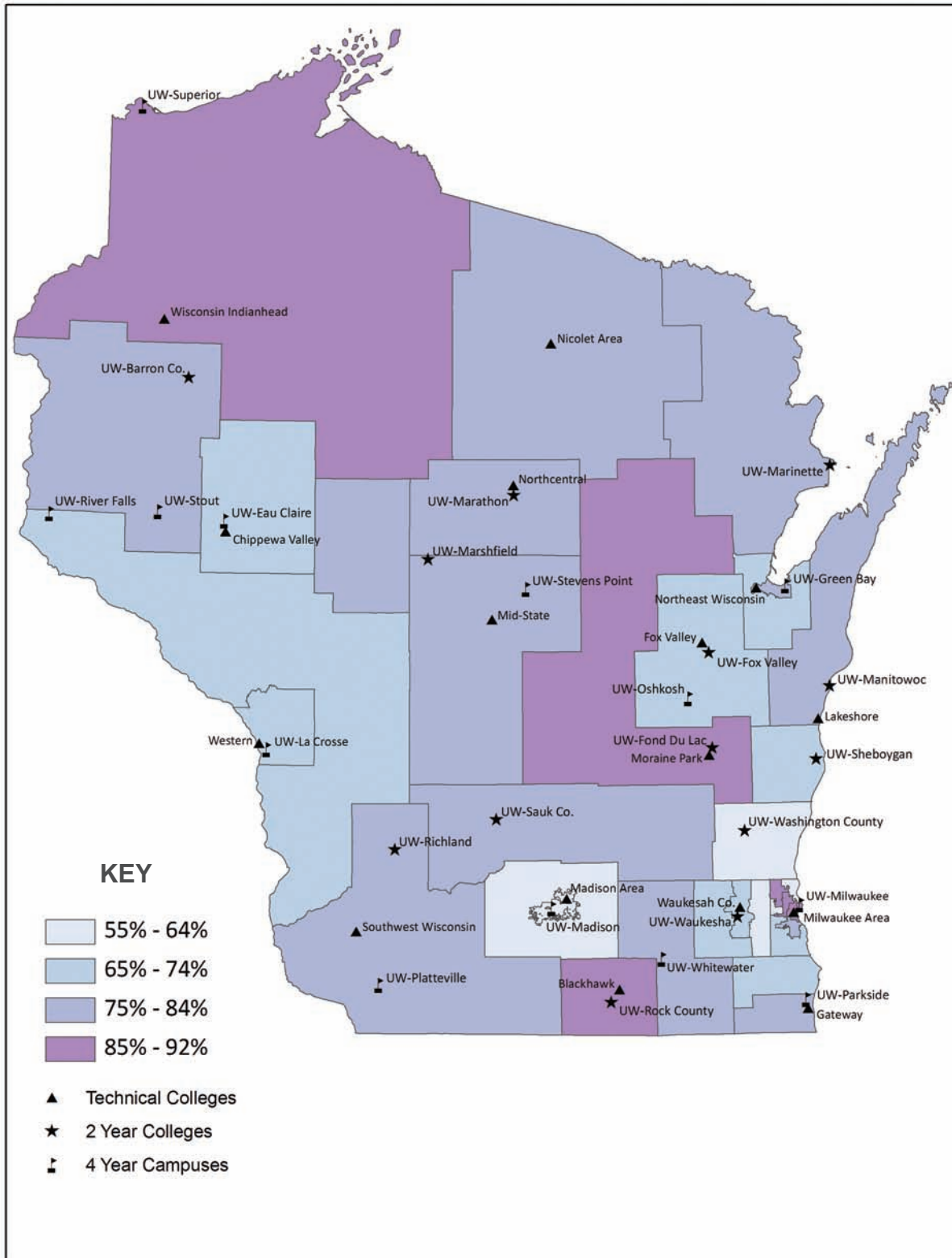
Due to the inherent limitations of the data set used to generate these estimates, improvements could be made to increase the precision of the estimates provided, especially estimates of demographic, socioeconomic, and geographic characteristics.



# POLICY BRIEF

Figure 1

Percentage of Wisconsin Pre-College Teens who are Potential First-Generation Students, by PUMA



One way to improve the precision of the estimates is to recalculate them with five-year data, which were only recently released by ACS. Five-year data allow for additional observations of smaller subgroups to be incorporated into the estimates, likely reducing the margins of error.<sup>12</sup>

Also, it is important to note that this first attempt focused on establishing a method for estimating a previously unknown population. As such, it

focused on 13-17 year-olds whose parents did not have a bachelor's degree in order to align with data and definitions already established by UW System. This method could be altered to include pre-college teens whose parents/guardians completed either some college or a two-year degree.

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In addition, much of this information would be more relevant to have at the school district level because recruiters use this geographic boundary as their primary reference for recruiting students. However, estimates of parental education at the school district level were not possible with the ACS data available when this analysis was conducted. Five-year estimates should correct this issue for many geographic areas.

## Conclusion

Pre-college teens whose parents did not complete college (i.e., potential first-generation students) make up a large segment of Wisconsin's teenage population. In addition, a greater proportion of the state's non-white and lower-income pre-college teens also live in households where no parent or guardian holds a bachelor's degree, putting them further at risk for not attending or completing college, regardless of their academic qualifications.

If Wisconsin's policymakers hope to increase the pool of educated workers in this state, it is vital to recruit, retain, and graduate first-generation college students who are Wisconsin residents. A highly skilled and educated workforce allows Wisconsin to compete for and attract businesses that require a skilled labor force, likely bringing more middle-class jobs with benefits to Wisconsin.

This research is the first of its kind to estimate the number of potential first-generation students in Wisconsin. It is vital to have estimates of how many of these students reside within the state, especially given that state governments, philanthropists, university officials, and policymakers are expressing increased interest in improving college graduation rates.



Additional information on demographic characteristics and geographic locations of potential first-generation students also provides contextualized information about these individuals. For instance, Rock County in south-central Wisconsin has a relatively higher percentage of blue-collar jobs that do not require a college education. So, it is reasonable to expect a higher percentage of potential first-generation students in Rock County due to the area's prominent employment sectors.

### Implications for Policy and Practice

State educational policymakers should push for the collection of data on parental education of K-12 students in Wisconsin. This information, if collected by an entity such as the Department of Public Instruction, would be available at the school district level. In conjunction with current data collected on race/ethnicity and family income status, it would provide a rich data set of information available to those who are trying to increase the pool of college-educated adults and help them to understand specifically where to find the highest proportions and densities of potential first-generation students.

As state policymakers work to develop a statewide longitudinal data system that will allow for the tracking of students from kindergarten through college, the inclusion of parental education data should be a high

priority. The ability to identify and target resources to improve college readiness, attendance, and success among potential first-generation students is vital for the success of efforts to increase the pool of educated workers in Wisconsin.

Absent more precise estimates, high school guidance counselors and higher education officials should be sensitive to the fact that the majority of teenagers in Wisconsin, regardless of geographic area, have parents who did not complete

college. If the intent is to attract a greater number of students to the state's higher education institutions, institutional officials should be careful to explain aspects of college life (course requirements, tuition and fees, financial aid, etc.) in ways that students whose parents do not have prior knowledge of the "culture" of college can understand. High schools can work to provide information to families prior to the decision to go to college in order to ensure that students make their college choices with accurate information.

For instance, it would be useful to counter the "sticker shock" that a family might have over official tuition and fees with information about available financial aid and other

...the majority of teenagers in Wisconsin, regardless of geographic area, have parents who did not complete college.



resources in order to come up with a clearer picture of immediate out-of-pocket expenses. Similar approaches can be taken in the application process, employment on campus, available tutoring services, degree requirements, etc.

For recruiters and counselors in rural areas and the city of Milwaukee, where an even greater percentage of potential first-generation students reside, dispelling myths about college attendance and guiding students through processes that might appear straightforward becomes even more important. This includes providing assistance with filling out applications for college admittance and financial aid and making sure students are academically prepared. Due to lower adult educational attainment in these areas, these students are less likely to have non-family members with college degrees to turn to for help. Targeted assistance of this kind could help increase college access and completion rates among potential first-generation students in these areas.



## Notes

<sup>1</sup> See Lutz Berkner, Shirley He, Marcinda Mason, and Sara Wheelless, *Persistence and Attainment of 2003-04 Beginning Postsecondary Students: After Three Years*, NCES 2007-169 (Washington, DC: National Center for Education Statistics, 2007); Susan Choy, *Students Whose Parents Did Not Go to College: Postsecondary Access, Persistence, and Attainment* (Washington, DC/Berkeley, CA: National Center for Education Statistics, 2001); Susan Choy, Laura Horn, Anne-Marie Nuñez, and Xianglei Chen, “Transition to College: What Helps At-Risk Students and Students Whose Parents Did Not Attend College,” *New Directions for Institutional Research* 107 (Fall 2007): 45-63; Laura Horn, *Stopouts or Stayouts? Undergraduates Who Leave College in Their First Year*, NCES 1999-087 (Washington, DC: National Center for Education Statistics, 1998); Terri T. Ishitani, “Studying Attrition and Degree Completion Behavior among First-Generation College Students in the United States,” *Journal of Higher Education* 77, no. 5 (September/October 2006): 861-885.

<sup>2</sup> See Barack Obama, “Remarks of President Barack Obama—As Prepared for Delivery” (address, Joint Session of Congress, Washington, DC, February 24, 2009), <http://www.whitehouse.gov/the-press-office/remarks-president-barack-obama-address-joint-session-congress>.

<sup>3</sup> See U.S. Census Bureau, “Fact Sheet: Wisconsin,” 2009, American FactFinder, <http://factfinder.census.gov>.

<sup>4</sup> See Jim Doyle, “Wisconsin Covenant: From the Governor,” accessed May 25, 2010, <http://wisconsin covenant.wi.gov/section.asp?linkid=1430&locid=124>; “Governor Doyle Creates Wisconsin Covenant Foundation,” November 1, 2007, <http://wisconsin covenant.wi.gov/section.asp?linkid=1205&locid=124>; Todd Finkelmeyer, “Campus Connection: Doyle Amazed by How Partisan This All Gets,” *The Capital Times*, March 2, 2010, [http://host.madison.com/ct/news/local/education/campus\\_connection/article\\_2a6d13b8-2596-11df-b145-001cc4c03286.html](http://host.madison.com/ct/news/local/education/campus_connection/article_2a6d13b8-2596-11df-b145-001cc4c03286.html). Although the Wisconsin Covenant is scheduled to be phased out under the new governor, its initial creation is evidence of a growing awareness of college access issues in Wisconsin.

<sup>5</sup> See Choy, *Students Whose Parents Did Not Go to College*; Penny J. McConnell, “ERIC Review: What Community Colleges should do to Assist First-Generation Students,” *Community College Review* 28, no. 3 (Winter 2000): 75-87.

<sup>6</sup> For a more detailed explanation of this method, see Sara Lazenby, “Parental Education and College Participation Rates in Wisconsin” (master’s thesis, University of Wisconsin–Madison, 2009). In addition, the author can be reached at [slazenby@wisc.edu](mailto:slazenby@wisc.edu) or 608-263-5945.

<sup>7</sup> While in this analysis the percentage of pre-college teens who would be potential first-generation students matches up with the overall educational attainment level of adults age 25 and older in Wisconsin (i.e., 75% don't hold a bachelor's degree), this is not inherently true in all situations. Birth rates differ by educational levels, and those with lower educational attainment levels tend to have higher birth rates and a higher proportion of births in relation to their representation in the total population. Additionally, education levels vary by age group. For example, the percentage of people with a bachelors degree varies across age groups; bachelors degree attainment among the age groups that are likely to include parents of pre-college teens is slightly higher than that of the overall population (approximately 27% vs. 25%, according to the 2005-2007 American Community Survey).

<sup>8</sup> While the ACS does oversample minority populations and sparsely populated areas, it does not do so at a rate high enough to produce statistically reliable one-year or three-year estimates. However, many of these estimates are consistent with previous research or local knowledge of an area. See <http://www.census.gov/acs/www/Downloads/ACSRuralAreaHandbook.pdf>.

<sup>9</sup> All percentage estimates and margins of error are rounded to the nearest whole number.

<sup>10</sup> For the purposes of this brief, non-white refers to individuals who defined their race as a classification other than white/Caucasian in their American Community Survey responses.

<sup>11</sup> See Mandy Martin Lohfink and Michael B. Paulsen, "Comparing the Determinants of Persistence for First-Generation and Continuing-Generation Students," *Journal of College Student Development* 46, no. 4 (July/August 2005): 409-428.

<sup>12</sup> Estimates are available at smaller geographic areas with five-year data, though it is likely that subgroup estimates at the school district level (i.e., anything beyond "parents went to college/parents did not go to college") would still suffer the same issues with margins of error.





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