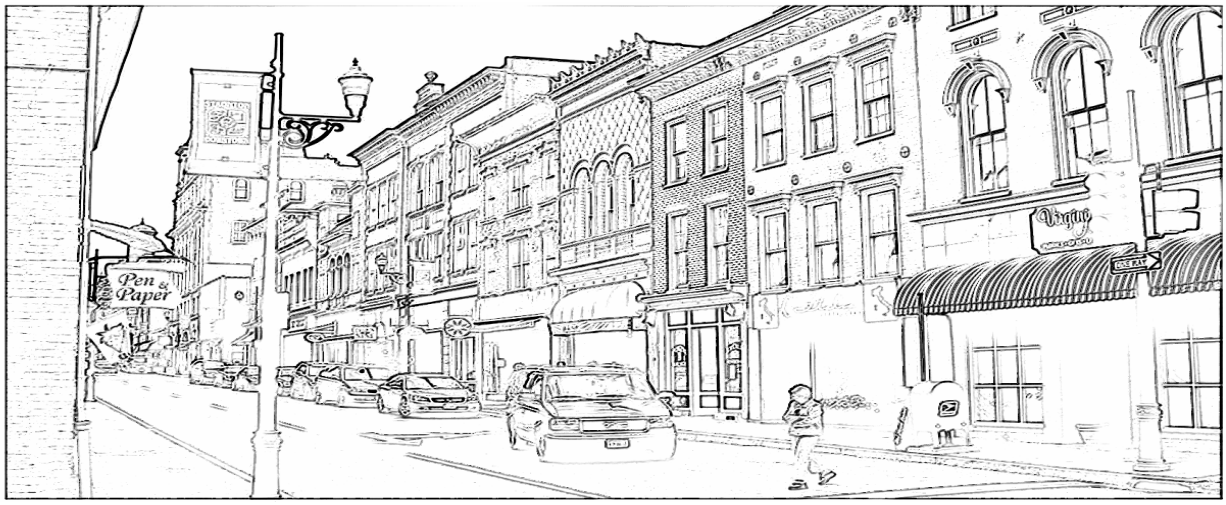

Shifting Wisconsin Labor Resources: A Review of Educational Attainment

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Patterns of Economic Growth and Development
Study Series No. 4

UW Extension
University of Wisconsin-Extension

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

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Key Points

- In Wisconsin, nearly 29% of the population age 25 and over has a bachelor's degree or higher, compared to 32.5% for the U.S.

- Wisconsin has a strong high school graduation rate. The share of Wisconsin's workforce with a college degree, however, trails the national average partially due to only average college enrollment and relatively low graduation rates.

- Analysis by gender and age cohort reveals an important educational asymmetry. The share of college-educated women now far exceeds the share of college-educated men, more than reversing trends of past generations.

- Wisconsin's negative net migration of college graduates is primarily due to low levels of in-migration from other states rather than high rates of out-migration from Wisconsin. That is, Wisconsin's talent migration is characterized more so by a lack of a "brain gain" rather than a "brain drain."

- Though a relatively large share of college students has debt, average debt in Wisconsin ($29,000) is smaller than that of students in neighboring states.

Shifting Wisconsin Labor Resources: A Review of Educational Attainment

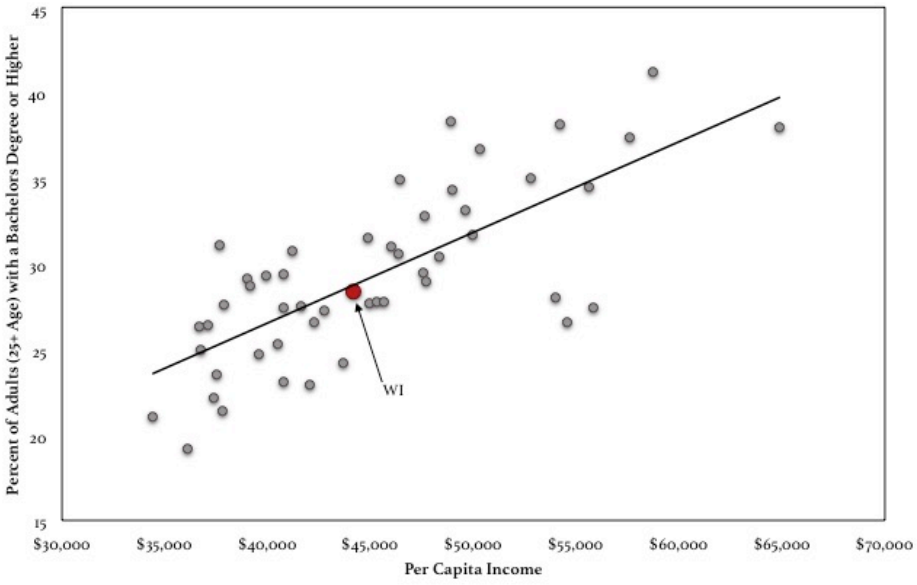
Introduction

People are at the foundation of a thriving economy. A motivated, innovative, skilled workforce will generate the ideas, new businesses, and opportunities that characterize strong communities. Some will create employment for themselves and others through entrepreneurship. Others will participate in the labor market, forming a talented workforce, which will benefit existing Wisconsin firms as well as help to attract businesses from out of state.

If the vision for Wisconsin's future economy is one of competitive wages, innovative industry, and an entrepreneurial culture, then there are challenges on the horizon. From the perspective of developing an educated labor force that supports both innovation and entrepreneurship, the metrics presented in this report are troubling. The education pipeline in Wisconsin is not currently producing the state-level outcomes necessary to support an economy that offers a large share of skilled jobs, where businesses engage in a wide range of R&D, and entrepreneurs can easily start successful businesses.

In particular, this report focuses on college education. A college education is often considered a critical job prerequisite, necessary to secure higher earnings. On average, college graduates earn 80% more than high school graduates (The Economist, April 23, 2016). Higher education is also critical to innovation. Lastly, there is an entrepreneurial "sweet spot" at the bachelor's degree level (Fairlie 2013). Places with a large share of their population holding a college degree, not more or less, have the highest rates of business ownership (Conroy and Weiler, 2016). Thus we focus on college education as the crux of an economy with

Figure 1: Percent of Adults (25+ Age) with a Bachelors Degree or Higher (2014) and State Per Capita Income



competitive wages, innovative activities, and high rates of entrepreneurship.

As evidence of the economic strength of a highly educated workforce, state per capita income tends to increase with the college-educated[1] share of the labor force (Figure 1). There is an even stronger positive relationship between per capita income and graduate and professional degrees (Figure 2). Conversely, states with a large share of less educated workers tend to have a lower per capita income (Figure 3).

From an economics perspective, human capital theory explains the relationship between education and income. As investments in education yield productivity gains, states with higher levels of education attainment in turn have a more productive and higher paid labor force. Consequently, policies targeted at growing the highly educated workforce tend to increase wages and salaries (income).[2] In addition, research has demonstrated that innovation is the key to economic growth and there is an equally strong positive relationship between education and innovation.

Figure 2: Percent of Adults (25+ Age) Graduate or Professional Degree and State Per Capita Income (2014)

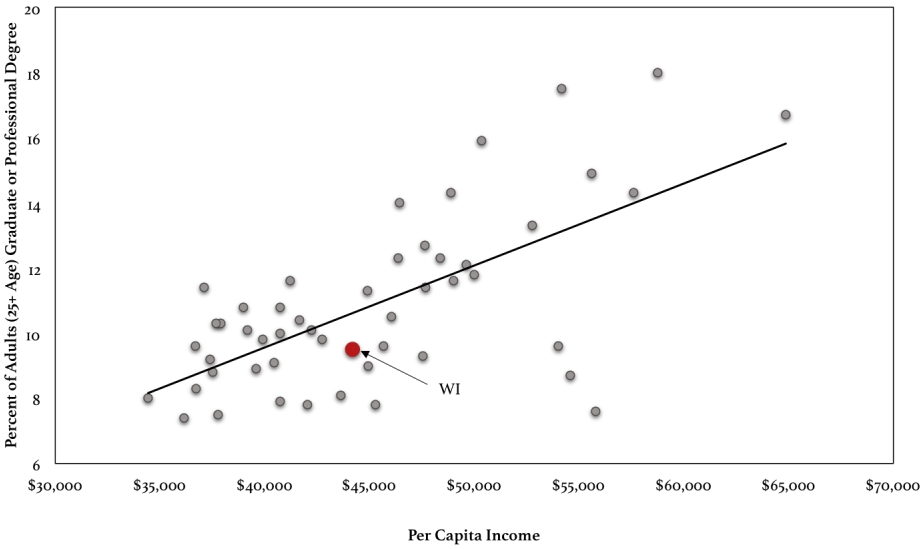
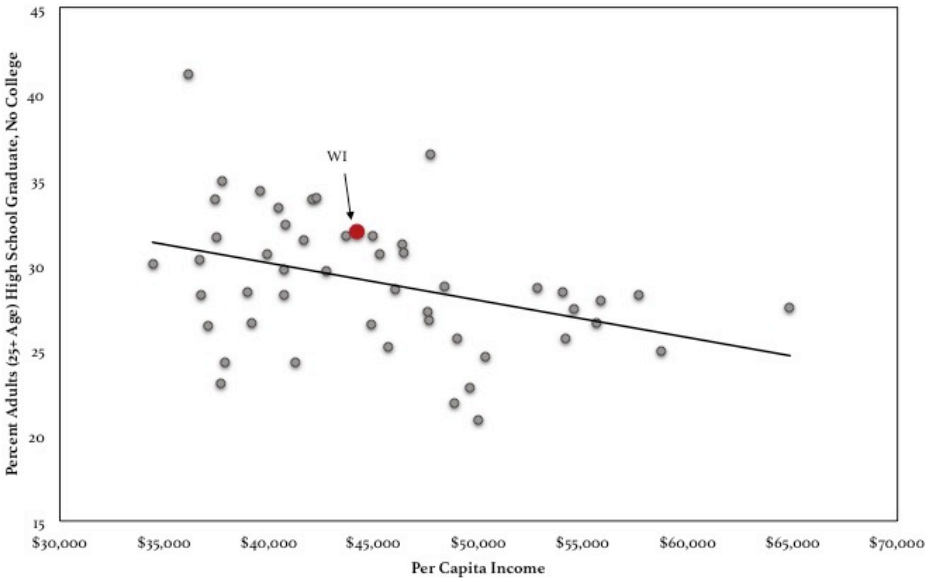


Figure 3: Percent Adults (25+ Age) High School Graduate, No College and State Per Capita Income (2014)



[1] We define "college-educated" as having a bachelor's degree or higher.

[2] Note this policy implication does not speak to the financing (who should pay) of a human capital investment.

Wisconsin's university and technical college systems are essential to producing homegrown talent. This talent is critical for future increases in innovation and productivity gains and the needs of tomorrow's economy. Yet, even with a robust education system, this analysis suggests that there are opportunities to improve education attainment in Wisconsin. While outcomes start strong at the high school level, state performance declines with college enrollment and degree attainment, resulting in a workforce with the lowest education attainment for the region (Figure 10).

To gain insights into possible policy options, it is vital to have a better understanding of the Wisconsin labor force today and how current trends project into the future. Through our simple analysis it appears that higher education attainment is nearly equal between men and women of working age in Wisconsin, but analysis by generation exposes significant differences. Women now exceed men in education attainment, reversing historical gender-education trends. Indeed, any recent increase in the education level of the Wisconsin workforce is attributable to women.

Wisconsin may also need to consider looking beyond its borders for future sources of labor. In addition to producing talented members of the workforce internally by training and educating the state's resident population, it is also possible to source them externally by attracting skilled workers from other states. Migration, or people moving in and out of the state, can affect the talent resources available. The key is to better understand the offsetting effects of out-migration and in-migration and the size of these flows. Over the past few decades, Wisconsin has frequently faced negative net migration of college-educated individuals. Yet even though net migration is negative, the out-migration rate is small relative to most other states. The number of people flowing into a state, however, also influences net migration, and Wisconsin has one of the lowest rates of in-migration among all states.

In light of the migration patterns, Wisconsin needs to think not just about so-called "brain drain" (i.e. retention), but also "brain gain" (i.e. attraction). Policy discussions often revolve around strategies to encourage Wisconsinites to remain within the state. But the efforts to retain talented workers address only the losses from out-migration. Educated people moving to Wisconsin from elsewhere can inject knowledge and new ideas into the workforce and the economy at large. So, in addition to retaining talent, recruiting talent is critical to sustaining a skilled workforce and infusing new ideas and information into the economy. For instance, we might better encourage UW students matriculating from out of state to remain in Wisconsin after graduation. Or, as in some communities in northern Wisconsin, another strategy is to promote of "boomerang" migration. These communities encourage their youth to attend university and college, start a career in perhaps a larger city, then consider returning home to raise their families and contribute to the local community.

To illustrate and benchmark the concentration of college-educated workers in Wisconsin, in this report we consider the education pipeline from high school to the workforce for Wisconsin and neighboring states. We consider metrics at critical points: high school graduation, college enrollment, and degree completion. Here we focus primarily on a four-year bachelor degree. In addition, we consider a potential barrier to education, namely the cost, by looking at student debt. In order to better

understand that talent pipeline in Wisconsin, we take a closer look at skill levels by age group and gender. Last, we consider migration, and how the flows of people into and out of the state affect the pool of potential college-educated workers.

Education Attainment – High School to College

Some of the key observations from our analysis include:

- Wisconsin successfully graduates a large share of high school students, compared with both regional neighbors and all other U.S. states.
- Consistent with neighboring states, nearly 45% of the population age 18-24 is enrolled in college or graduate school.
- The college or university six-year graduation rate is relatively low compared to other Midwestern states.
- In Wisconsin, 29% of the workforce has a bachelor's degree or higher, a small share compared to other Midwestern states.

As noted, Wisconsin's high school graduation rate is high compared to most neighboring states; second only to Iowa which is typically a national leader (Figure 4). This single observation is favorable to the Wisconsin labor force. Of students that started high school in Wisconsin in the 2009-2010 year, 88% graduated with the class of 2013. At the lowest, just 78% of the same class in Michigan graduated in 2013.

Within the state of Wisconsin, there is much variation across counties ranging from less than 65% to over 90% (Figure 5). The counties in Wisconsin

Figure 4: High School Graduation Rate Class of 2013

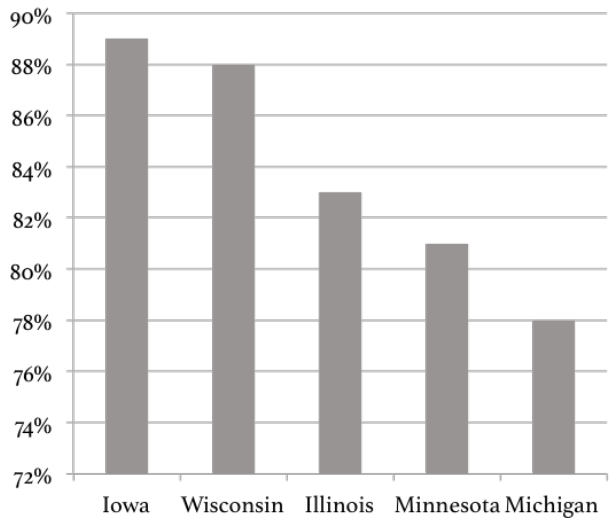
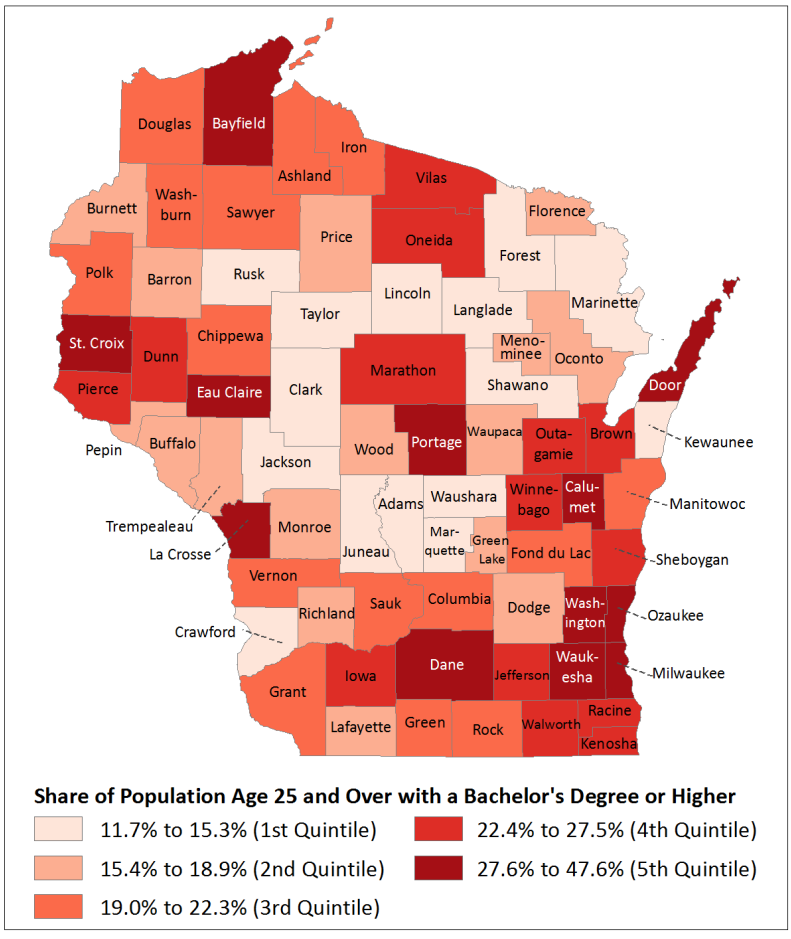


Figure 5: High School Graduation Rate Wisconsin Counties, Class of 2013



with the highest graduation rates are somewhat dispersed across the state including the counties surrounding Milwaukee, The Twin Cities, and those in west central Wisconsin. At the highest, 96% of the cohort graduated in Pepin County as well as Richland and St. Croix County. In contrast, Burnett County had the lowest graduation rate of just 62%.

Since 2000, the share of the young adult population enrolled in undergraduate college or graduate school has increased across the region. In every state the share enrolled in college or graduate school has increased by at least five percentage points. In 2014, nearly 45% of Wisconsin's population age 18 to 24 was enrolled in college or graduate school, up from just over 35% in 2000 (Figure 6). Though the differences are small, Wisconsin trails behind regional neighbors of Iowa, Michigan, and Illinois. Given the relatively strong outcomes at the high school level, the fact that Wisconsin trails in college enrollment is the first indicator of a challenge in the education pipeline.

In Wisconsin, the six-year graduation rate for the cohort that started pursuing their bachelor's degree in 2009 was 58%, ranking 19th among U.S. states (Figure 7). Though the graduation rate increased from 2000, Wisconsin's rank among the states actually declined by one position since 2000 suggesting that graduate rates increased nationally from 2000 to 2009. Wisconsin, however, slipped behind the trend and fell in national ranking. Regionally, Wisconsin's six-year graduation rate was higher only than Michigan, which may still be suffering particularly harsh consequences from the Great Recession. Taken together the relatively strong high school graduation rates, trailing enrollment in college and graduate school, and relatively low six-year graduation rate, indicate that Wisconsin is facing challenges to supplying college-educated workers.

Despite lower graduation rates compared to some neighboring states, the share of Wisconsin's population with a bachelor's degree or higher increased by at least five percentage points between 2000 and 2014

Figure 6: Share of Population Age 18-24 Enrolled in College or Graduate School

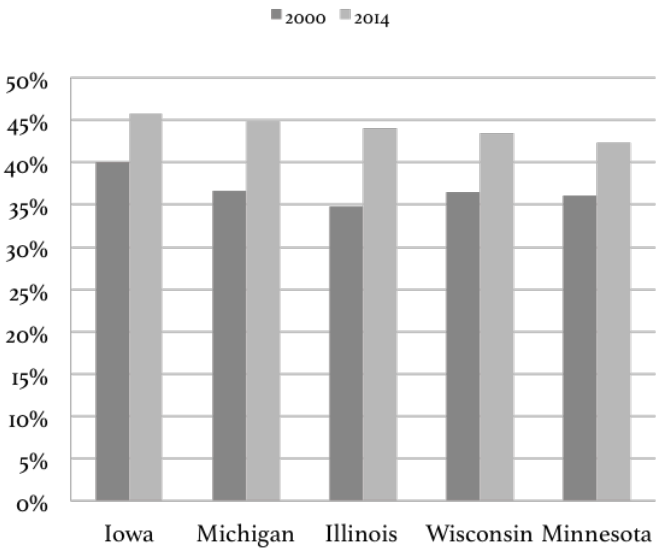
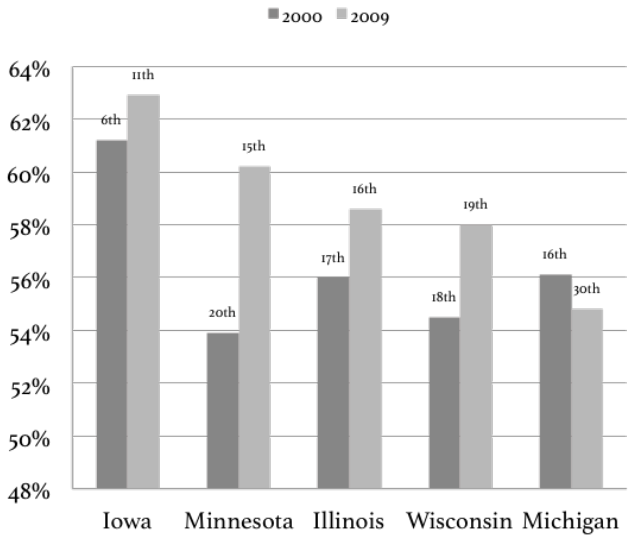


Figure 7: Six-Year Higher Education Graduation Rate

First-time full-time bachelor's degree seeking students earning any formal degree within six years



(Figure 8). Just over 28% of Wisconsin's population age 25 years or older had a bachelor's degree or higher, up from 22% in 2000. But even with the growth in bachelor's degree holders, Wisconsin still ranks in the middle among states in the upper Midwest region. In fact, by 2014 over 30% of the population age 25 or older had a bachelor's degree or higher in Minnesota and Illinois.

Across the state, the share of college-educated adults ranges from just over 11% to nearly half of the population in some counties (Figure 9). The counties with the highest shares of college-educated adults loosely correspond to four-year University of Wisconsin campuses, namely Madison, Parkside, Milwaukee, Oshkosh, Green Bay, La Crosse, Eau Claire, Stout, River Falls, and Superior. The exceptions are Vilas and Oneida Counties, despite their location far from university campuses. This latter observation is partially attributed to the in-migration of highly educated retirees.

Not all people with a bachelor's degree enter the workforce. Some may become discouraged by the labor market, enter graduate school, or become a stay-at-home parent, as examples. Looking at only those that are part of the workforce in Wisconsin, a relatively small share is highly educated (Figure 10). Wisconsin tied Michigan for the smallest share of the workforce with no

Figure 8: Share of Population 25 Years or Older with a Bachelor's Degree or Higher

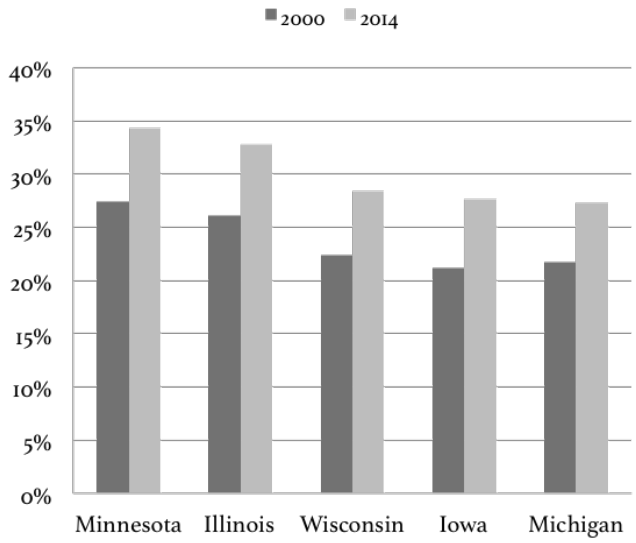
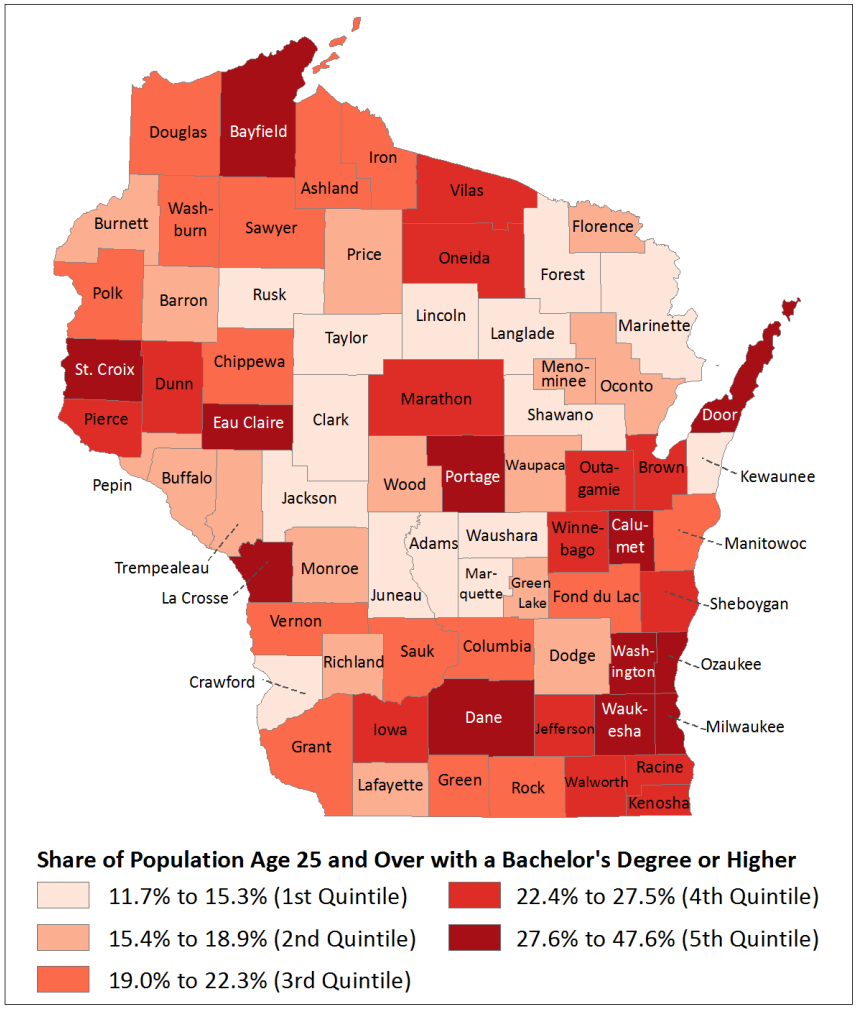


Figure 9: Share of Adult (Age 25+) Population with a Bachelor's Degree or Higher, 2014



higher than a bachelor's degree at 19.7%.

Looking at graduate degrees (e.g. master's, professional and doctoral), Wisconsin has the smallest share compared to regional neighbors. Combining both bachelor's and graduate degrees, 28.7% of adult civilian workers in Wisconsin have a bachelor's degree or higher, whereas approximately 38% of the workforce is highly educated in Minnesota and Illinois.

Not only does the level of education attainment in the workforce matter, so does the field of study. In Figure 11, we show the breakdown of degree fields in the working age population across Education, Arts and Humanities, Business, Science and Engineering, and separately, fields that are Science and Engineering *related*. Science and Engineering fields include those in computers, math, engineering, and psychology as well as biological, physical, and social sciences. Science and Engineering related occupations include healthcare practitioners and technicians such as nurses, architects, and math education.

Figure 11: Degree Fields of Population Age 25-64, Wisconsin, 2014

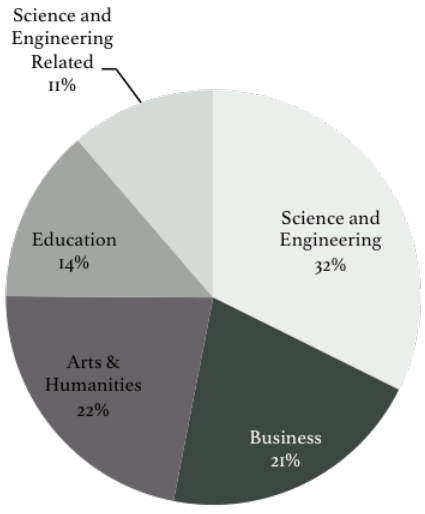
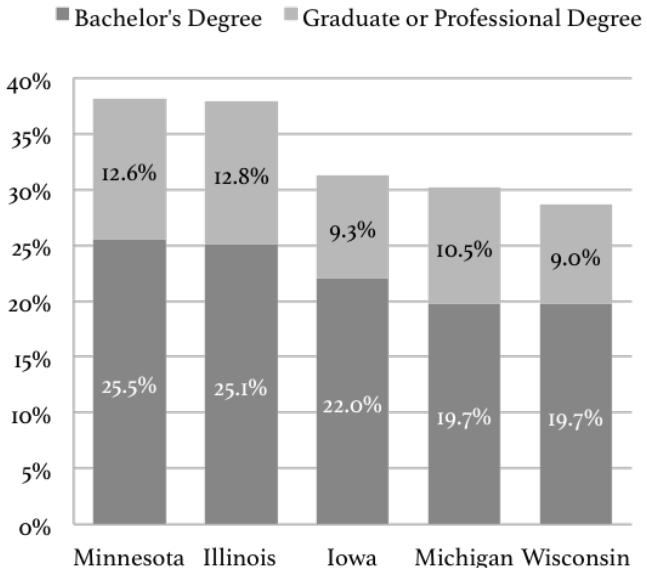
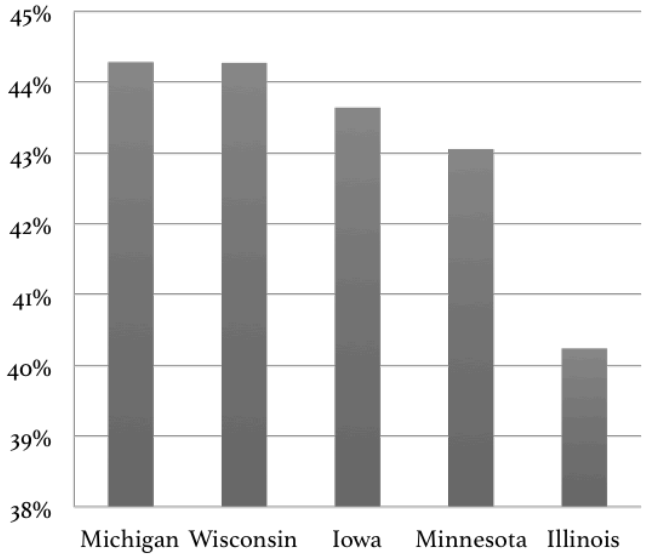


Figure 10: Education of the Workforce (Adult Civilian Workers) 2015



In Wisconsin, Science and Engineering is the most common field of study making up 32% of degrees held by the working age population. The combined categories of, Science, Technology, Engineering and

Figure 12: Share of Population Age 25-64 With STEM or STEM related Degree 2014



Math(STEM) and STEM-related fields make up over 43% of degrees. As we show in Figure 11, Arts and Humanities are the next most common degree field at 22%, followed by Business at 21%. Last, 14% of degrees are in Education.

Often STEM fields are the focus of policy interventions for workforce development. The logic is that STEM-related work often generates innovation, which is a key driver to economic growth and development. Thus, investment in STEM related fields is expected to yield a return in the form of innovation and economic growth. In Figure 12, we highlight STEM and STEM related fields in Wisconsin and neighboring states. Wisconsin ranks second among the peer states at 44% of degrees held by the working age population in STEM fields. Michigan and Iowa also have large shares of STEM degrees. Interestingly, the share in Illinois is noticeably lower.

One possible barrier to graduating from college could be the expense. The cost of tuition is surely prohibitive for some students and may prevent them from enrolling or from finishing once they have enrolled. One way to look at costs is to consider tuition and fees across universities and colleges in the Midwest. Wisconsin universities are "cost competitive" relative to tuition and fees which may explain why Wisconsin gains more students from other states than it loses to attend public college (The New York Times , Aug 26, 2016). For brevity we consider only the flagship and/or land grant institutions such as the University of Wisconsin-Madison. For in-state students, tuition and fees, which does not include costs of living, students pay $10,415 to attend UW-Madison. Only the University of Iowa at $8,104 and Purdue University at $10,002 have tuition and fees lower than UW-Madison. The University of Illinois at Urbana-Champaign is the highest at $15,626 followed by the University of Michigan at $14,336 and Michigan State University at $13,560. Our closest "rival school", the University of Minnesota, comes in at $13,560. One could consider these to be upper bounds, as tuition and fees tend to be lower at other schools in state university systems when compared to the flagship campus (e.g., Northern Illinois University or University of Minnesota-Duluth).
Yet the cost alone does not reflect the

Figure 13: Share of Students with Debt
Class of 2014

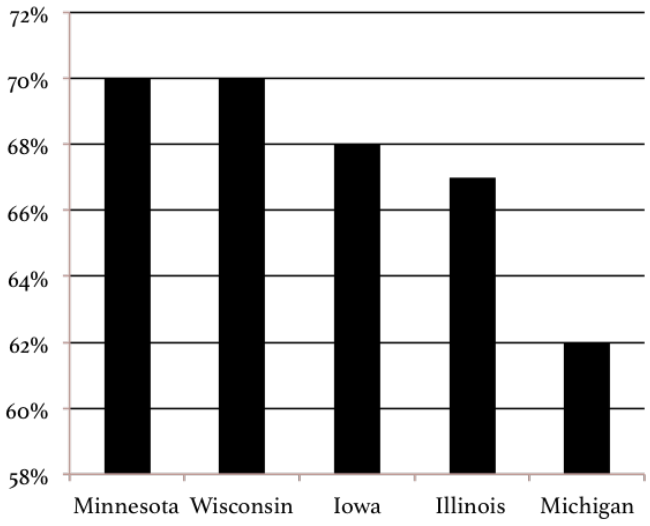
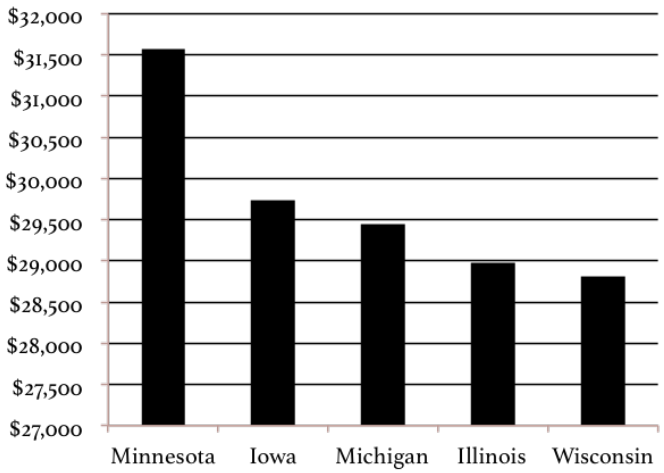


Figure 14: Average Student Debt
(Of those with Loans)
Class of 2014

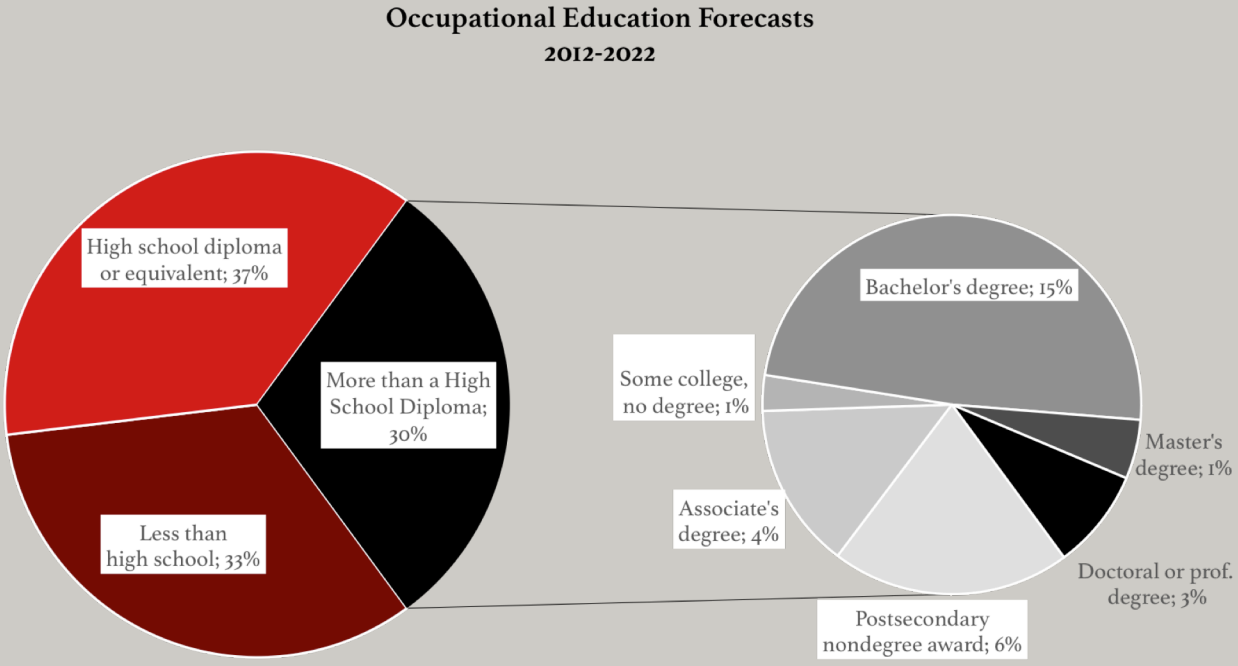


ability to pay for a college education. An alternative measure is the debt burden imposed on students. As tuition and fees have gone up significantly over the past several years to compensate for reductions in state aids, student debt has also gone up significantly creating a barrier to higher education. Compared to other states in the region, a large share of students in Wisconsin had debt (Figure 13). Of students who graduated in 2014, 70% had debt, whereas 68% of students in Iowa had debt, and just 62% of students in Michigan had debt.

In addition to the share of students with debt, the magnitudes of debt burden are also important. Though a relatively large share of students has debt, average debt in Wisconsin is small compared to students in neighboring states. In Wisconsin, students with debt owed just under $29,000 on average (Figure 14). In comparison, students in Minnesota have a larger burden graduating with over $31,500 of debt.

The Demand for Labor

This analysis focuses on the labor resources or labor supply in Wisconsin. Employment growth, however, depends on both labor supply and labor demand. The businesses in Wisconsin—their industrial composition, production methods, and innovative capacity—determine labor demand. While this discussion focuses on the characteristics of the labor supply, it is important to consider these characteristics within the context of the skills demanded by firms in the Wisconsin economy. Wisconsin occupational forecasts indicate that roughly one-third of new jobs over the next ten years will require less than a high school diploma. Just over one-third will require a high school diploma, and the remaining one-third requires some form of post-secondary training or degree. These demand side factors, which are important to have in mind while considering the labor resources available in the state, are covered in the policy brief that accompanies this report. The policy brief is available at http://wp.aae.wisc.edu/thewisconsineconomy/.



Educational Asymmetries by Age and Gender

In our analysis of the Wisconsin workforce, we find several important patterns across age and gender, including:

- In Wisconsin, between 25% and 30% of men and women age 25 and over have a bachelor's degree or higher. Analysis over time and by gender reveals growing gender education asymmetries.
- Since 2000, the share of college-educated men and women has increased, but more dramatically for women. The share of college-educated women now far exceeds the share of college-educated men among 25-34 year olds.
- The field of study for men has persistently skewed toward STEM fields. Women are more evenly distributed across fields.

In this section, we disaggregate some of the trends in education attainment by age and gender. Doing so helps to pinpoint specific issues that may need to be addressed with a local strategy or policy. In Wisconsin, the trends by age and gender indicate that we may be underutilizing certain subgroups of the labor force. In particular, a small share of young men in the state holds a college degree when compared to women of the same age group. If men who would do well in positions requiring higher education are instead opting for less education and lower-skill jobs, then Wisconsin is missing out on the productivity gains of having highly trained workers in positions earning competitive wages. Women, on the other hand, are significantly underrepresented in STEM fields, suggesting that Wisconsin may be missing out on women with potential to be scientists, engineers, and mathematicians.

Figure 15: Share of Population 25 Years or Older with Bachelor's Degree or Higher, 2014

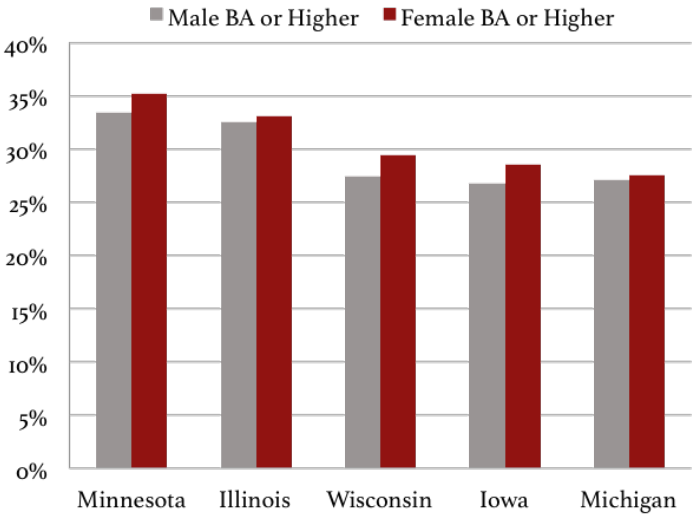
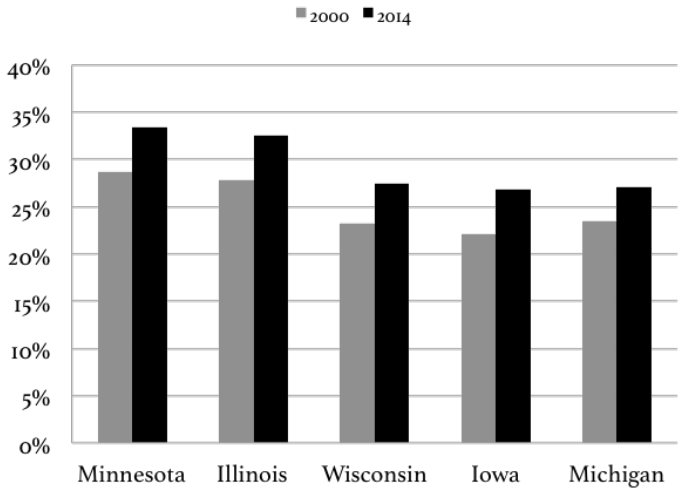


Figure 16: Share of Male Population 25 Years or Older with Bachelor's Degree or Higher



The gender gap in the share of the male and female populations age 25 or older with a bachelor's degree or higher appears small across most of the upper Midwest as shown in Figure 15. A slightly larger share of females than males are highly educated

in every state, but the gap is largest in Wisconsin. Close to 30% of women have a bachelor's degree or higher, whereas 27% of males have achieved an equal education level. Based on these statistics, which are aggregated over age, the gender gap in education attainment is just over two percent.

Since 2000, the share of college-educated males has increased in Wisconsin and throughout the upper Midwest (Figure 16). In 2000, 23% of males in Wisconsin had a bachelor's degree. By 2014, the share increased by more than four percentage points with Wisconsin ranking third among the five neighbor states.

Similar to males, the share of college-educated females has increased since 2000 in Wisconsin and throughout the upper Midwest (Figure 17). In 2000, 21.7% of females had a bachelor's degree or higher. By 2014, that share grew to nearly 30%. Despite the significant growth, Wisconsin still falls behind Minnesota and Illinois, at 35% and 33% respectively.

A side-by-side comparison of the growth in the share of college-educated men and women reveals a large difference between 2000 and 2014. In most states, the percentage point increase in the share of college-educated women is nearly double the increase in college-educated males (Figure 18). The share of college-educated males generally increased by just over four percentage points. During the same period, the average increase in the share of college-educated females was close to eight percentage points, suggesting that women are driving statewide increases in education attainment.

Figure 17: Share of Female Population 25 Years or Older with Bachelor's Degree or Higher

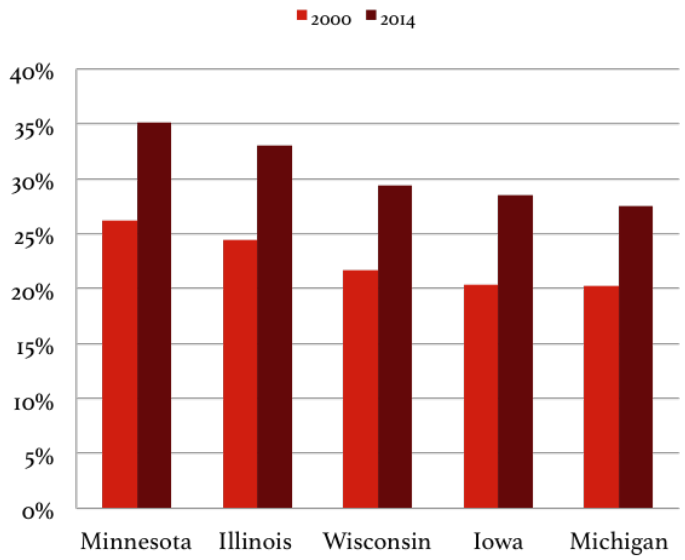
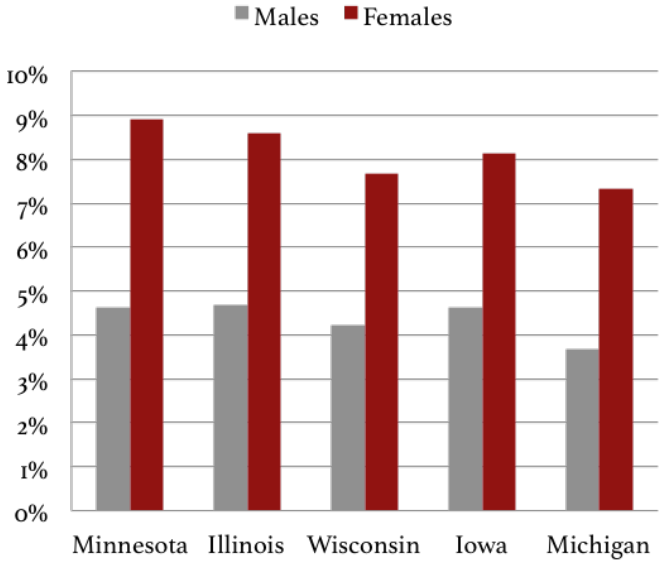


Figure 18: Change in the Share of Population with a Bachelor's Degree or Higher, 2000-2014



Maintaining and expanding the talent pipeline requires growing the educated share of the workforce with each generation. As the retired or soon-to-retire (age 65+) leave their jobs, there must be skilled workers in the following age cohorts to fill those jobs. The figures

and statistics discussed so far pool people of all ages over 25, concealing important changes over time and across cohorts, especially for women. Older workers, baby boomers for example, were educated and began their careers during a period when far fewer women earned a college degree. Women entering the labor force today, however, equal if not exceed their male peers in education attainment.

In Figure 19, we analyze education attainment by age group for men and women. In Wisconsin, the college-educated share of the male population has expanded slightly with each cohort, with the exception of the very youngest men (age 25-34). Unfortunately, the share of highly educated males declined to near 26% with the youngest cohort (age 25-34), which could be problematic in the future as more skilled cohorts advance through their work-life and eventually retire without an adequately skilled workforce to fill their jobs.

Compared to men, the increase of educational attainment among women across age groups has been dramatic. In Wisconsin, the share of women with a bachelor's degree or higher has steadily increased with each age group. The share of highly educated women doubled in four generations growing from 16% in the oldest age group to more than one-third of the youngest group. Consequently, the skill asymmetry between men and women in Wisconsin has more than reversed itself. In the youngest age group (born between 1980 and 1989), 37% of

Figure 19: Share of Population with a Bachelor's Degree or Higher by Cohort, 2014
Wisconsin

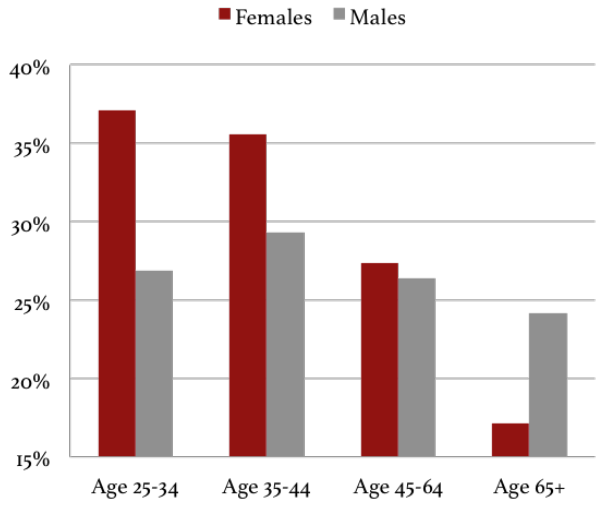
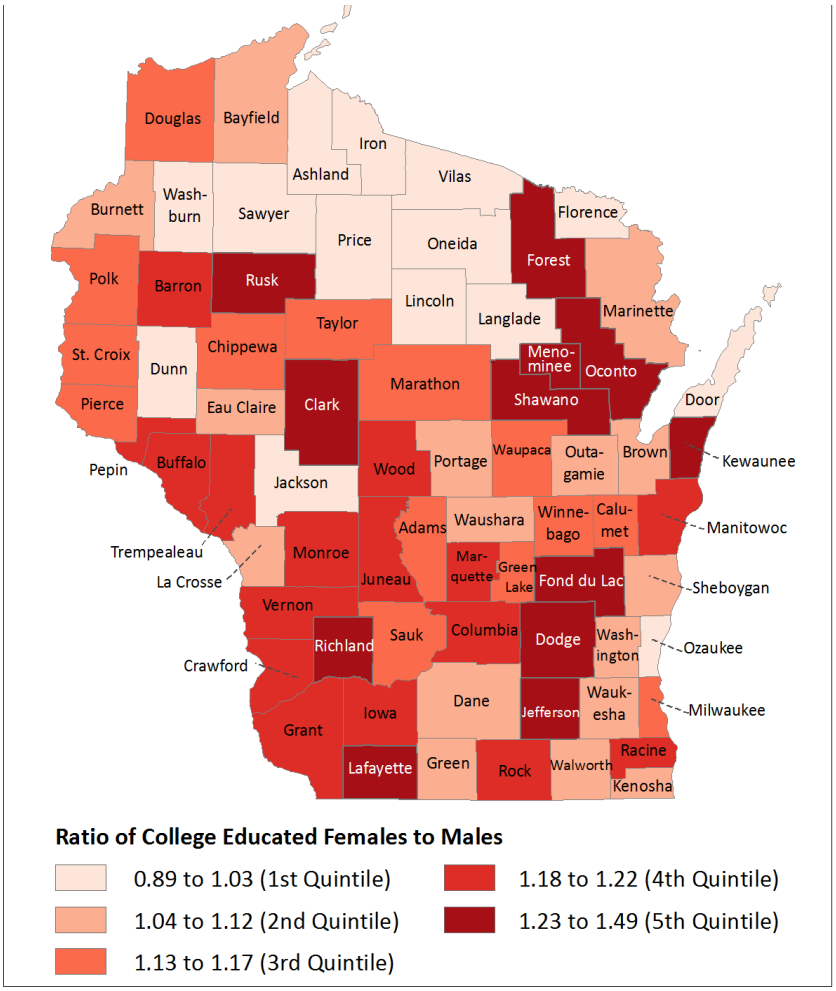


Figure 20: Ratio of College-educated Females to Males



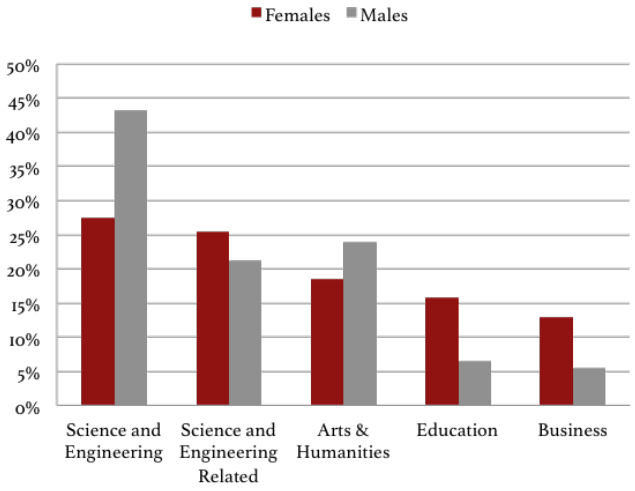
women are highly educated; approximately ten percentage points greater than the share of highly educated males of the same age.

In Figure 20, we show the ratio of highly educated (holding at least a bachelor's degree) females to males by county across Wisconsin. In nearly every county in the state, highly educated females outnumber highly educated males (i.e. have a ratio greater than one) At ratios of 1.4 or higher, gender disparities are especially high in Forest, Menominee, and Clark counties. Highly educated males outnumber highly educated females in just seven counties: Jackson, Ozaukee, Dunn, Sawyer, Florence, Washburn, and Price counties.

Despite the increases in educational attainment among women, there are still wide gender gaps across fields of study. Males still far outnumber females in Science and Engineering. Nearly 45% of the male population has a degree in science or engineering whereas less than 30% of women have a degree in a similar field (Figure 21). The gender gap in education is also quite large. Over 15% of women have a degree in education, more than double the share of men. Interestingly, science and engineering related fields are more common among women possibly due to the type health care occupations included in the category.

The patterns of education attainment by age group and gender suggest several opportunities in Wisconsin. Men trail

Figure 21: Degree Fields of Population Age 25-64 by Gender Wisconsin, 2014



behind women in higher education attainment in the youngest cohort. The gap is concerning if men who have high potential for a higher education are instead choosing not to go to college and consequently earn lower wages in a low-skilled job. Such underutilization of the male workforce across the state can lead to lower economic outcomes. Similarly, women may be underutilized in STEM-fields where they are still significantly outnumbered. If there are barriers or particular challenges to women entering STEM, then the state likely is producing fewer STEM-workers in innovative fields than it would if those obstacles were removed. Hence this section of the analysis is useful for identifying target areas or target demographics where a policy or strategy would be most effective at increasing education attainment and generating economic gains.

Migration

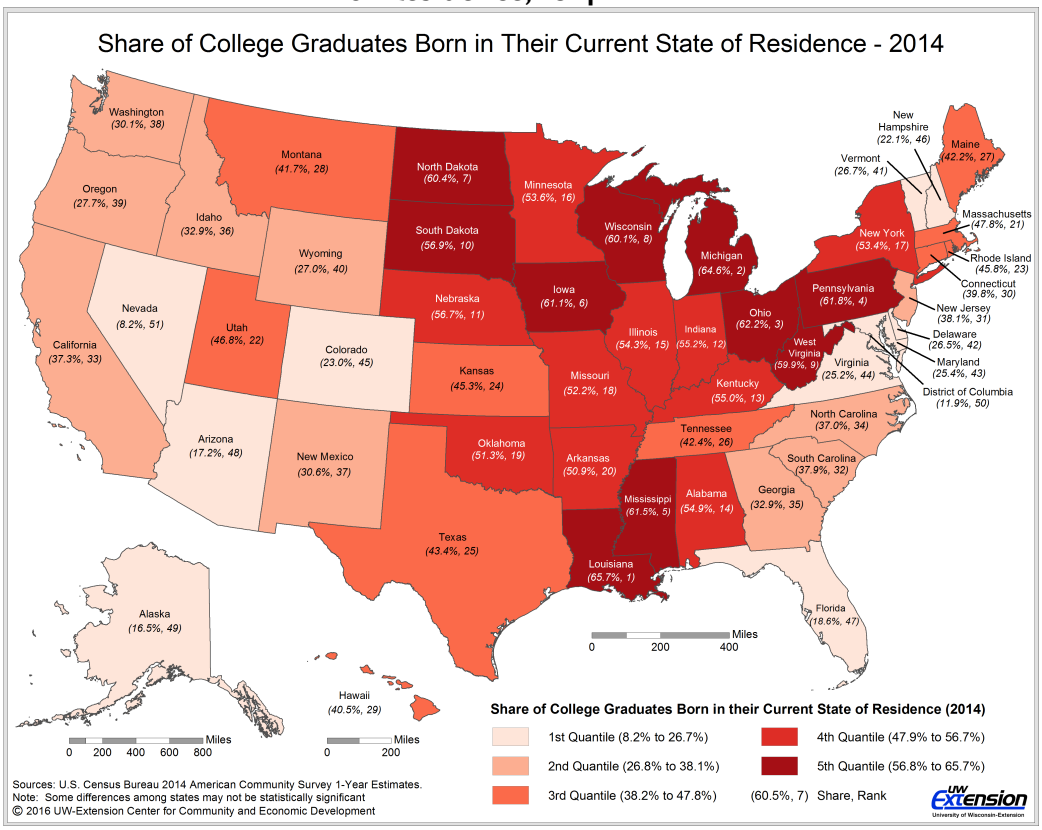
The flow of workers in and out of Wisconsin is a relatively small, but important component of the changing Wisconsin labor force. In an analysis of the migration patterns we find:

- A relatively large share of college graduates in Wisconsin was born in the state.
- Out-migration rates in Wisconsin are relatively low, but in-migration is even lower. Consequently, negative net migration is more a function of Wisconsin's limited ability to attract residents than its ability to retain residents.
- Though the foreign born share of the population is small, they are equally if not more educated than the state population as a whole.

As we show in Figure 22, a large share of Wisconsin's educated population is local. They were born in the state and either remained here after earning a college degree or returned home after migrating elsewhere (e.g., boomerang migration). In fact, over 60% of college graduates in Wisconsin were born in Wisconsin, among the highest homegrown talent shares of all states.

The pool of college-educated workers is also affected by migration. In-migration, or people moving from other states, can add to the available workforce, and conversely, out-migration, people leaving the state to move elsewhere, can weaken the state's available talent pool. In the following we explore the migration of the college-

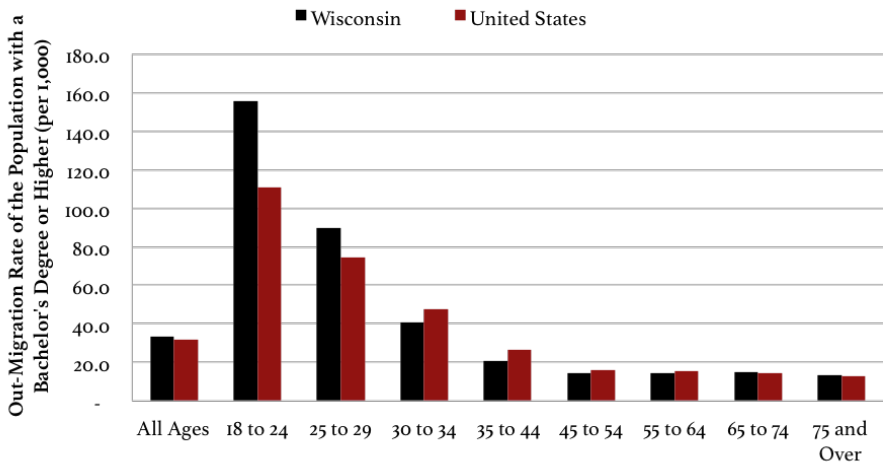
Figure 22: Share of College Graduates Born in their Current State of Residence, 2014



educated population in Wisconsin.

In Figure 23, we show out-migration rates for college graduates by age group for both Wisconsin and the United States. First, out-migration is generally low among all age groups both in Wisconsin and across the U.S. Only 18-24 year olds exceed 10%, but the majority of age groups are below 3%. People, other than young adults, tend to migrate across state lines at lower rates than one might expect. Just as Conroy and Deller (2014) found with manufacturing firms, rates of inter-state mobility is not as high as is generally believed. In Wisconsin, out-migration by age group is roughly even with the U.S. with the exception of 18-24 year olds.

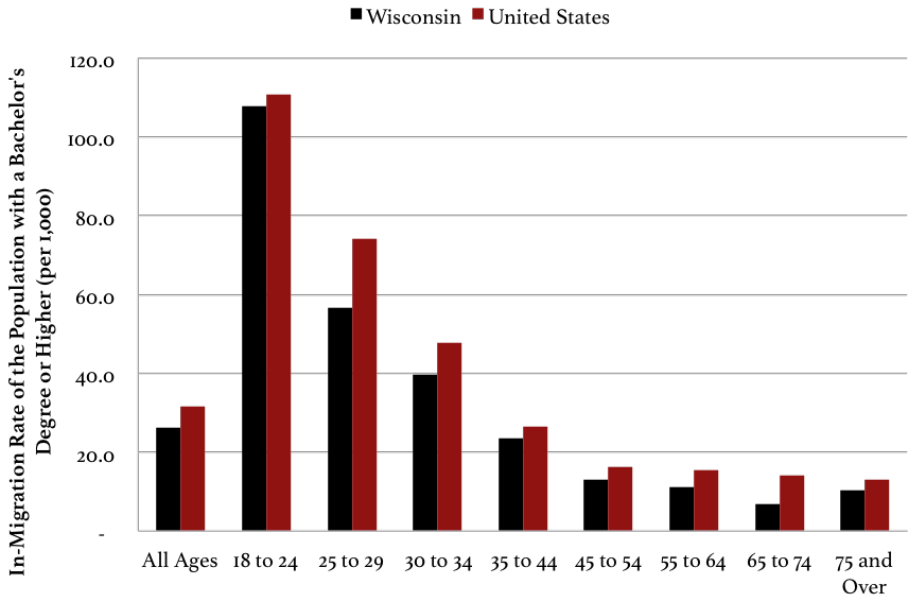
Figure 23: Domestic Out-Migration Comparison for Individuals with a Bachelor's Degree or Higher by Age Group (2010-2014)



While it is the case that a certain share of young, educated Wisconsinites leave the state, an equally, if not more important component is in-migration. Without bringing in a sufficiently large flow of people from other states, in-migration does not offset the low out migration rate, resulting in negative net migration for Wisconsin. In Figure 24, we show in-migration rates across age groups in Wisconsin compared to the United States average. Unlike out-migration in Wisconsin, which was low but nearly even with the U.S. average across most age groups, in-migration is slightly below the U.S. in most age categories and significantly lower among young adults. The low in-migration is an important component of understanding negative net migration in the state.

In addition to domestic movement, international migration can affect the pool of talented workers in Wisconsin. As we

Figure 24: Domestic In-Migration Comparison for Individuals with a Bachelor's Degree or Higher by Age Group (2010-2014)



show in Figure 25, just 5% of the population in Wisconsin is foreign born. Also important for employers, is not the quantity of these potentially available workers but also the quality of their skills. Importantly, the foreign population is relatively educated, with nearly 30% having a bachelor's degree or higher (Figure 26). That is, the share of highly educated foreign born is roughly equal to, if not slightly higher than the highly educated share for the state as a whole. Many higher technology businesses have found that the H-1B visa program, which allows highly trained foreign workers to enter the U.S., has been vital to their continued success.

Figure 25: Share Foreign Born
2014

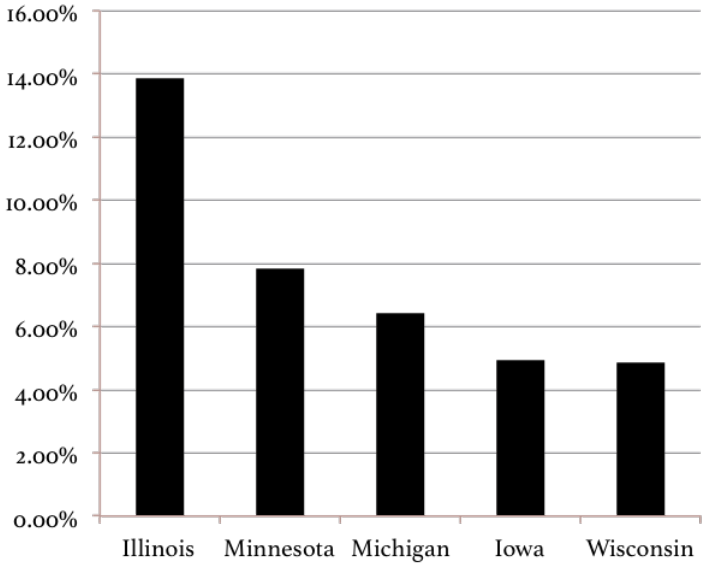
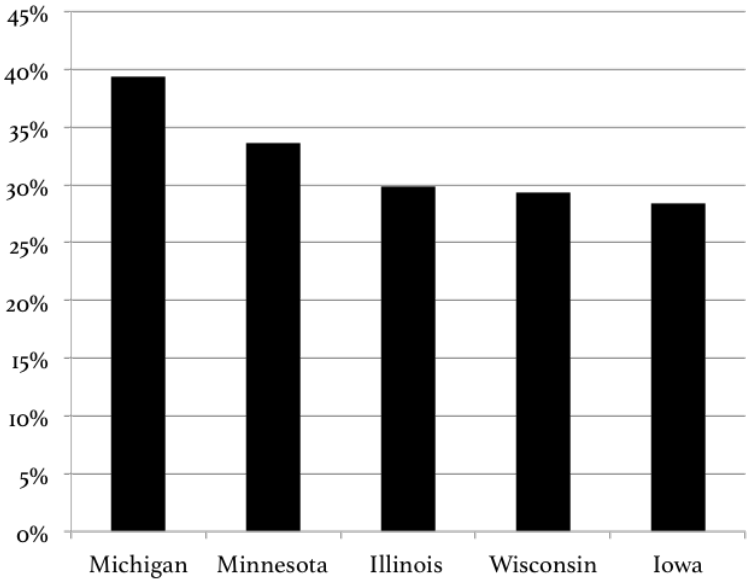


Figure 26: Share of Foreign Born with Bachelor's Degree or Higher
2014



From this analysis we can conclude that Wisconsin is not suffering so much from a "brain drain" problem, but more so from the lack of a brain gain. While some highly educated Wisconsin residents are moving out of the state, a greater weakness is the lack of in-migration by educated people. In the end, people are not as mobile as one might expect. If Wisconsin is to grow the pool of educated workers it will need to continue to rely on producing workers from within. Alternatively, Wisconsin communities could develop strategies that would positively affect the in-migration of educated workers. Some communities, for example, are looking at "boomerang migration". Here communities encourage youth to go away to school after graduating from high school, explore and earn life experiences. Then, when these same youths are ready to settle down, consider returning to their home community. As another example, some UW campuses that have a relatively high share of out-of-state students are actively encouraging those students to remain in Wisconsin after graduation through internships and other means.[3]

[3] Migration is further explored in a forthcoming report.

Conclusion

Educated workers are essential to a future with competitive wages, innovative industry, and entrepreneurial activity. The university and technical college system, combined with low rates of migration, suggest that homegrown, talented workers could be the key to economic growth in Wisconsin. Several indicators, however, suggest the education pipeline could be improved. While high school graduation rates are relatively high, Wisconsin has one of the least educated workforces in the region indicating that post-secondary education and training may be underutilized. This is especially true among young men who have fallen behind women in attaining bachelor's degrees. Undoubtedly, one obstacle to increasing the number of workers with a college education education is increasing costs and the burden of student loan debt. Without expanding the pool of educated workers, it may be difficult to both replace the skilled and experienced baby boomers as they retire as well as fill the new positions in expanding Wisconsin businesses.

In addition to local talent, the state's labor pool is impacted by migration, workers moving both in and out of the state. Though Wisconsin is often perceived as losing talented workers to "brain drain," in fact out-migration rates are relatively low compared to other states. The more significant factor is the especially low rate of in-migration. Consequently, effective strategies for growing the pool of talented workers in Wisconsin may need to focus on recruiting workers from other places as much as the more common approaches focusing on retention.

Labor resources should not be considered entirely in isolation. It is equally important to consider how the characteristics of labor supply are suited to the needs of employers. The types of jobs Wisconsin employers are offering are changing and so too are the skill requirements. Should Wisconsin be looking at educational policies as they pertain to current industry needs or looking to future directions for the state's economy? If education investments are geared toward an economy with growing incomes, creative advancements in production, and strong business performance in the private sector, Wisconsin has several opportunities to change the trajectory of the economy. These issues are addressed in the accompanying policy brief available at http://wp.aae.wisc.edu/thewisconsineconomy/.

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Data Appendix

Figure 1: Data

Percent Adults (25+ Age) with a Bachelors Degree or Higher (2014)

	All	(rank)	Male	(rank)	Female	(rank)
Alabama	23.5	(44)	23.1	(45)	23.8	(45)
Alaska	28.0	(27)	25.0	(40)	31.3	(17)
Arizona	27.6	(31)	28.0	(25)	27.1	(36)
Arkansas	21.4	(48)	20.9	(48)	21.8	(49)
California	31.7	(13)	32.0	(14)	31.5	(15)
Colorado	38.3	(2)	37.6	(5)	39.0	(2)
Connecticut	38.0	(4)	37.9	(3)	38.1	(4)
Delaware	30.6	(18)	29.7	(19)	31.4	(16)
Florida	27.3	(35)	28.0	(26)	26.6	(37)
Georgia	29.1	(23)	28.6	(23)	29.4	(25)
Hawaii	31.0	(16)	30.0	(18)	32.0	(14)
Idaho	25.0	(41)	26.1	(35)	24.0	(43)
Illinois	32.8	(12)	32.5	(13)	33.1	(11)
Indiana	24.7	(42)	24.2	(42)	25.0	(41)
Iowa	27.7	(30)	26.8	(31)	28.5	(29)
Kansas	31.5	(14)	31.0	(16)	32.0	(13)
Kentucky	22.2	(47)	21.5	(47)	22.9	(46)
Louisiana	22.9	(46)	21.8	(46)	24.0	(44)
Maine	29.4	(21)	28.1	(24)	30.6	(19)
Maryland	38.2	(3)	38.1	(2)	38.4	(3)
Massachusetts	41.2	(1)	41.0	(1)	41.3	(1)
Michigan	27.4	(33)	27.1	(30)	27.6	(34)
Minnesota	34.3	(10)	33.4	(11)	35.2	(9)
Mississippi	21.1	(49)	19.1	(49)	22.8	(48)
Missouri	27.5	(32)	26.7	(32)	28.2	(31)
Montana	29.3	(22)	28.7	(22)	29.9	(21)
Nebraska	29.5	(20)	29.1	(20)	30.0	(20)
Nevada	23.1	(45)	23.4	(44)	22.8	(47)
New Hampshire	35.0	(7)	34.2	(7)	35.8	(8)
New Jersey	37.4	(5)	37.8	(4)	37.0	(5)
New Mexico	26.4	(38)	25.0	(41)	27.8	(33)
New York	34.5	(9)	33.8	(10)	35.0	(10)
North Carolina	28.7	(25)	27.8	(27)	29.5	(24)
North Dakota	27.4	(34)	25.2	(38)	29.7	(23)
Ohio	26.6	(36)	26.7	(33)	26.5	(38)
Oklahoma	24.2	(43)	23.8	(43)	24.5	(42)
Oregon	30.8	(17)	30.4	(17)	31.2	(18)
Pennsylvania	29.0	(24)	28.8	(21)	29.2	(28)
Rhode Island	30.4	(19)	31.3	(15)	29.7	(22)
South Carolina	26.3	(39)	26.0	(36)	26.5	(39)
South Dakota	27.8	(28)	26.2	(34)	29.3	(27)
Tennessee	25.3	(40)	25.1	(39)	25.4	(40)
Texas	27.8	(29)	27.8	(28)	27.8	(32)
Utah	31.1	(15)	33.9	(9)	28.3	(30)
Vermont	34.9	(8)	33.2	(12)	36.5	(7)
Virginia	36.7	(6)	36.9	(6)	36.6	(6)
Washington	33.1	(11)	34.0	(8)	32.3	(12)
West Virginia	19.2	(50)	18.6	(50)	19.7	(50)
Wisconsin	***28.4***	***(26)***	***27.4***	***(29)***	***29.4***	***(26)***
Wyoming	26.6	(37)	25.8	(37)	27.3	(35)

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Figure 2: Data

Percent Adults (25+ Age) Graduate or Professional Degree (2014)

	All	(rank)	Male	(rank)	Female	(rank)
Alabama	8.8	(40)	8.6	(40)	8.9	(40)
Alaska	9.6	(31)	8.6	(39)	10.7	(22)
Arizona	10.3	(24)	10.7	(22)	9.9	(30)
Arkansas	7.5	(49)	7.3	(48)	7.8	(45)
California	11.8	(14)	12.4	(14)	11.2	(20)
Colorado	14.3	(6)	14.0	(6)	14.6	(7)
Connecticut	16.7	(3)	16.3	(4)	17.1	(3)
Delaware	12.3	(11)	12.1	(15)	12.6	(11)
Florida	9.8	(29)	10.3	(25)	9.4	(34)
Georgia	10.8	(20)	10.3	(24)	11.3	(19)
Hawaii	10.5	(22)	10.4	(23)	10.5	(24)
Idaho	8.3	(42)	9.7	(32)	6.9	(50)
Illinois	12.7	(10)	12.5	(11)	12.9	(10)
Indiana	8.9	(39)	8.7	(38)	9.1	(38)
Iowa	9.0	(38)	9.2	(34)	8.9	(39)
Kansas	11.3	(19)	11.0	(19)	11.5	(18)
Kentucky	9.2	(36)	8.2	(42)	10.1	(27)
Louisiana	7.8	(46)	7.5	(47)	8.0	(43)
Maine	10.0	(28)	10.0	(29)	10.0	(29)
Maryland	17.5	(2)	17.7	(1)	17.3	(2)
Massachusetts	18.0	(1)	17.4	(2)	18.6	(1)
Michigan	10.8	(21)	10.7	(21)	10.9	(21)
Minnesota	11.6	(15)	11.3	(17)	11.8	(13)
Mississippi	8.0	(44)	7.0	(49)	8.9	(41)
Missouri	10.4	(23)	10.1	(26)	10.6	(23)
Montana	9.8	(30)	9.8	(31)	9.9	(31)
Nebraska	9.3	(35)	9.1	(35)	9.5	(33)
Nevada	7.9	(45)	8.3	(41)	7.5	(49)
New Hampshire	13.3	(9)	13.0	(8)	13.7	(9)
New Jersey	14.3	(7)	14.7	(5)	13.9	(8)
New Mexico	11.4	(17)	10.9	(20)	11.8	(14)
New York	14.9	(5)	13.9	(7)	15.8	(4)
North Carolina	10.1	(26)	10.1	(27)	10.1	(26)
North Dakota	7.6	(48)	7.6	(46)	7.6	(48)
Ohio	10.1	(27)	10.1	(28)	10.0	(28)
Oklahoma	8.1	(43)	8.1	(43)	8.2	(42)
Oregon	11.6	(16)	11.6	(16)	11.6	(16)
Pennsylvania	11.4	(18)	11.3	(18)	11.6	(17)
Rhode Island	12.3	(12)	12.5	(12)	12.2	(12)
South Carolina	9.6	(32)	8.9	(36)	10.2	(25)
South Dakota	7.8	(47)	7.9	(45)	7.6	(47)
Tennessee	9.1	(37)	8.8	(37)	9.3	(36)
Texas	9.6	(33)	10.0	(30)	9.3	(35)
Utah	10.3	(25)	12.9	(9)	7.8	(44)
Vermont	14.0	(8)	12.7	(10)	15.2	(5)
Virginia	15.9	(4)	16.8	(3)	15.0	(6)
Washington	12.1	(13)	12.5	(13)	11.7	(15)
West Virginia	7.4	(50)	7.0	(50)	7.7	(46)
Wisconsin	***9.5***	***(34)***	***9.3***	***(33)***	***9.8***	***(32)***
Wyoming	8.7	(41)	8.0	(44)	9.3	(37)

Figure 3: Data

Percent Adults (25+ Age) High School Graduate and No College (2014)

	All	(rank)	Male	(rank)	Female	(rank)
Alabama	31.6	(13)	32.6	(15)	30.7	(12)
Alaska	28.4	(26)	31.0	(21)	25.5	(35)
Arizona	24.3	(45)	24.7	(45)	24.0	(43)
Arkansas	34.9	(3)	36.5	(3)	33.4	(3)
California	20.9	(50)	21.5	(50)	20.3	(50)
Colorado	21.9	(49)	22.1	(49)	21.6	(49)
Connecticut	27.5	(32)	28.8	(30)	26.3	(32)
Delaware	31.2	(15)	31.9	(19)	30.6	(13)
Florida	29.6	(22)	29.8	(25)	29.4	(17)
Georgia	28.4	(27)	29.6	(26)	27.4	(27)
Hawaii	28.5	(25)	29.5	(27)	27.5	(26)
Idaho	28.2	(28)	28.6	(31)	27.8	(24)
Illinois	26.7	(35)	27.2	(39)	26.2	(33)
Indiana	34.3	(4)	35.5	(5)	33.2	(4)
Iowa	31.7	(11)	33.2	(11)	30.4	(14)
Kansas	26.5	(38)	27.9	(37)	25.2	(37)
Kentucky	33.8	(6)	35.8	(4)	32.0	(8)
Louisiana	33.8	(7)	34.8	(7)	32.8	(6)
Maine	32.3	(9)	33.5	(10)	31.3	(9)
Maryland	25.7	(40)	26.4	(41)	25.0	(38)
Massachusetts	24.9	(43)	26.3	(42)	23.7	(46)
Michigan	29.7	(21)	30.2	(24)	29.1	(19)
Minnesota	25.7	(41)	27.2	(40)	24.2	(42)
Mississippi	30.0	(20)	32.0	(18)	28.3	(21)
Missouri	31.4	(14)	32.9	(13)	30.0	(15)
Montana	30.6	(17)	32.1	(17)	29.2	(18)
Nebraska	27.2	(34)	28.0	(35)	26.5	(30)
Nevada	28.2	(29)	28.5	(32)	27.8	(25)
New Hampshire	28.6	(24)	30.3	(23)	26.9	(29)
New Jersey	28.2	(30)	28.5	(33)	28.0	(23)
New Mexico	26.4	(39)	28.5	(34)	24.4	(41)
New York	26.6	(36)	27.3	(38)	25.9	(34)
North Carolina	26.6	(37)	28.0	(36)	25.3	(36)
North Dakota	27.9	(31)	29.4	(28)	26.3	(31)
Ohio	33.9	(5)	34.8	(6)	33.2	(5)
Oklahoma	31.7	(12)	32.7	(14)	30.7	(11)
Oregon	24.3	(46)	24.7	(46)	23.9	(44)
Pennsylvania	36.4	(2)	37.1	(2)	35.7	(2)
Rhode Island	28.7	(23)	29.3	(29)	28.1	(22)
South Carolina	30.3	(19)	31.0	(20)	29.7	(16)
South Dakota	30.6	(18)	32.4	(16)	28.9	(20)
Tennessee	33.3	(8)	34.3	(9)	32.4	(7)
Texas	25.2	(42)	25.6	(43)	24.7	(39)
Utah	23.0	(47)	22.3	(48)	23.7	(47)
Vermont	30.7	(16)	34.4	(8)	27.2	(28)
Virginia	24.6	(44)	25.4	(44)	23.8	(45)
Washington	22.8	(48)	23.3	(47)	22.3	(48)
West Virginia	41.1	(1)	42.8	(1)	39.5	(1)
Wisconsin	***31.9***	***(10)***	***33.0***	***(12)***	***30.9***	***(10)***
Wyoming	27.4	(33)	30.4	(22)	24.5	(40)

Figure 5, 9, and 20: Data

County	Graduation Rate Class of 2013 (Figure 5)	Share w/ Bachelor's degree+ (Figure 9)	Ratio of College-Educated Females to Males (Figure 20)	County	Graduation Rate Class of 2013 (Figure 5)	Share w/ Bachelor's degree+ (Figure 9)	Ratio of College-Educated Females to Males (Figure 20)
Adams County	88%	12.6%	1.14	Marathon County	93%	23.0%	1.14
Ashland County	91%	22.3%	1.03	Marinette County	92%	13.9%	1.10
Barron County	89%	16.6%	1.18	Marquette County	88%	13.0%	1.22
Bayfield County		28.3%	1.08	Menominee County		16.5%	1.44
Brown County	88%	27.5%	1.09	Milwaukee County	75%	28.7%	1.16
Buffalo County	92%	17.7%	1.22	Monroe County	94%	17.5%	1.19
Burnett County	62%	16.8%	1.07	Oconto County	91%	15.4%	1.30
Calumet County	95%	28.0%	1.16	Oneida County	90%	24.4%	1.02
Chippewa County	90%	19.2%	1.13	Outagamie County	91%	26.9%	1.09
Clark County	94%	11.7%	1.43	Ozaukee County	95%	46.4%	0.96
Columbia County	88%	22.2%	1.19	Pepin County	96%	17.1%	1.18
Crawford County	95%	15.3%	1.21	Pierce County	95%	26.3%	1.17
Dane County	86%	47.6%	1.04	Polk County	93%	19.2%	1.16
Dodge County	92%	15.7%	1.28	Portage County	89%	28.3%	1.08
Door County	91%	29.4%	1.01	Price County	89%	16.1%	0.89
Douglas County	89%	21.9%	1.13	Racine County	79%	23.4%	1.21
Dunn County	91%	25.3%	0.95	Richland County	96%	16.7%	1.33
Eau Claire County	87%	31.1%	1.12	Rock County	89%	20.0%	1.19
Florence County		15.4%	0.92	Rusk County	88%	14.2%	1.25
Fond du Lac Coun	90%	20.9%	1.25	St. Croix County	91%	32.4%	1.16
Forest County	85%	14.2%	1.49	Sauk County	83%	21.9%	0.93
Grant County	94%	20.2%	1.20	Sawyer County	92%	22.1%	1.34
Green County	92%	20.9%	1.11	Shawano County	91%	15.1%	1.05
Green Lake County	92%	17.3%	1.17	Sheboygan County	96%	22.5%	1.13
Iowa County	91%	23.2%	1.22	Taylor County	93%	13.8%	1.17
Iron County		20.6%	1.00	Trempealeau County	92%	18.1%	1.20
Jackson County	94%	13.9%	0.99	Vernon County	90%	20.1%	1.22
Jefferson County	95%	23.3%	1.23	Vilas County	95%	24.9%	1.01
Juneau County	92%	12.4%	1.19	Walworth County	93%	26.3%	1.06
Kenosha County	86%	24.3%	1.04	Washburn County	92%	20.5%	0.91
Kewaunee County	94%	14.4%	1.25	Washington County	94%	27.9%	1.06
La Crosse County	94%	30.8%	1.12	Waukesha County	94%	41.0%	1.05
Lafayette County	92%	17.3%	1.38	Waupaca County	91%	16.5%	1.17
Langlade County	89%	13.5%	1.03	Waushara County	89%	15.2%	1.12
Lincoln County	87%	15.2%	1.01	Winnebago County	92%	26.1%	1.13
Manitowoc County	89%	19.6%	1.19	Wood County	94%	18.9%	1.21

Methods

Figures 1-3
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Data on state and county level graduation rates obtained from County Health Rankings and Roadmaps: A Robert Wood Johnson Foundation program available at http://www.countyhealthrankings.org/app/illinois/2016/measure/factors/21/data.

Figure 6
Based on author's analysis of state level college and graduate enrollment for the population age 18-24 is from the U.S. Census. 2000 data come from Decennial Census and 2014 data come from the 2014 American Community survey. College enrollment includes students enrolled in both 2-and 4-year colleges.

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Data on the six-year higher education graduation rate are obtained from the National Center for Higher Education Management Systems for Higher Education Policymaking and Analysis at http://higheredinfo.org/stateprofile/.

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Figure 10
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Figure 25-26
Based on author's analysis of data from the U.S. Census American Community Survey 1-year estimates.

[4] All ACS data are subject to margins of error.