

July 2010

Change in Income by Education Level, by Race in Minnesota

INTRODUCTION

Using data from the U.S. Census Bureau, this Research Brief analyzes the benefits of higher education, specifically income premiums for Minnesotans attaining education beyond high school. This brief is an extension of previous work by the Minnesota Private College Research Foundation that examined income by education for Minnesota residents compared to the rest of the nation (Educational Attainment Wage Premiums and Disparities by Race, September 2009). The purpose of this report is to look closer at wage comparisons within the state alone.

Using the Minnesota population aged 19 to 64 to focus on the working population, this brief first examines income by race/ethnicity for each level of education attained. Second, it illustrates income premiums for each level of education over a high school credential. This is done for the general Minnesota population and then disaggregated by race/ethnicity. Finally, it compares income by age for each level of education, to show earning power over time.

DATA

Data used in this research are from the American Community Survey (ACS) three-year estimates. While the Census Bureau provides yearly surveys, the three-year survey provides greater reliability for subgroup comparisons because the sample size is larger, with samples averaged over a three-year period. The tradeoff for greater reliability is that data may not reflect the most recent year's snapshot. These data represent the most recent available, from collections performed 2006 to 2008.

Using these sample data to analyze differences in income by education by race/ethnicity, in some cases cell sizes become very small and thus should be interpreted with caution. Small cell sizes can result in wider variance around reported averages. As an example, the entire sample data consists of approximately 94,000 cases. Of those surveyed, 1,255 individuals reported Hispanic ethnicity, of which 70 had obtained a graduate degree (for further descriptive data used in this research see Appendix A). This corresponds to approximately a 12 percent confidence interval (the plus or minus amount around an average) compared to an interval of less than 2 percent for whites with graduate degrees.

This is one in a series of research-based briefs prepared by the Minnesota Private College Research Foundation for Minnesota Private College Council members and other interested parties.

If you have a question or suggestion for a topic for a future issue brief, please contact the Research Foundation.

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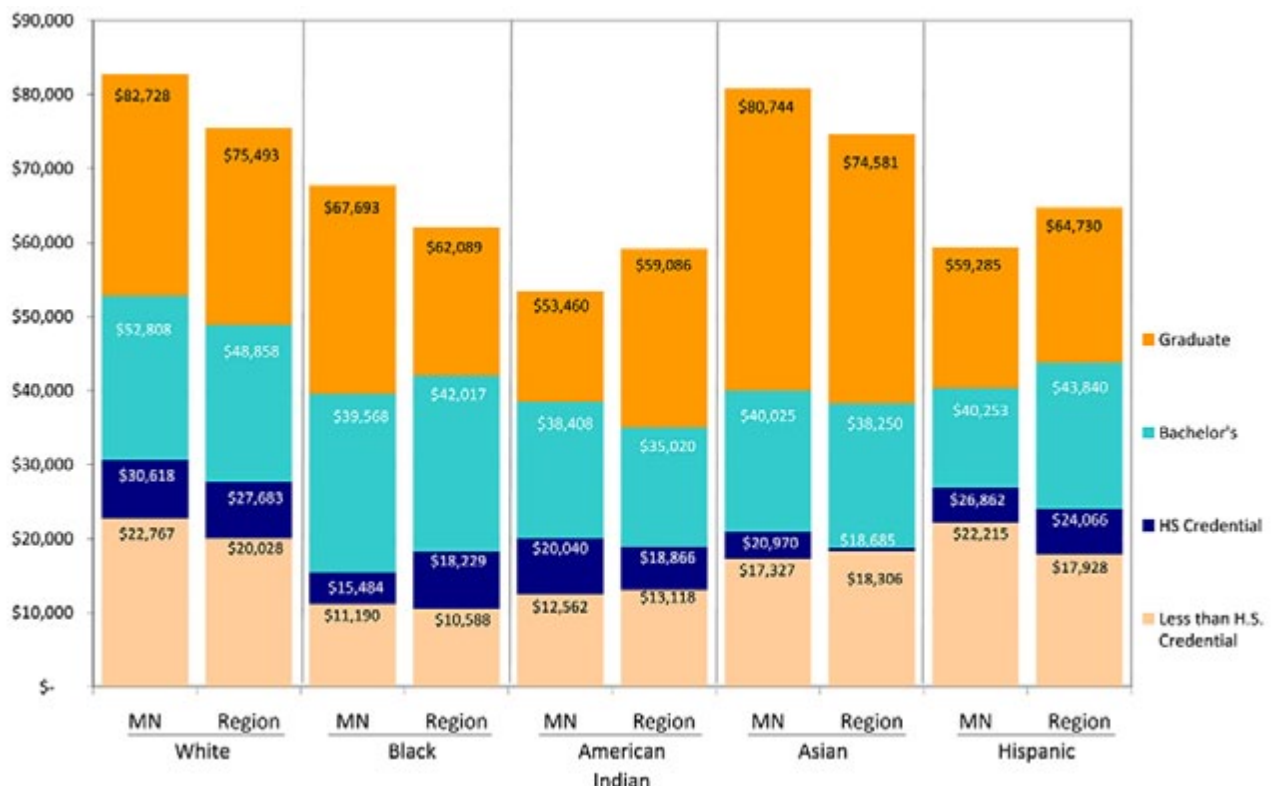
While we should be cautious in interpreting these data, the findings reported for Minnesota are similar to findings in similar research done by the U.S. Census Bureau (July 2002) and the Bureau of Labor Statistics (July 2009). Also, in an effort to verify the findings for Minnesota, a regional comparison using the same population from North Dakota, South Dakota, Iowa, Wisconsin and Michigan combined has been provided. This provides a larger sample size and the findings for these regional data exhibit similarities to findings for Minnesota.

FINDINGS

Income by Race/Ethnicity by Education

Figure 1 illustrates comparative income by race and by education attained. Average income for Minnesotans aged 19 to 64, without a high school credential, averages \$20,926 annually and varies by race, ranging from \$11,190 for blacks to \$22,767 for whites. Whites earn the most among those not attaining a high school credential, slightly more than Hispanics who represent the second highest income. Whites' income is the highest in each category. Asians' income is the second highest for those attaining a graduate degree (master's, professional and doctorate). There is a similar gap in income for American Indian and Hispanics (and to a lesser extent blacks) with graduate degrees compared to their white and Asian counterparts. The differences in income were statistically tested using independent-tests to see if income for whites earning a bachelor's degree is significantly different statistically compared to other subgroups. Using whites as the reference group, the difference in mean wages are statistically significant compared to the other four subgroups.

Figure 1: Average Minnesota and Region Annual Wages by Educational Attainment, by Race



Note: Population aged 19-64. "Region" includes North Dakota, South Dakota, Iowa, Wisconsin and Michigan.

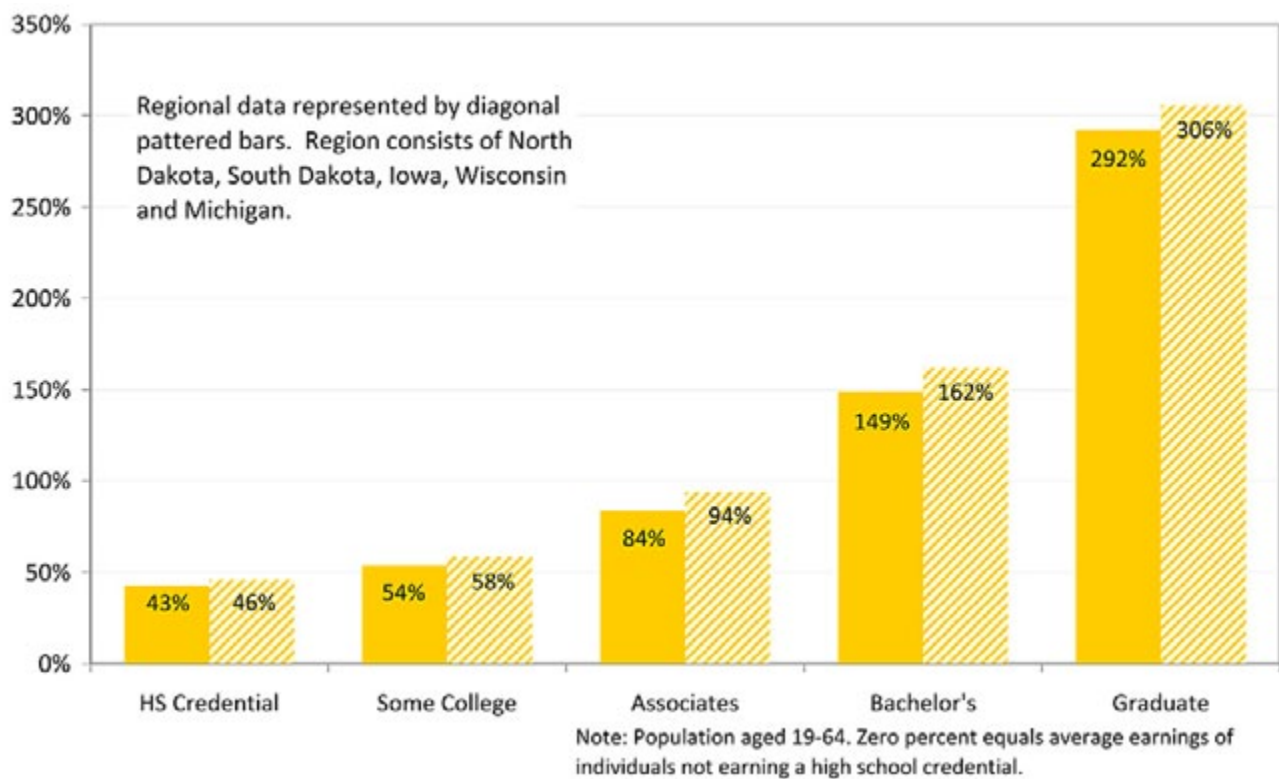
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When compared to five neighboring states, the patterns are similar. Generally, Minnesotans earn more at each level of education compared to the same population in the surrounding five states. However, in some cases, individuals in other states have higher income on average. For instance, Hispanics with a graduate or bachelor's degree average a higher income in the five states than those in Minnesota. This also is true for American Indians. Blacks in Minnesota with a high school credential or a bachelor's degree earn less than their regional counterparts.

Annual Wage Increases as Education Attainment Grows

Figure 2 shows the change in income for each level of education as compared to income of those with no high school credential for both Minnesota and the region. As shown, simply finishing high school produces 43 percent higher average annual income for Minnesotans. Predictably, income increases as education increases with bachelor's degree earners living in Minnesota having wages 149 percent higher than those with no high school credential. Income is 292 percent higher for those completing a graduate degree. Results for the five surrounding states' population follow the same pattern, but interestingly are slightly higher for each level of education. The differences between Minnesota and the region are statistically significant based on results of independent sample t-tests used to measure the statistical difference in means for income by each educational level.

Figure 2: Percent Increase in Average Annual Wages Compared to Average Wages of Individuals Not Earning a High School Credential Minnesota and Region Population Comparison



The wage benefit illustrated in the aggregate in Figure 2 masks differences by race and ethnicity. The breakout by race/ethnicity (Figure 3) shows differences in the income benefit corresponding with higher levels of education.

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Interpretation of these findings should be done with caution for a couple of reasons. First, a large percent change could be attributed to a large growth in income as education increases — or substantially lower wages for those with no high school credential. Thus, comparing the data in Figure 3 with the income for “less than high school credential” in Figure 1, may be helpful in interpretation. For example, the income benefit of attaining a bachelor’s degree is a smaller percent increase for whites compared to blacks and American Indians. However, whites also average greater income for those not attaining a high school credential. Second, as mentioned above, small cell sizes can cause greater variance for some subgroups. As such, it may be prudent to focus more on the change in wages within groups, while using caution when comparing across groups.

Most Minnesotans aged 18-64 have at least some college education or have earned an associate degree or higher. Additionally, a higher percentage have some college experience or a bachelor’s degree or higher compared to the nation as a whole. *American Community Survey, 2006-2008 year estimates.*

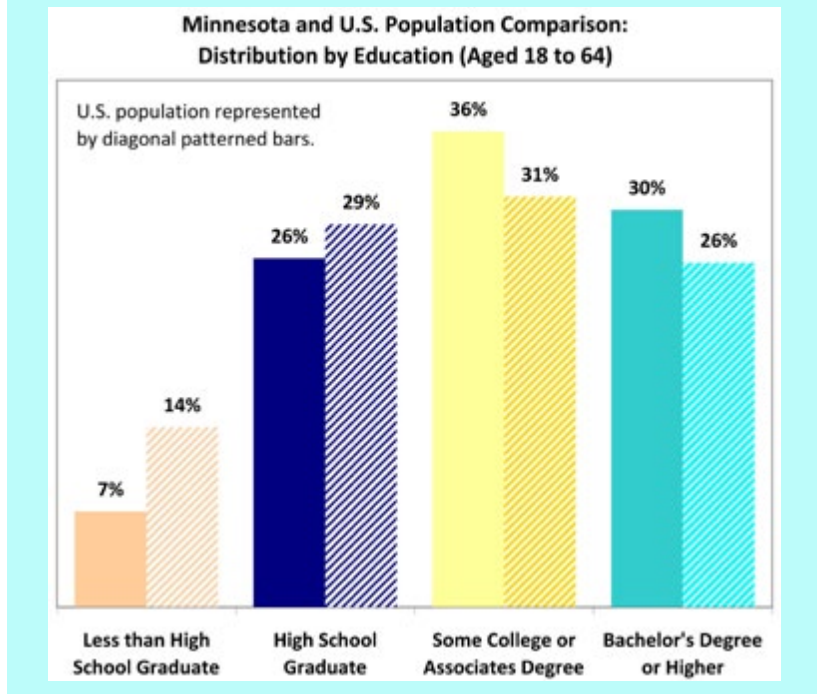
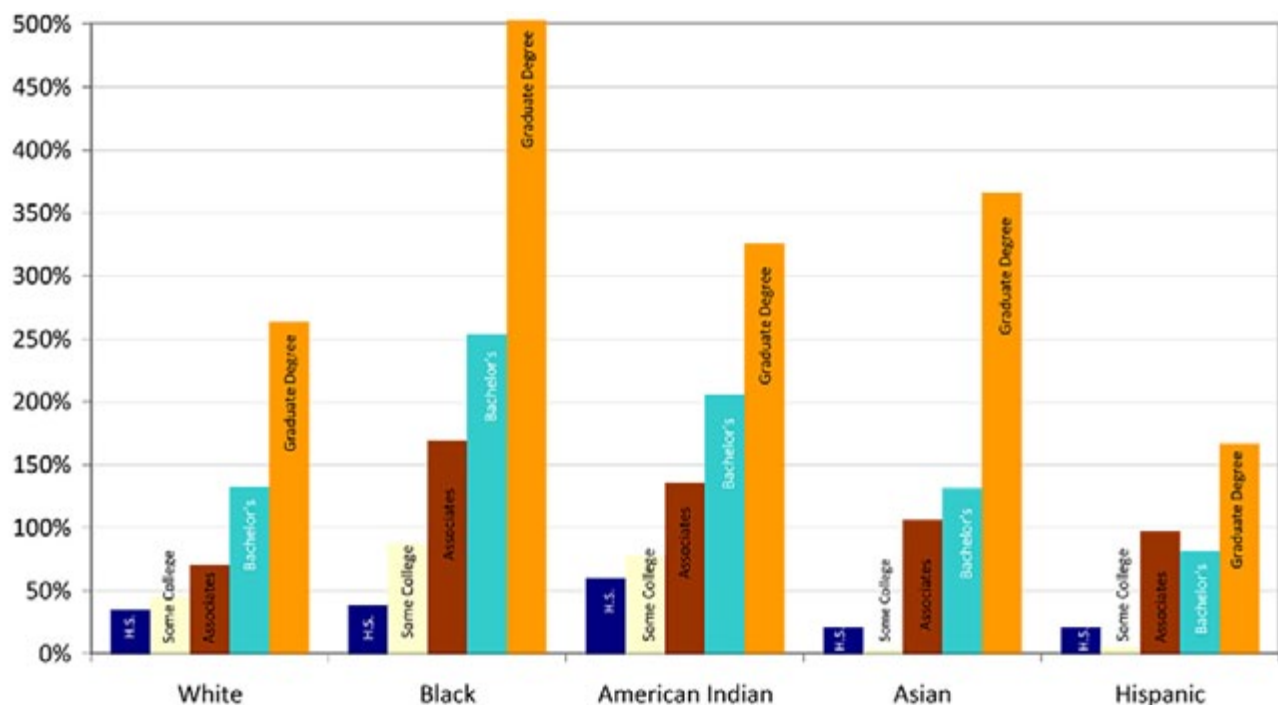


Figure 3: Percent Increase in Average Annual Wages Compared to Average Wages of Individuals Not Earning a High School Credential by Race



Note: Minnesota population aged 19-64. Zero percent equals earnings of individuals not earning a high school credential.

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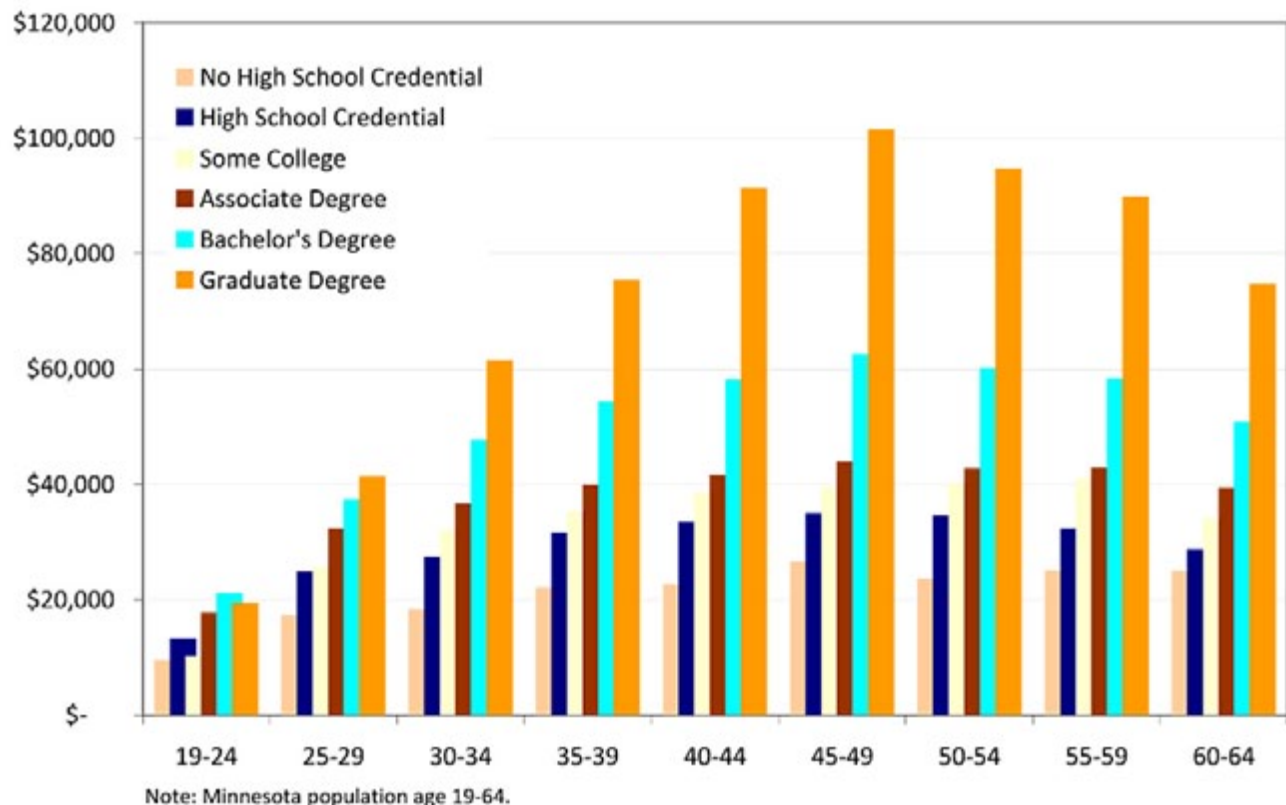
All groups show increases over their base (income of those not attaining a high school credential). In terms of bachelor's degree income, the greatest increase is for blacks (254%), while Hispanics (81%) have the lowest increase. Blacks also have a substantial increase for those who have earned a graduate degree.

Income by Age

The final piece of analysis is the earning power of each level of education by age. This snapshot of data shows the income, by education, by age and provides support for the notion that while average annual income is initially low for college degree holders due to being in college, wages grow faster and plateau much higher than for those receiving only a high school credential.

A common rationale for individuals to go straight into the labor force rather than to college is that earning income can begin immediately, while the college enrollee earns little to nothing. However, as shown in Figure 4, the rationale only holds true for high school graduates, aged 19-24, compared to those who receive "some college" education. For this age group, all education levels with the exception of "some college" and "no high school credential" average higher income than high school graduates. Thus, any initial income benefit for high school graduates is quickly depleted when the college graduate enters the workforce. Further, the high school graduate annual income grows much slower in each age group. Bachelor's and graduate degree-earners have incomes that grow much faster and attain higher levels over each age group.

Figure 4: Average Annual Income by Age Group and Level of Education



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POLICY CONSIDERATIONS

This research brief has shown the income benefits of attaining higher levels of education. The benefits are accrued regardless of race/ethnicity. Yet a key point to note is the differences in income by race/ethnicity when education level is constant. Also, the earning power of attaining higher education has shown benefits by age with individuals attaining a college degree earning more than their counterparts in the earliest age groups with those benefits expanding over time.

The benefits of higher education on income have indirect effects to Minnesota's economy. Higher incomes create a higher tax base for the state and local governments as well as a benefit to industry as those with more discretionary income will purchase more goods and travel. There are also non-income benefits such as increased volunteerism, reduced crime and better health that have been linked to attaining higher education. These benefits beg the question as to how Minnesota continues to further improve the rates of enrolling individuals in college.

Issues of access, affordability and college preparation are commonly discussed as elements of improving college enrollment and graduation rates. Often these concepts are thought of in terms of recent high school graduates, but policymakers should be aware of the large adult population that could go back to college and attain a degree. For example, as noted above, about a third of Minnesota's population aged 18-64 have attained a high school credential or less. Thus, there are opportunities for enrollment regardless of age.

Access generally refers to students' ability to attend college. Having the knowledge of how to apply and being prepared to attend college are crucial for college success. According to data from the Minnesota Office of Higher Education, Minnesota does fairly well in high school graduates going on to college, with about 50 percent enrolling at an institution in our state and another 20 percent going to schools outside the state. The enrollment rates, like many other education indicators, vary by race. For example, 40 percent of Hispanics and 46 percent of American Indians enroll immediately after high school, compared to 51 percent of whites or 54 percent of black high school graduates. However, this indicator does not include individuals who never completed high school. Further, while access for those who do complete high school is 70 percent, completion rates are far worse. Considering those who go to four-year institutions, only 40 percent graduate in four years. The completion rate varies by race as well, ranging from 16 to 42 percent.

Preparation for college has similar trends. Minnesota has the highest ACT scores in the nation, yet suffers from gaps by race/ethnicity. And while Minnesota has the highest average ACT scores, which may suggest solid preparation for college work, only 32 percent are considered college ready according to ACT benchmarks — ranging from seven percent of blacks to 35 percent of whites. Preparation is a major issue as these are the students who will be likely to attend college. If they are not prepared for college work they are likely to need remediation courses, which have been linked to lower completion rates and higher cumulative college cost as courses must be

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taken for no college credit. Preparation is especially important as the future college-going population is becoming more diverse and average preparation for this group has remained low.

In terms of affordability, Minnesota has wisely invested in a State Grant program available to all students who qualify based on income, allowing them to go to any Minnesota college of their choice. The lowest-income students can qualify for nearly \$10,000 a year when State Grant and the Federal Pell Grant are combined. However, this still has not mitigated the debt graduates build on their way to college graduation. Currently, more than 70 percent of students accumulate debt; the average debt for college graduates in Minnesota is more than \$25,000.

This is problematic for two reasons. First, banking industry studies suggest that a manageable student loan payment should equal 8 percent or less of a borrower's gross income. To pay off \$25,000 in 10 years with a payment of 8 percent of an individual's income, the newly graduated student would have to earn \$45,000 or more. Second, there is the issue of loan default. Minnesota borrowers have traditionally done very well in repaying student loans. Only five states had lower default rates than Minnesota. Minnesota public four-year institutions had default rates of 1.5 percent, compared to 3 percent nationally. Minnesota private not-for-profit institutions had default rates of 1.4 percent, compared to 2.4 percent nationally. The rates for borrowers who attended public two-year and private for-profit institutions were higher than the rates for borrowers who attended four-year institutions, but they were still less than national rates. However, slightly more Minnesotans defaulted on their federal student loans in 2007 than in previous years, according to the most recent data available from the U.S. Department of Education.

References

Bureau of Labor Statistics. July 2009. Highlights of Women's Earnings in 2008. U.S. Department of Labor. Report 1017.

Cheeseman Day, Jennifer and Eric C. Newburger. July 2002. The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings. United States Census Bureau.

Minnesota Office of Higher Education. January 2010. Student Loan Default Rates in Minnesota, 2007.

Age Categories

	<u>Frequency</u>	<u>Percent</u>
19-24	9,855	10%
24-29	8,173	9%
30-34	8,180	9%
35-39	9,707	10%
40-44	11,551	12%
45-49	13,297	14%
50-54	13,067	14%
55-59	11,162	12%
60-64	8,950	10%
Total	93,942	100%

Educational Attainment

	<u>Frequency</u>	<u>Percent</u>
Less than HS	5,526	6%
Credential	27,075	29%
HS Credential	24,518	26%
Some College	10,647	11%
Associate	18,675	20%
Bachelor's	5,212	6%
Master's	1,533	2%
Professional Degree	756	1%
Doctorate		
Total	93,942	100%

Educational Attainment for Hispanic groups

		Hispanic			Total
		No	Yes		
Less than HS Credential	Count	5368	158	5526	
	% within Educational Attainment	97.1%	2.9%	100.0%	
HS Credential	% within Hispanic	5.8%	12.6%	5.9%	
	Count	26642	433	27075	
	% within Educational Attainment	98.4%	1.6%	100.0%	
Some College	Attainment	28.7%	34.5%	28.8%	
	% within Hispanic	24191	327	24518	
	Count	98.7%	1.3%	100.0%	
Associate	Attainment	26.1%	26.1%	26.1%	
	% within Hispanic	10538	109	10647	
	Count	99.0%	1.0%	100.0%	
Bachelor's	Attainment	11.4%	8.7%	11.3%	
	% within Hispanic	18517	158	18675	
	Count	99.2%	.8%	100.0%	
Graduate	Attainment	20.0%	12.6%	19.9%	
	% within Hispanic	7431	70	7501	
	Count	99.1%	.9%	100.0%	
Total	Attainment	8.0%	5.6%	8.0%	
	% within Hispanic	92687	1255	93942	
	Count	98.7%	1.3%	100.0%	
	Attainment	100.0%	100.0%	100.0%	
	% within Hispanic				