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Economic Contribution of North Dakota's Tribal Colleges in 2016



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Cynthia Lindquist, President, Cankdeska Cikana Community College (CCCC)
Twyla Baker-Demaray, President, Nueta Hidatsa Sahnish College (NHSC)
Laurel Vermillion, President, Sitting Bull College (SBC)
James Davis, President, Turtle Mountain Community College (TMCC)
Leander “Russ” McDonald, President, United Tribes Technical College (UTTC)

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Executive Summary

The North Dakota Association of Tribal Colleges (NDATC) is comprised of the state's five Tribal Colleges. Tribal Colleges are relatively new in North Dakota with the first college established in 1969. Tribal Colleges were established to provide post-secondary cultural-based educational opportunities on North Dakota's Native American reservations and for the urban Indian population in the Bismarck-Mandan area.

Expenditure and enrollment data provided by each respective college were used to estimate the economic impact of each of the colleges and the cumulative impact of the five Tribal Colleges. Individual assessments of the five Tribal Colleges are reported in Coon et al. 2017a, Coon et al. 2017b, Coon et al. 2017c, Coon et al. 2017d, Coon et al. 2017e. The combined impact of the five colleges is reported in this document.

Expenditures by colleges constitute the direct, or first-round, economic effects. The five tribal colleges collectively spent \$65.1 million in North Dakota in Fiscal Year (FY) 2016. More than half of these expenditures (direct effects) (\$35.9 million) represent personal income (*Households* sector) consisting of payments for wages and salaries. Total economic impact (direct plus secondary) of the five tribal colleges was nearly \$193 million in FY2016. Total business activity (direct and secondary) in the *Households* sector (economy-wide personal income) was \$78.2 million, and \$49.4 million in the *Retail Trade* sector. North Dakota's tribal colleges employed 630 full-time and 181 part-time workers. Levels of business activity generated by the tribal colleges would support an additional 445 secondary jobs in various sectors of the North Dakota economy.

In addition to expenditures related to the college's operations, student spending also contributes to the economic impacts associated with the tribal colleges. Expenditures by full-time and part-time students for personal items, recreation, books, supplies, and room and board were estimated to be \$16.5 million in the 2015-2016 academic year. Total economic impact (direct plus secondary) from student spending was \$41.1 million (\$16.5 million in direct impacts plus \$24.6 million in secondary impacts). Student spending would generate enough economic activity to support 72 secondary (indirect and induced) jobs in North Dakota.

North Dakota's tribal colleges provide valuable post-secondary educational programs which result in both social and economic benefits. While the social value of a college degree is more difficult to quantify, the economic value can be described in terms of business activity, lower unemployment, higher median annual earnings, and higher total lifetime income. Previous studies have determined that college graduates have healthier lifestyles, healthier children, increased job satisfaction, have shown decreased prejudice, enhanced knowledge of world affairs, and have enhanced social status. Many of these benefits are passed on to succeeding generations. Further, college graduates have lower unemployment rates and higher annual incomes.

Economic Contribution of North Dakota's Tribal Colleges in 2016

Randal C. Coon, Nancy M. Hodur, and Dean A. Bangsund*

Introduction

North Dakota has numerous institutions of higher education. The North Dakota University System (NDUS) consists of 11 colleges and the North Dakota Association of Tribal Colleges (NDATC) consists of five institutions. The five Tribal Colleges are:

Cankdeska Cikana Community College serving the Spirit Lake Reservation in Ft. Totten, North Dakota

Sitting Bull College serving the Standing Rock Reservation in Fort Yates, North Dakota

Turtle Mountain Community College serving the Turtle Mountain Band of Chippewa in Belcourt, North Dakota

Nueta Hidatsa Sahnish College serving the Three Affiliated Tribes (Mandan, Arikara, and Hidatsa) and Fort Berthold Reservation in New Town, North Dakota

United Tribes Technical College serving multi-tribal members from across the United States in Bismarck, North Dakota

The Tribal Colleges are relatively new to the state's educational system compared to the North Dakota University System's colleges and universities. United Tribes Technical College was the first tribal college and was chartered in 1969. The other four Tribal Colleges were chartered in the early 1970s. In addition to educational opportunities for students, the five Tribal Colleges have an economic impact on the communities where they are located. Tribal Colleges make expenditures for goods and services purchased in the state, hire employees to staff their institutions, and construct campus buildings to deliver post-secondary cultural-based higher education. The purpose of this study is to estimate the economic impact the Tribal Colleges have on the North Dakota economy. Consistent with previous studies, an economic impact analysis will be completed for each of the five Tribal Colleges and presented in separate reports (Coon et al. 2017a, Coon et al. 2017b, Coon et al. 2017c, Coon et al. 2017d, and Coon et al. 2017e). Combined impacts of the five Tribal Colleges will be reported in this document. Methods, analysis, and format are consistent for each of the five colleges and previous assessments of the Tribal Colleges' economic effects. Methods and analysis are also consistent with an assessment of the economic contribution of the North Dakota University System. This analysis will parallel studies conducted for the North Dakota University System.

An economic impact assessment of the North Dakota Association of Tribal Colleges was previously completed in 2012 (Coon et al. 2013). This study will update the previous study and estimate the economic impact of Tribal College operations in FY2016 and student spending during the 2015-2016 academic year using similar analytic methods as previous studies. Prior to

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the 2012 study, the impacts of Tribal Colleges were examined individually; Cankdeska Cikana Community College, FY2008 (Leistriz and Bangsund 2008), Sitting Bull College, FY2009 (Leistriz and Bangsund 2010), and United Tribes Technical College, FY2010 (Gipp et al. 2011). The North Dakota University System has sponsored several economic impact assessments of the North Dakota University System beginning with FY1999 and 2004 (Leistriz and Coon 2005), FY2006 (Leistriz and Coon 2007), FY2008 (Leistriz and Coon 2009), FY2009 (Bangsund et al. 2010), FY2011 (Coon et al. 2012a), FY2012 and FY2013 (Coon et al. 2014), and FY2014 and FY2015 (Coon et al. 2017).

In addition to the economic impact analysis, this study will examine the value of a college education. A comprehensive review of published literature summarizes the social and economic value of a college education. While data on the value of a college education is not specific to North Dakota's Tribal Colleges, it illustrates the value of a college education in general. Published statistics and selected research findings highlight the social and economic value of a post-secondary education. Also, contained in this report is background information on each of the Tribal Colleges including a brief history of the school, campus location, academic areas of study, degrees granted, and the mission of the college.

Background

The following section provides a brief discussion and description of each of the Tribal Colleges to provide insight into each of the colleges programs, mission, employment, and student enrollment.

Cankdeska Cikana Community College

Cankdeska Cikana (Little Hoop) Community College (CCCC) was established in 1974 by the Spirit Lake Tribe and is located at Fort Totten, ND. CCCC is named in honor of Paul Yankton, Sr., who died while serving with the U.S. Army's 11th Infantry in Lorraine, France during World War II (Cankdeska Cikana Community College 2012). CCCC was one of the 29 Native American post-secondary institutions recognized as a "1994 Tribal Land Grant College" by the Equity in Education Land Grant Status Act of 1994. The other four North Dakota Tribal Colleges were also recognized. Acquiring land grant status allowed CCCC to access resources necessary to carry out the three missions of a land grant institution: teaching, extension, and research. The mission statement for CCCC is to provide higher education opportunities at the community college level with a goal of helping students achieve independence and self-sufficiency through academic achievement.

CCCC was granted accreditation at the Associate Degree granting level from the Higher Learning Commission in 1990. CCCC offers 20 programs of study with degrees in Associate of Arts (5), Associate of Science (4), Associate of Applied Sciences (8), and three certificate degree programs. CCCC also offers an Associate of Applied Science degree in Automotive Technology in collaboration with Lake Region State College. In addition to the college curriculum, CCCC also provides an Adult Learning Center and childcare services, but does not currently offer student housing. For the fall semester of the 2015-2016 academic year, CCCC had 125 full-time and 76 part-time students, which equates to 158 full-time equivalent (FTE) students (Table 1). The college employed 125 full-time and 37 part-time workers (Table 2)

Table 1. Full-time, Part-time, and Estimated Full-time Equivalent Students, North Dakota Tribal Colleges, Fall Semester, 2016

College	Full-time Students	Part-time Students	Full Time Equivalent Students
Cankdeska Cikana Community College	125	76	158
United Tribes Technical College	422	61	448
Sitting Bull College	197	48	224
Turtle Mountain Community College	441	114	480
Nueta Hidatsa Sahnish College	182	63	217
Total	1,367	362	1,527

Table 2. Full-time and Part-time Employees, North Dakota's Tribal Colleges, 2015-2016 Academic Year

College	Full-time Employment	Part-time Employment
	-----number of workers -----	
Cankdeska Cikana Community College	125	37
United Tribes Technical College	217	70
3Sitting Bull College	97	29
Turtle Mountain Community College	111	41
Nueta Hidatsa Sahnish College	80	4
Total	630	181

Sitting Bull College

The Standing Rock Tribal Council granted a charter to Standing Rock Community College to operate as a post-secondary educational institution with authority to grant associate degrees in 1973. Standing Rock Community College opened its doors in 1973 with offices and classrooms in Fort Yates, with three full-time staff. In 1975, Standing Rock Community College began the accreditation process. The Higher Learning Commission granted Standing Rock Community College full accreditation in 1984 at which time the college changed its name to Standing Rock College. In 1996, the Standing Rock Sioux Tribal Council changed the college's name to Sitting Bull College. In 1998 Sitting Bull College began building a new campus overlooking the Missouri River. New construction included buildings for academics, administration, athletics, arts, as well as family housing and dormitories. Sitting Bull College added Bachelor of Science degrees (business administration and elementary education) in 2004 and additional degrees in 2007 and 2008. The college's mission statement is: "Sitting Bull College is an academic and technical institution committed to improving the levels of educational training, economic and social development of the people it serves while promoting responsible behavior consistent with the Lakota/Dakota culture and language".

Sitting Bull College grants six types of degrees in 37 fields including Master of Science degrees (2), Bachelor of Science degrees (6), Associate of Arts degrees (5), Associate of Science degrees (9), Associate of Applied Science degrees (2), and certificate of completion degrees for achievement in vocational training programs (13). Bachelor of Science degrees are awarded in business administration, early childhood education, elementary education, secondary science education, special education, environmental science, and general studies. Sitting Bull College (SBC) also provides various student services including childcare and tutoring. For the fall semester of the 2015-2016 academic year, SBC had 197 full-time and 48 part-time students, which equates to 224 full-time equivalent (FTE) students (Table 1). The college employed 97 full-time and 29 part-time workers (Table 2).

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Turtle Mountain Community College

Turtle Mountain Community College (TMCC) was chartered by the Turtle Mountain Chippewa Tribe in 1972. TMCC initially operated out of two offices of a former Catholic Convent, then moved to a basement of an abandoned Indian Health Service Hospital. In 1999, a new campus was built three miles north of Belcourt, overlooking Belcourt Lake; and to date the majority of programs operate out of this facility. Currently, TMCC operates three college campuses. The new 123-acre main campus north of Belcourt has classrooms, labs, a library, gymnasium, auditorium and other facilities. The 102-acre Anishinabe Education and Cultural campus is located two miles north of Belcourt and is the primary base for their land grant activities and cultural activities. The Belcourt downtown campus encompasses five acres and was the main campus prior to 1999. The downtown campus currently houses the Adult Education Program, the Vocational Rehabilitation Program, the Welding Program, and the Heating, Ventilation, and Air Conditioning Program. TMCC is a commuter college that does not provide residence halls. The TMCC mission statement states that the college is committed to functioning as an autonomous Native American controlled college on the Turtle Mountain Chippewa Reservation focusing on general studies, undergraduate education, career and technical education, scholarly research, and continuous improvement of student learning.

TMCC applied for accreditation in 1978 with the Higher Learning Commission and in 1984, full accreditation by the Higher Learning Commission was granted. A Bachelor of Science degree in elementary education was granted full accreditation in 2001. TMCC educational programs include 13 Associate of Arts programs; 17 Associate of Science programs; a Bachelor of Science program with three career fields, nine Associate of Applied Science programs, and 12 Certificate programs; Career and Technical Education; and the Native American Career and Technical Education Program. Bachelor of Science degrees are granted for early childhood education, elementary education, and secondary science. The Native American Career and Technical Education Program is directly responsive to and supportive of employment opportunities available to tribal members living on or near the reservation, and includes programs in computer support, building construction, management, health information management, and educational paraprofessional. An Adult and Continuing Education program was established at TMCC in 1976 to increase knowledge and improve skills and to assist adults in obtaining High School Equivalency Diplomas. In 2012, the U. S. Department of Labor awarded a job-training grant to a consortium of local colleges including TMCC to train participants for high-paying, high-skilled jobs in western North Dakota. The consortium was titled Training for Regional Energy in North Dakota (TREND) and focused on energy-related occupations such as welding, CDL, and building and construction trades.

For the fall semester of the 2015-2016 academic year, TMCC had 441 full-time and 114 part-time students, which equates to 480 full-time equivalent (FTE) students (Table 1). TMCC employed 111 full-time and 41 part-time workers (Table 2).

United Tribes Technical College

The United Tribes of North Dakota Development Corporation was chartered in 1968 to address the need for training and job development for Native Americans. The United Tribes consists of the five federally recognized tribes in the state: the Three Affiliated Tribes of the Mandan/Hidatsa/Arikara Nation, Spirit Lake Dakota Tribe, Sisseton Wahpeton Oyate, Standing Rock Lakota Tribe, and Turtle Mountain Band of Chippewa. United Tribes of North Dakota Development Corporation purchased Fort Lincoln, a former military post south of Bismarck, from the federal government and converted it into a training facility. The facility was named United Tribes Employment Training Center, and began offering classes in the fall of 1969. The federal government transferred ownership of additional Fort Lincoln buildings and 103 acres to the United Tribes in 1973.

In 1975, the college was renamed United Tribes Educational Technical Center, and in 1982 it was granted accreditation as United Tribes Technical Center. In 1987, the college changed its name to United Tribes Technical College. Two vocational programs at the Associate of Applied Science degree level (licensed practical nursing and medical records technology) applied for accreditation in 1987 and business, clerical, and criminal justice programs were added in 1990. Three additional programs (automotive service technology, art/art marketing, and early childhood education) were added in 1993. Currently, UTTC offers 16 Associate of Applied Science (AAS) Degrees and four certificate programs or vocational programs, and a diploma in Automotive Technology. UTTC offers four on-line programs with three granting AAS degrees and one certificate in Medical Coding and Billing. UTTC was accredited in 2011 for Bachelor's Degrees in Business Administration, Criminal Justice, and Elementary Education, and recently adding Environmental Science and Research.

The United Tribes Technical College (UTTC) purchased an additional 132 acres in 2000 where a new campus was built. The new campus includes educational facilities, a gymnasium, a wellness center, and residence halls that include family housing. UTTC student housing consists of three residence halls/dormitories, 16 solo parent apartments, and 79 two- or three-bedroom houses. UTTC also operates a 15-apartment complex located off campus (in Bismarck) and provides transportation to/from campus for all students. The August Little Soldier apartment complex, operated by the Burleigh County Housing Authority (located on the UTTC Campus), offers an additional housing option. UTTC also provides on-campus child care at the Infant/Toddler Center (birth to 2 years of age), Arthur Link Child Development Center (2 years to pre-school), and the Theodore Jamerson Elementary School (kindergarten to 8 years old) with after-school programming. UTTC also offers adult learning programs for parents of small children who have not completed high school. That program is coordinated by the Family and Child Education Program. The mission statement for UTTC states that the college is dedicated to providing Native Americans with post-secondary and technical education in a culturally diverse environment that will provide self-determination and economic development for all tribal nations.

For the fall semester of the 2015-2016 academic year, UTTC had 422 full-time and 61 part-time students, which equates to 448 full-time equivalent (FTE) students (Table 1). UTTC employed 217 full-time and 70 part-time workers (Table 2).

Nueta Hidatsa Sahnish College

Nueta Hidatsa Sahnish College (NHSC), formally named Fort Berthold Community College, was founded by the Three Affiliated Tribes of the Fort Berthold Reservation at New Town, ND. The first classes were offered in 1973 and were on an extension basis with coordinating institutions. Cooperating colleges were University of Mary, Minot State, and the University of North Dakota-Williston. NHSC added academic programs and was granted accreditation in 2006 by the Higher Learning Commission. NHSC was one of 29 Tribal Colleges designated as a “1994 Tribal Land Grant College”. The mission statement for the college states that the Nueta Hidatsa Sahnish College will provide quality cultural, academic, and vocational education and services for the Mandan, Hidatsa, and Arikara Nation. NHSC is a commuter college and does not provide any on-campus housing, but the Early Childhood Learning Center provides childcare. NHSC offers cafeteria services for the commuter students and a fitness center is located on the campus. Student tutorial services are available to students that request academic assistance.

NHSC offers academic programs that grant Bachelor of Arts Degrees, Bachelor of Science Degrees, Associate of Arts Degrees, Associate of Science Degrees, Associate of Applied Science Degrees and Vocational Certificates of Completion. Bachelor of Science Degrees are available for elementary education, elementary education-math, elementary education-science, and environmental science. A Bachelor of Arts Degree is offered in Native American Studies. Seven Associate of Arts Degrees are offered for business administration/management, addictive studies, early childhood education, elementary education, human services, liberal arts, and Native American Studies. Four Associate of Science Degrees programs offered are for environmental science, mathematics, pre-engineering, and science. NHSC offers Associate of Applied Science Degrees in five fields of study and grants Vocational Certificates in five fields (administrative assistant, child development, construction technology, welding technology, and marketing/entrepreneurship).

For the fall semester of the 2015-2016 academic year, NHSC had 182 full-time and 63 part-time students, which equates to 217 full-time equivalent (FTE) students (Table 1). NHSC employed 80 full-time and four part-time workers.

Methods

In-state expenditures for the state Tribal Colleges comprise the direct economic impacts, or first-round effects. Actual total in-state expenditures for each of the state’s Tribal Colleges were used to calculate combined direct effects. A brief questionnaire requesting expenditures for various expenditure categories was distributed to each of the Tribal Colleges. Each of the colleges completed the questionnaire providing estimates for in-state expenditures for operations expenses such as wages and salaries, benefits, construction, utilities, repairs, etc. Data collection efforts for this assessment resulted in a complete and consistent data set. In-state expenditures were allocated to industrial categories, or sectors, defined by the North Dakota Input-Output Model (Coon et al. 2012b). Expenditures included both outlays for capital improvements and general campus

operations. Impacts can vary year to year based on the level of capital improvements in any given year.

The North Dakota Input-Output Model was used to estimate the secondary economic impacts based on the combined expenditures of the state's Tribal Colleges. The North Dakota Input-Output Model consists of interdependence coefficients, or multipliers, that measure the level of business activity generated in each economic sector from an additional dollar of expenditures in a given sector. A sector is a group of similar economic units, (e.g., firms engaged in retail trade make up the *Retail Trade* sector). For a complete description of the input-output model, see Coon et al. (1989). The model estimates the changes in total business activity (gross receipts) for all sectors of the area economy resulting from the direct expenditures associated with each of the five Tribal Colleges. Increased business volumes were used to estimate secondary employment and estimates of tax revenues were based on historic relationships. Methods and procedures for this analysis were similar to those used in estimating the impact of other facilities and activities in the state (Leistritz 1995; Bangsund and Leistritz 2004). The North Dakota Input-Output Model was previously used to estimate the economic impacts for the Tribal Colleges in 2012 (Coon et al. 2013) and for several assessments of the North Dakota University System (Coon et al. 2014). Empirical testing has confirmed the model's accuracy in estimating changes in levels of economic activity in North Dakota. Over the period 1958-2014, estimates of statewide personal income derived from the model averaged within 8 percent of comparable values reported by the U.S. Department of Commerce (Coon et al. 2016, Bureau of Economic Analysis 2016)

In addition to impacts associated with the tribal college's operations expenditures, the economic effects associated with student expenditures were estimated. Previous assessments used secondary data from the North Dakota Career Resource Network to estimate expenditures for room and board. Representatives of the Tribal Colleges believe that tribal college students have different characteristics than students at non-tribal institutions and that secondary data used previously may not adequately represent tribal college student expenditures. For example, many tribal college students do not live on-campus, are older or may have dependents. Accordingly, in order to more accurately estimate tribal college student expenditures, financial aid cost of attendance budgets from each tribal college were used to estimate student expenditures. The direct and total economic impact of student spending was estimated separately from the impacts associated with Tribal College operations expenditures.

Student expenditures were estimated separately for each of the Tribal Colleges using each college's cost of attendance budget. Each college had several cost of attendance budgets based on student characteristics. For example, dependent students still live at home, independents students are financially independent and student with dependents are students with children. Cost of attendance budgets were on a per semester basis. Financial aid application data was used to determine how many students were in each of the cost of attendance budget categories. Student enrollment and enrollment status (i.e., full-time, $\frac{3}{4}$ -time, $\frac{1}{2}$ -time, or $\frac{1}{4}$ -time) were provided by each of the Tribal Colleges and converted to FTE students based on credit hours. Fall semester attendance was used to estimate FTE enrollment. Spring semester attendance was assumed to be the same as fall semester attendance. FTE students for the 2015-2016 fall semester and spring semester were multiplied by the estimated student living expenses based on the various cost of attendance budgets to obtain total student spending for the academic year. Student spending for personal items, recreation, books, supplies, and room and board represent direct or first-round economic effects. Student spending for each enrollment type and category was summed to

calculate total student expenditures. Outlays for tuition and fees were excluded from the estimate of student expenditures to prevent double counting. Economic effects of expenditures for tuition and fees were captured in the assessment of college operations.

Results

The five Tribal Colleges’ expenditures to North Dakota entities for FY2016 totaled \$65.1 million (Table 3). Total expenditures for the Tribal Colleges were estimated by summing the individual expenditure data provided by each of the five colleges (Appendix A, Table A1). Expenditures to the *Households* sector (wages and salaries) were \$35.9 million, the largest of all the sectors. Payments to the *Retail Trade* sector were \$8.7 million and \$5.6 million were to the *Finance, Insurance and Real Estate* sector (benefits and insurance). When the North Dakota Input-Output Model coefficients (multipliers) were applied to the direct impacts, secondary impacts were estimated to be \$127.9 million in FY2016. Total (direct plus secondary) economic impacts were \$193.0 million in FY2016 (Table 3). Total economic impact (direct plus secondary) for the Tribal Colleges would generate business activity of \$78.2 million in the *Households* sector (personal income) and \$49.4 million in retail sales. Levels of business activity would be expected to support an additional 445 secondary jobs in various sectors of the North Dakota economy.

In FY2016, the five Tribal Colleges had a measurable impact on the local and state economies of North Dakota. The five Tribal Colleges provided employment for 630 full-time and 181 part-time workers (Table 2). Levels of business activity resulting from Tribal College spending would support an additional 445 FTE secondary (indirect and induced) jobs in various sectors of the local and state economy. These levels of economic activity would be expected to lead to increased sales and use tax revenues of \$2.3 million, personal income taxes of \$1.2 million, and corporate income taxes of \$318,000 (data not shown).

Table 3. Direct, Secondary, and Total Economic Impacts, North Dakota Tribal Colleges’ Operations, FY2016

Sector	Direct	Secondary	Total
	-----\$000-----		
Construction	3,817	4,892	8,709
Transportation	1,463	650	2,113
Communication & Public Utilities	1,858	6,428	8,286
Retail Trade	8,678	40,724	49,402
Finance, Insurance, Real Estate	5,555	9,048	14,603
Business & Personal Services	2,320	3,374	5,694
Professional & Social Services	5,486	5,221	10,707
Households	35,878	42,336	78,214
Other ¹		<u>15,263</u>	<u>15,263</u>
Total	65,055	127,936	192,991

¹Other includes agriculture, mining, manufacturing, and government.

Student Economic Impact

Fall enrollment at the five Tribal Colleges for the 2015-2016 academic year was 1,367 full-time and 362 part-time students, resulting in a total of 1,527 full-time equivalent (FTE) students (Table 1). Enrollment for the spring semester was assumed to be the same as for fall. Most student expenditures (e.g., books, supplies, and room and board) likely were made in the community that is home to the college. While some student expenditures may occur in cities and trade areas other than where the college is located, it was assumed, for the purposes of this study, that all student spending was in the local community where the college is located.

Based on expenditures per FTE student, students were estimated to have spent \$16.5 million in North Dakota on books, room and board, personal items, and recreation. As detailed in the methods section, expenditures for fees and tuition were not included in the estimate of student expenditures to prevent double counting. Expenditures for tuition and fees were captured in the assessment of college operations.

Average expenditures for tribal college students at all five institutions were \$5,417. Average student expenditures for SBC, UTTC and NHSC were very similar ranging from \$5,815 at UTTC to \$5,972 at SBC (Table 4). Average student expenditures were \$4,986 at CCCC and \$4,767 at TMCC.

Table 4. Direct Economic Impacts, Student Living Expenses, North Dakota Tribal Colleges, Academic Year 2015-2016			
Institution	FTE Students ^{1,2}	Average Annual Student Living Expenses ²	Total Expenditures
	-----\$-----		
Cankdeska Cikana Community College	316	4,986	1,575,550
United Tribes Technical College	896	5,815	5,210,015
Sitting Bull College	448	5,792	2,594,672
Turtle Mountain Community College	960	4,767	4,576,502
Nueta Hidatsa Sahnish College	<u>434</u>	5,958	<u>2,586,018</u>
Total	3,054	5,417	16,542,757

¹ Full-time equivalent students were based on Fall Semester 2016 full-time and part-time enrollment. Part-time students were converted to full-time equivalents and FTE students for the spring semester were assumed to be the same as for fall semester. The number of FTE students for the fall and spring semesters were summed to estimate academic year totals, consistent with NDATC procedures.

²Total student expenditures were calculated using specific cost of attendance budgets for each college. The number of FTE students for the Fall and Spring semesters were summed to estimate academic year totals, consistent with NDATC procedures. Average annual student living expenses were estimated by dividing the total expenditures by the sum of fall FTE students and spring FTE students.

Student spending at the Tribal Colleges was allocated to two sectors of the North Dakota Input-Output Model: *Retail Trade* sector (75 percent), and *Finance, Insurance, Real Estate* sector (25 percent). Direct economic impact of student spending of \$16.5 million for academic year 2015-2016 was allocated to the *Retail Trade* sector (\$12.4 million) and the *Finance, Insurance,*

and *Real Estate* sector (\$4.1 million). Applying these expenditures to the North Dakota Input-Output Model produced an estimate of the total (direct and secondary) economic impact. Secondary economic impacts resulting from student spending totaled \$24.6 million, and total economic impacts were estimated to be \$41.1 million for academic year 2015-2016 (Table 5). The largest impacts were in the *Retail Trade* sector with \$18.6 million in retail trade activity (direct plus secondary) and the *Households* sector (economy-wide personal income) with total impacts (direct plus secondary) of \$10.0 million. The total level of retail trade activity generated by student spending would be expected to generate \$861,000 in sales tax revenues, assuming all purchases were made in the North Dakota economy. Household expenditures are expected to generate \$150,000 in personal income tax. Business activity from student spending would be expected to support 72 secondary (indirect and induced) jobs in the state.

There were some data limitations associated with student expenditures for the three colleges that provide student housing; TMCC, UTTC and SBC. The limitation does not apply for CCCC or NHSC. Student expenditures for room and board were based on financial aid cost of attendance budgets. Some students would make payments for room and board to the college for on-campus housing while other students would make rent payments and payments for living expenses to non-campus entities. For those students that live on campus, payments for room and board would be captured in the assessment of college operations. Payments made to off-campus entities for rent or living expenses would be included in the estimates of economic contributions from student expenditures. However, data were not available to suggest what portion of student room and board expenditures were made to the college and what portion were made to non-campus entities. Further, it is likely that even for students that live on campus, some expenditures for living expenses would be made to off-campus entities. To maintain consistency with previous studies (Coon et al. 2013) the cost for room and board was included in estimates of student spending. While there is likely some double counting of expenditures for room and board related to those students who live on campus, the effect is unlikely to be substantial.

Purchases of books and educational materials present some minor limitations. Books and educational materials are likely largely purchased at campus-sponsored bookstores and accordingly would be captured in the assessment of the colleges' operations. Further, it is likely that most textbooks and educational materials would be purchased from publishing entities outside of North Dakota, and accordingly would not represent in-state expenditures by the colleges. Purchases for books and educational materials at off-campus entities would represent an in-state expenditure. Data was not available to suggest to what degree student purchases of books and educational materials were from on-campus or off-campus entities. To maintain consistency with previous analyses, the cost of books and educational materials was included in the student spending analysis (Coon et. al. 2013). Although the potential for some double counting of spending for books and educational materials does exist, the effect on the total would be relatively small. Estimated student expenditures for books and educational materials ranged from \$700 to \$1,400 per year.

Table 5. Direct, Secondary, and Total Economic Impacts, North Dakota Tribal Colleges' Student Spending, Academic Year 2015-2016

Sector	Direct	Secondary	Total
	-----\$000-----		
Construction	--	737	737
Communication & Public Utilities	--	1,203	1,203
Retail Trade	12,407	6,190	18,597
Finance, Insurance, Real Estate	4,136	1,305	5,441
Business & Personal Services	--	558	558
Professional & Social Services	--	680	680
Households	--	9,976	9,976
Other ¹	--	<u>3,914</u>	<u>3,914</u>
Total	16,543	24,563	41,106

¹Other includes agriculture, mining, transportation, manufacturing, and government.

Value of a College Education

A college education has both social and economic benefits. A review of published literature illustrates the range of benefits associated with a college degree. While the monetary value of higher education has been studied extensively, social benefits have been more difficult to quantify. While an analysis of the value of a college education for graduates of the Tribal Colleges was beyond the scope of this study, a review of published findings on the value of a college education will provide insight into how a college education can benefit both students and communities.

One obvious advantage of a college degree is better wages, but benefits extend beyond increased salaries. Adults with a college degree are shown to be healthier, more active citizens, and are more likely to read to their children than those without a college degree (Baum et al. 2013). College graduates are 14 percent less likely to be obese than high school graduates and nearly twice as likely to exercise vigorously. Only 9 percent of college graduates smoke compared to 27 percent of those with, at most, a high school diploma. A higher percentage of college-educated parents (68 percent) read to their children daily than do high school graduates (27 percent) (Baum et al. 2013) and people with a college degree donate their time to community organizations at a higher rate than any other group. Rawley and Hurtado (2002) contend that benefits of a college degree are also passed along to succeeding generations. Additionally, “college attendance has been shown to decrease prejudice, enhance knowledge of world affairs, and enhance social status while increasing economic and job security” (Rawley and Hurtado, 2002).

The Alliance for Excellent Education (2012) published a report stressing the importance of providing a quality education to all children, regardless of race or socioeconomic status. This report states that in order to maintain the economic strength of the United States, it is imperative to provide all students with a quality education. In addition to the economic benefits individuals

receive from increased education, communities, states, and the nation also benefit. For example, if the 2011 high school graduation rate nationwide would have been 90 percent, an additional 750,000 students would have earned a diploma, which would have resulted in an additional \$9 billion earned each year and increased tax collections of \$2 billion per year at the federal, state, and local levels (Balfanz et al. 2012). The four-year adjusted cohort graduation rate in 2010-2011 was 79 percent and 86 percent in North Dakota (U.S. Department of Education, 2017). Although the study did not report statistics specifically for Native American students, it stated that 31 percent of whites aged 25 and older held a Bachelor's degree in 2011, compared to 20 percent for blacks and 14 percent for Hispanics (Alliance for Excellent Education 2012).

The Alliance for Excellent Education (2012) study concluded that improving education levels in the United States could save tens of billions of taxpayer dollars annually on social costs, such as health care, unemployment, and incarceration. Improving education for traditionally underserved and under-represented groups is a major factor in breaking the cycle of poverty and disenfranchisement. Low education levels are closely associated with increased rates of homelessness, teen pregnancy, and community violence.

Research by Hardy (2010) compiled seven benefits associated with higher education. Benefits are categorized as either economic or social. Economic benefits include higher earnings potential, employer-provided health care coverage, and job stability. Social benefits were lower stress, healthier lifestyle choices, job satisfaction, and future children benefits. Job satisfaction is a benefit that might be overlooked, but because people spend most of their lives working, how they feel about their work can greatly affect them. Salient observations regarding future benefits for children included correlation between mother's education and the health of her children. Child mortality rates decreased as the mother's education attainment levels increased, and parents with a higher education had higher expectations for their children to earn a college degree. In addition, parents with college degrees were more likely to pay for their children's college education. In a report released by Cankdeska Cikana Community College (2010), the social benefits particular to Native American reservations were listed as mitigation of social problems, centers for preservation of culture, language and traditions, provision for further educational opportunities, technology transfer, and community programs.

Numerous studies have examined the earnings advantage for a college graduate compared to a high school graduate. However, the lifetime earnings advantage for a college degree varies by study. Lifetime earnings advantage ranged from a low of \$150,000 (Robinson 2010), to a middle range of \$650,000 (Pew Research Center 2011), with the highest of \$1,000,000 (Longley 2010). The wide range of values for a college degree were due to assumptions regarding unemployment and underemployment. Robinson (2010) assumed that 29 percent of college graduates are underemployed (i.e., working at high school-level jobs). Current national unemployment rates remain in the 5 percent range, and many college graduates may be underemployed based on the level of education. However, these workers will move into jobs in their career field as they become available. Robinson (2010) also acknowledged that the value of a college education could range from \$150,000 to \$500,000 over the course of a lifetime. An estimated \$1 million earnings advantage for a college degree was the highest reported. People with less than a high school degree are at a distinct disadvantage to those with high school or college degrees. The unemployment rate for individuals in the United States with less than a high school diploma was 8.0 percent compared to 2.8 percent for individuals with a Bachelor's degree in 2015 (Figure 1).

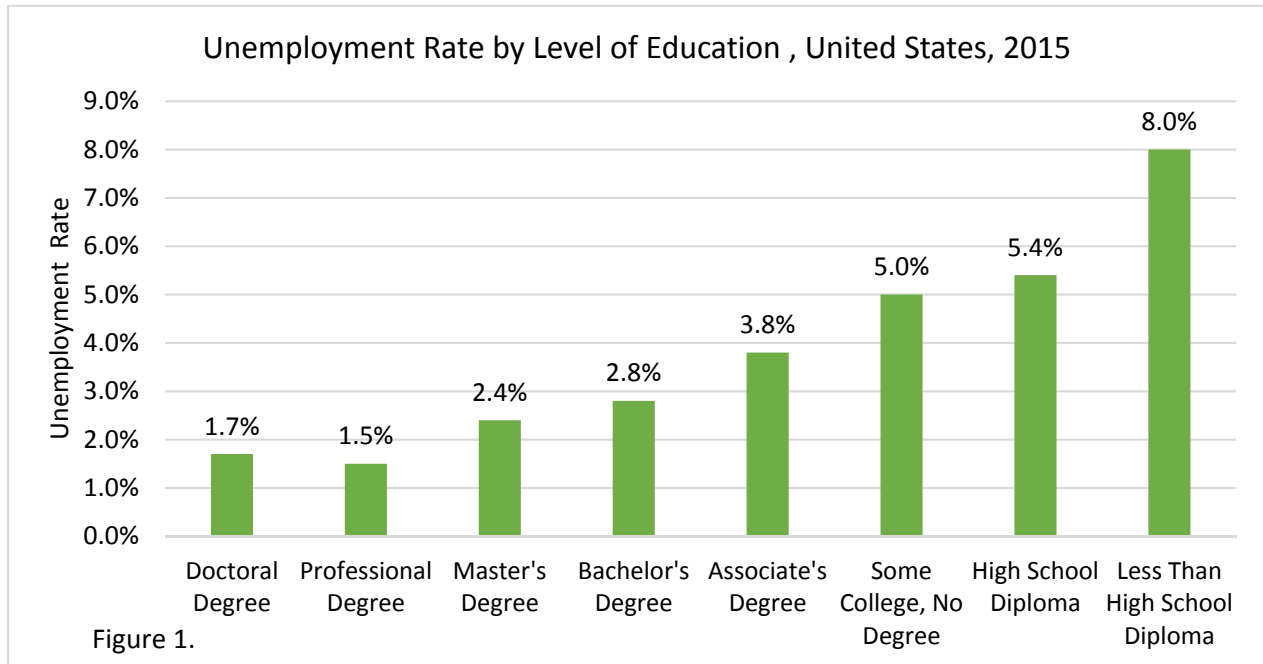


Figure 1. Unemployment Rate by Level of Education in the United States, 2015.
 Source: U.S. Bureau of Labor Statistics 2015.

Adults in the United States with, at most, a high school degree received median annual earnings that were about 60 percent of those with a Bachelor’s degree in 2012 (Figure 2). Bachelor’s degree holders’ median annual earnings were \$59,124 compared to \$35,256 for those with a high school degree (U.S. Bureau of Labor Statistics, 2015). Baum and Ma (2007) completed a comprehensive assessment on the value of higher education and analyzed income earning potential by level of education, race/ethnicity, and gender. This study developed rates of lifetime earnings for all educational levels compared to a high school degree baseline (i.e., a high school degree had a value of 1.00).

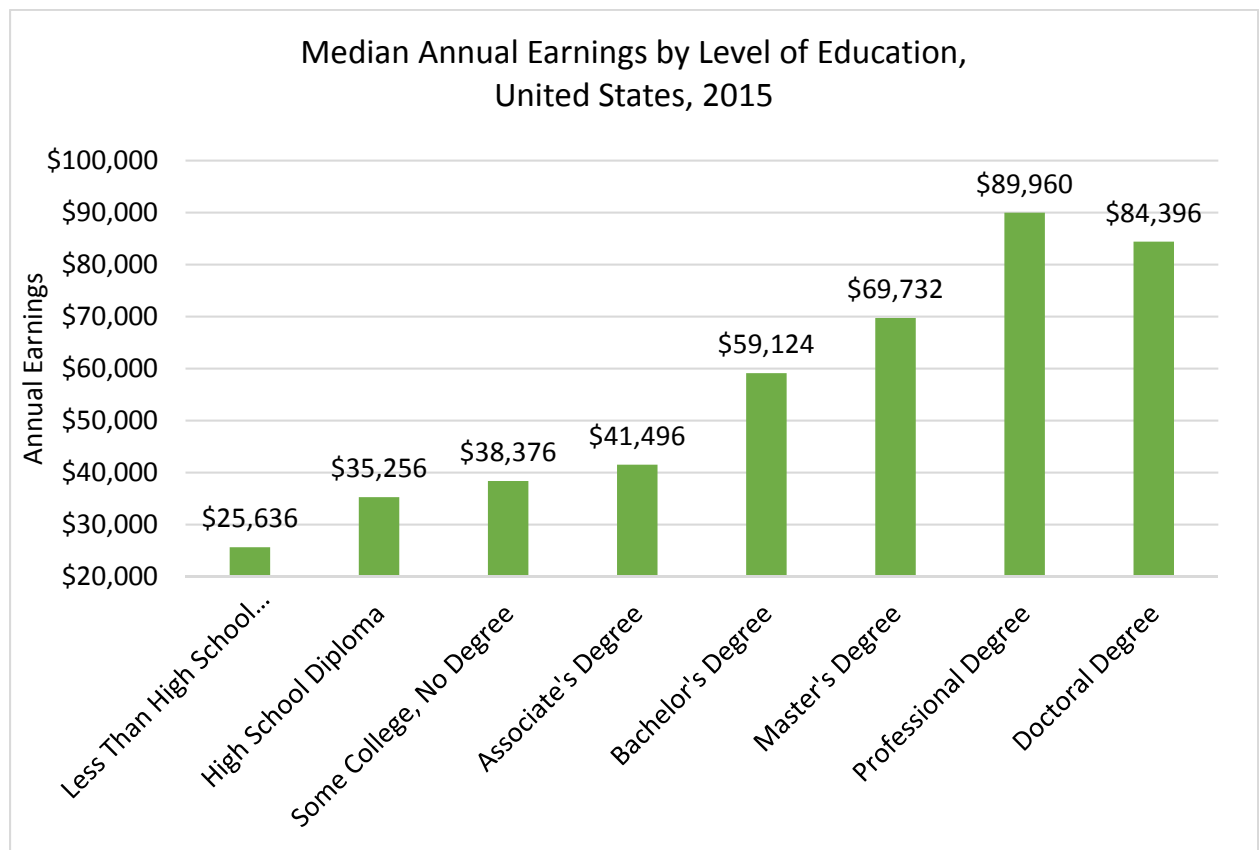


Figure 2. Median Annual Earnings of Adults Age 25 and Older, Full-time Year-round, United States, 2015

Source: U.S. Bureau of Labor Statistics 2015.

Figure 3 presents the earnings ratio for various levels of education. A Bachelor's degree has an earnings ratio of 1.61, meaning that lifetime earnings of a college graduate will be 61 percent more than a high school graduate (Baum and Ma 2007). Lifetime earnings for those with an Associate's degree were 28 percent higher than earnings for those with a high school diploma. A non-high school graduate will earn 25 percent less than a high school graduate over their working lives. Post-baccalaureate degrees returned even higher lifetime earnings.

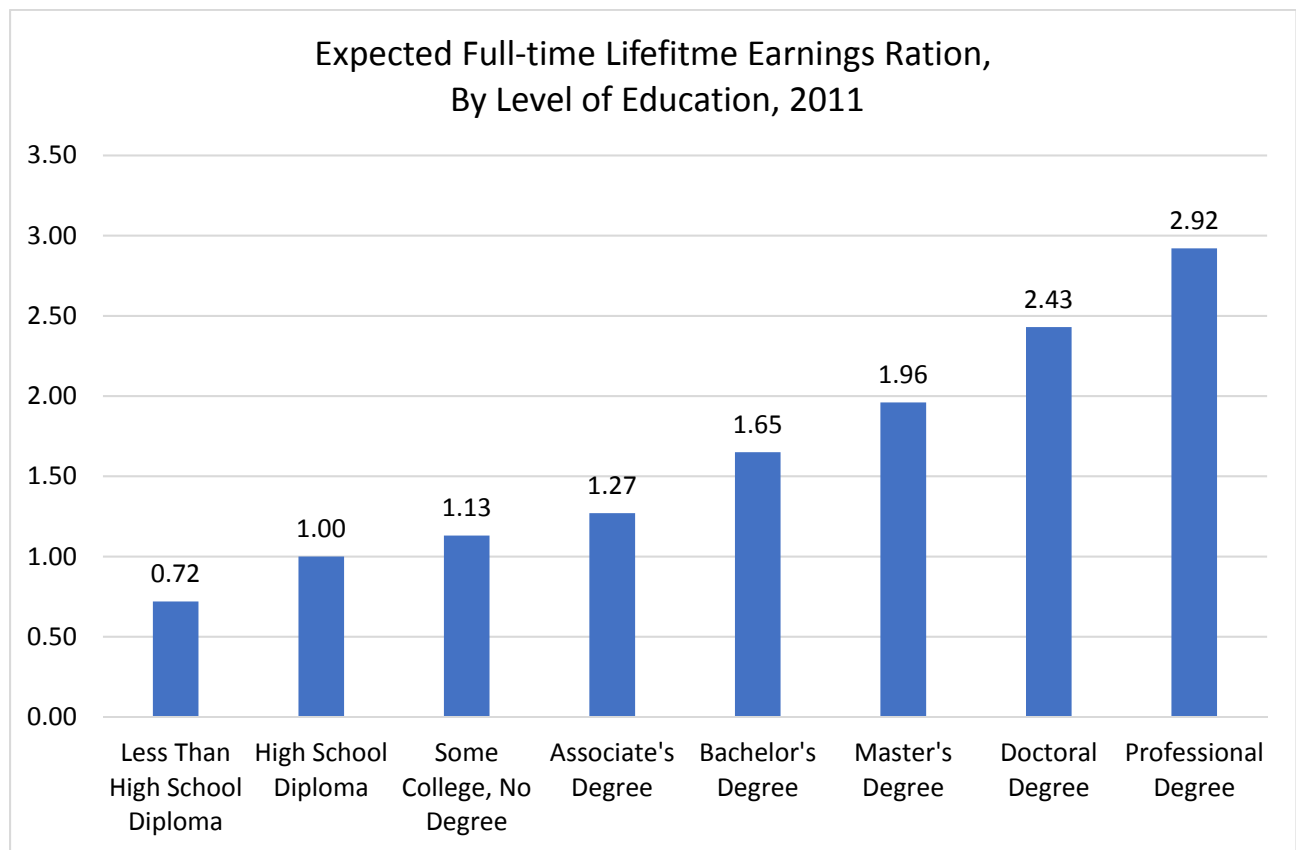


Figure 3. Ratio of Expected Lifetime Earnings Relative to High School Graduates in the United States, by Education Level, 2011.

Source: Baum et al. 2013.

The percentage difference in median wages associated with level of clearly shows the wage effects associated with education. The median income for individuals with an Associate’s degree was 27 percent higher than the median income for an individual with a High School diploma in 2015. Median earnings associated with a Bachelor’s degree were 65 percent higher earnings associated with a High School diploma and median earning for a Master’s Degree were 96 percent that of a High School diploma (Table 4).

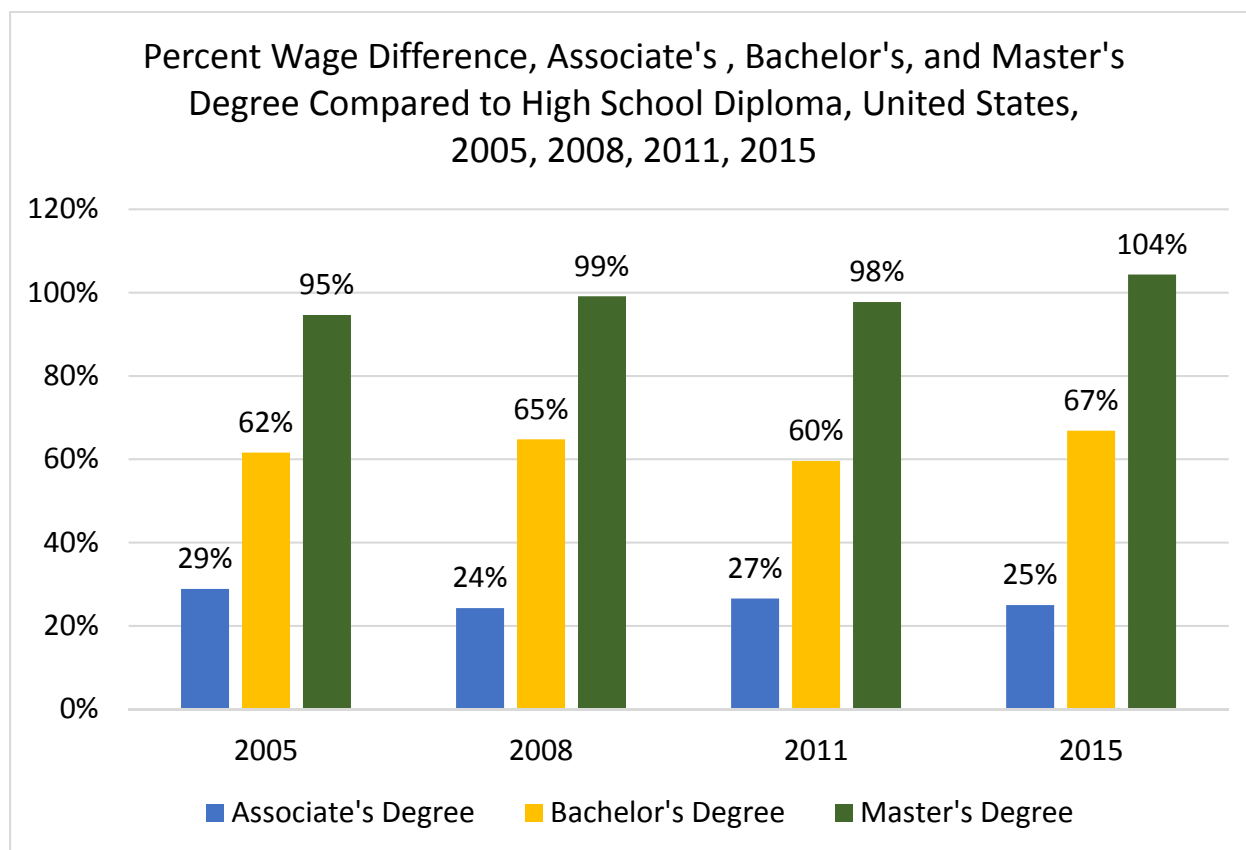


Figure 4. Percent Wage Difference, Associate's Bachelor's and Master's Degree Compared to High School Diploma, 1973, 1989, and 2007

Source: Baum and Ma 2007, Baum et al. 2010, Baum et al. 2013, Ma et al. 2016

Zaback et al. (2012) also developed earnings ratios for education levels relative to a high school degree and developed the ratios for different academic areas (i.e., arts and humanities, business) and for each state. The analysis found that a college degree results in a higher median income, even though the variation across states and disciplines is substantial. Almost without exception, each successive level of higher education attainment results in additional economic benefits. Clearly, education achievement at every level is associated with greater lifetime earnings.

Despite well-documented benefits of higher educational attainment, educational attainment was lower on Native American reservations than for North Dakota overall (U.S. Bureau of Census, 2015). Statewide, 4 percent of the state's population age 25 or older have at most, some high school education but no diploma. On the state's Native American reservations, the percentages of the population with some high school education but no diploma are higher, ranging from 6 percent on Fort Berthold to 15 percent on Spirit Lake (Figure 5). Attainment is similar for a high school diploma with roughly a third of both the Native American and state-wide population with a high school diploma. The exception is Turtle Mountain where only 18 percent of the population age 25 or older has a high school diploma (Figure 6). Statewide 20 percent of the population 25 years and older has a Bachelor's degree compared to 10 percent on the Spirit Lake reservation, 13 percent on Standing Rock, 14 percent on Fort Berthold, and 16 percent on Turtle Mountain. Nationally, in 2015, 42.3 percent of the population 25 years and older had a

two-year degree and 32.5 percent had a four-year college degree (Ryan and Baum 2016). Women were slightly more likely to be college-educated than men, with 32.7 percent having at least a Bachelor’s degree compared to 32.3 percent for men (Ryan and Baum 2016). Across nearly every level of education, educational attainment is lower on the state’s Native American Indian reservations than in North Dakota and the United States on average (Figure 5 and Figure 6).

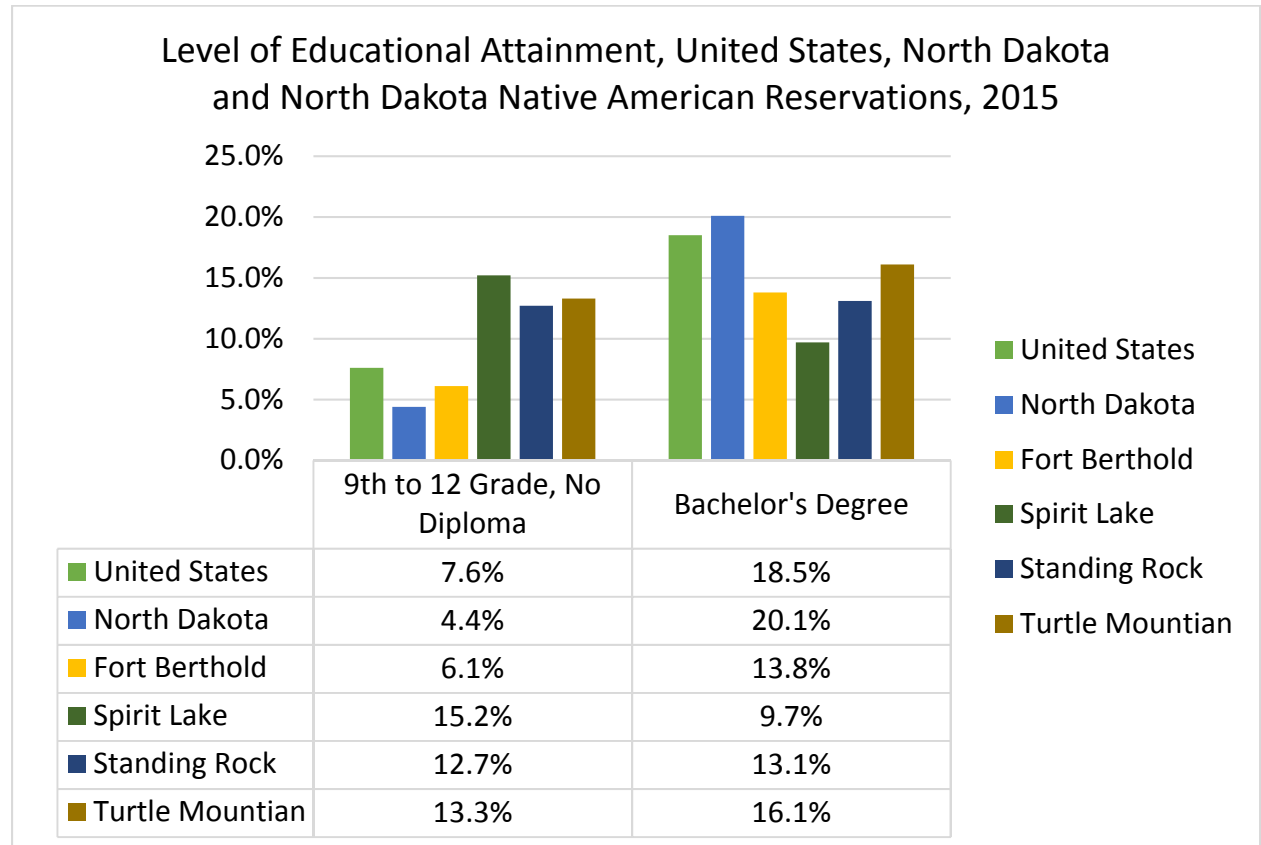


Figure 5. Level of Educational Attainment, United States, North Dakota and North Dakota Native American Reservations, 2015

Source: 2011-2015 U.S. Census American Community Survey 2015

Level of Educational Attainment, by Degree Type,
United State, North Dakota and North Dakota Native American
Reservations, 2015

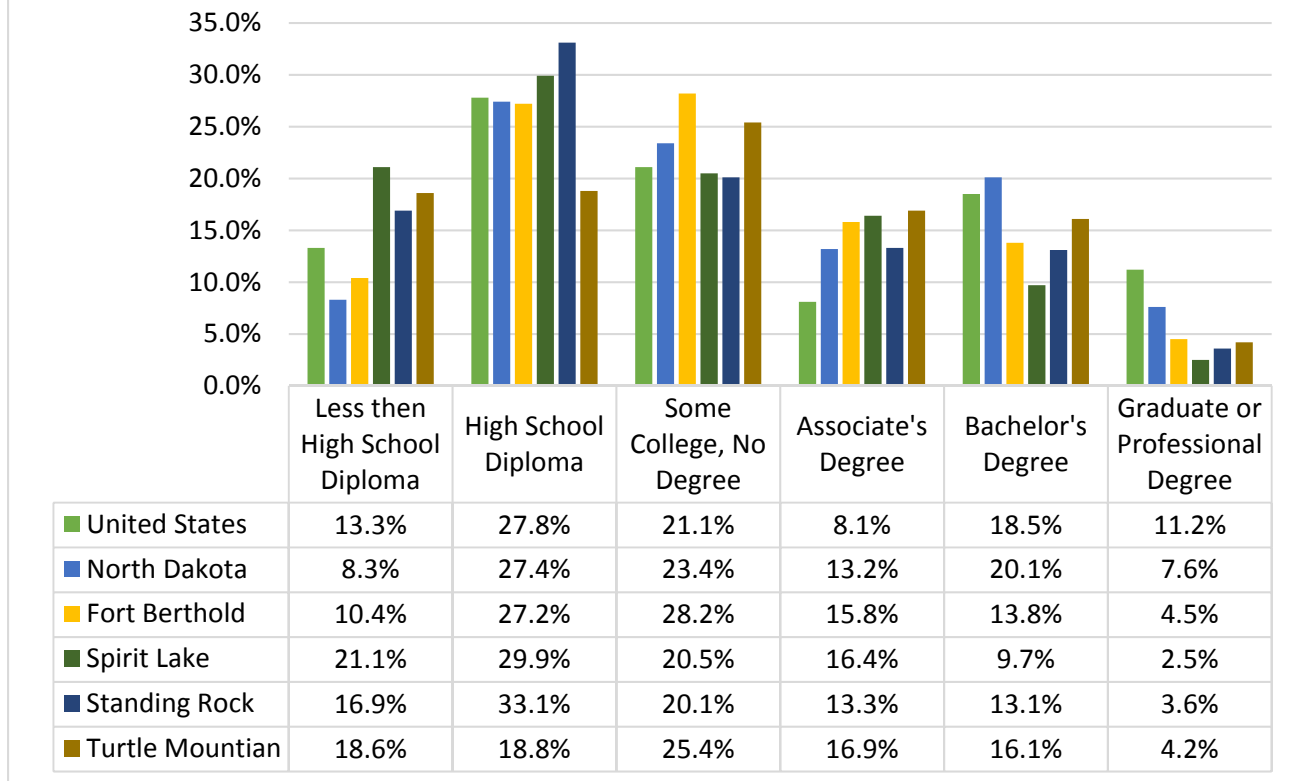


Figure 6. Level of Educational Attainment, by Degree Type, United States, North Dakota and North Dakota Lake Native American Reservation, 2015

Source: 2011-2015 U.S. Census American Community Survey 2015

High school graduation rates are lower on Native American reservations as well. The high school graduation rate for all Native American students in North Dakota in 2014-2015 was 60 percent compared to the overall statewide graduation rate of 87 percent (Figure 7) (North Dakota Department of Public Instruction, 2015). The dropout rate for Native American students statewide was 34 percent compared to 10 percent for all students in North Dakota. High school graduation and dropout rates for each of the reservations where Tribal Colleges are located are detailed in Figure 7.

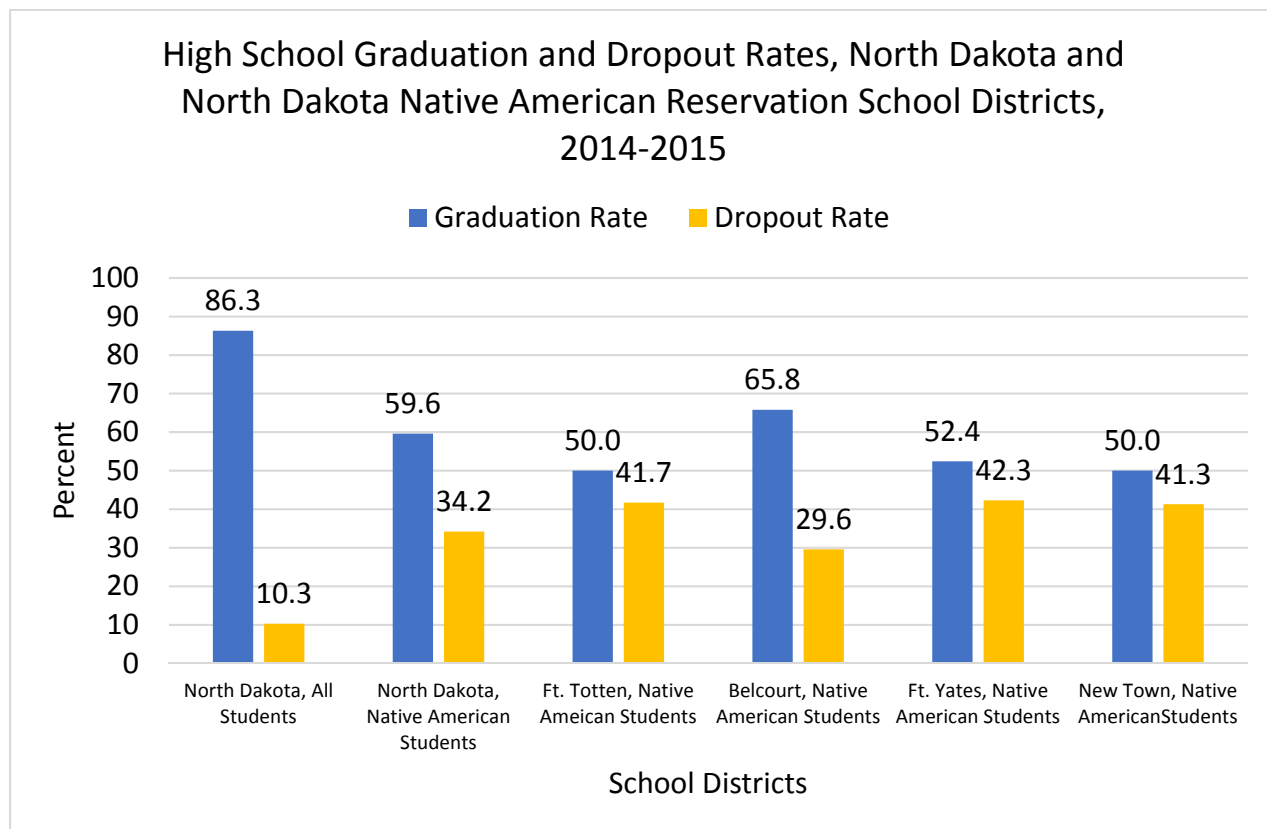


Figure 7. High School Graduation and Dropout Rates, North Dakota and North Dakota Native American School Districts, 2014-2015

Source: North Dakota Department of Public Instruction 2015

The social and economic benefits that result from educational attainment are well documented. Higher education results in increased earnings and improved social conditions. Improved economic and social conditions from post-secondary education enhance quality of life and the social and economic benefits of a college education are often passed on to subsequent generations. While the value of a post-secondary degree specific to the state’s Tribal Colleges was beyond the scope of this study, published research and statistics clearly illustrate positive social and economic benefits of higher education. North Dakota Tribal Colleges serve an important role in improving economic and social conditions on the state’s Native American reservations and in North Dakota communities through the delivery of post-secondary and technical higher education.

Conclusions

The North Dakota Association of Tribal Colleges (NDATC) consists of five colleges located in North Dakota. In addition to providing cultural-based post-secondary and technical education opportunities for Native Americans, Tribal Colleges also have an economic impact from college operations. Student expenditures also contribute to the economic effects related to the Tribal Colleges. In addition to economic impacts, the higher education opportunities provided by North Dakota’s Tribal Colleges have positive social and economic benefits.

The Tribal Colleges direct expenditures into the North Dakota economy were \$65.1 million in FY2016. The colleges employed 630 full-time workers and 181 part-time workers. Total economic impact for the state's Tribal Colleges was nearly \$193 million in FY2016; \$65.1 million were direct impacts and \$127.9 million were secondary impacts. Business activity in the *Households* sector, which measures economy-wide personal income, was estimated to be \$78.2 million in FY2016. Considering the largest expenditure category for the college was for wages and salaries, this result was not unexpected. Retail trade activity attributed to tribal college expenditures were estimated to be \$49.4 million in FY2016. Business activity generated by the state's Tribal Colleges would generate \$2.3 million in sales and use taxes, and \$1.2 million in personal income taxes. In addition to 630 full-time and 181 part-time jobs at the state's Tribal Colleges, the level of business activity associated with tribal college expenditures likely supports another 445 secondary (indirect and induced) jobs.

Student expenditures for living expenses also have economic effects. A total of 1,729 students were enrolled on either a full-time or a part-time basis during the 2015-2016 academic year. This translates to 1,527 full-time equivalent (FTE) students. Expenditures by the 1,527 FTE students at the state's Tribal Colleges for personal items, recreation, books, supplies, and room and board totaled \$16.5 million for the 2015-2016 academic year. Total economic impacts (direct plus secondary) associated with student expenditures was \$41.1 million; secondary effects totaled \$24.6 million. Impacts were the greatest in the *Retail Trade* sector (\$18.6 million). The next highest level of business activity was in the *Households* sector (economy-wide personal income) with \$10 million in direct impacts. This level of business activity would support 72 secondary jobs in various sectors of the North Dakota economy. Economic effects from student expenditures are in addition to effects associated with tribal college operations.

In addition to local economic impacts, social and economic benefits accrue to individuals with higher academic achievement. Previous studies have reported that college graduates have healthier life styles, healthier children, increased job satisfaction, and have shown decreased prejudice, enhanced knowledge of world affairs, and enhanced social status. Many of these benefits are passed on to succeeding generations. Further, college graduates have lower unemployment rates and higher annual incomes. The national unemployment rate for high school graduates was 5.4 percent in 2015, nearly double the 2.8 percent rate for persons with a Bachelor's degree. Higher income is also associated with educational attainment. In 2015, the median annual earnings in the United States for a college degree was \$59,124, while median annual earnings for a high school degree was \$35,256, approximately 60 percent of earnings associated with a Bachelor's degree.

Currently in North Dakota there is considerable education disparity between the Native American population and the state population overall. Educational attainment is lower on Native American reservations than in North Dakota overall. Across nearly every level of education, educational attainment is lower on Native American reservations than in North Dakota and the United States overall. Published research and statistics clearly illustrate positive social and economic benefits of higher education. North Dakota's Tribal Colleges serve an important role in improving economic and social conditions for people and communities on the state's Native American reservations and throughout North Dakota through the delivery of post-secondary and technical higher education.

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APPENDIX A

Table A1. Direct Economic Impact for North Dakota's Five Tribal Colleges, by Input-Output Model Sector, Fiscal Year 2016

Sector	Cankdeska Cikana	Sitting Bull College	Turtle Mountain Community College	United Tribes Technical College	Nueta Hidatsa Sahnish	Total
	----- \$000 -----					
Construction	1,920	215	513	--	1,169	3,817
Transportation	86	151	462	511	253	1,463
Communication & Public Utilities	225	346	313	793	182	1,858
Retail Trade	1,157	848	2,544	2,658	1,471	8,678
Finance, Insurance, & Real Estate	1,420	738	1,949	591	857	5,555
Business & Personal Services	295	280	354	893	498	2,320
Professional & Social Services	1,316	524	252	2,519	875	5,486
Households	6,912	2,761	8,518	12,063	5,624	35,878
Totals	13,331	5,863	14,905	20,028	10,929	65,055

