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Economic Contribution of North Dakota's Tribal Colleges in 2012

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Cankdeska Cikana Community College (CCCC) - Cynthia Lindquist, President

Fort Berthold Community College (FBCC) - Rusty Mason, President

Sitting Bull College (SBC) - Laurel Vermillion, President

Turtle Mountain Community College (TMCC) - Jim Davis, President

United Tribes Technical College (UTTC) - David Gipp, President

The North Dakota Tribal Colleges are members of AIHEC.

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Executive Summary

The North Dakota Association of Tribal Colleges (NDATC) has five Tribal Colleges located in the State with the first college established in 1969. These colleges were founded to provide post-secondary cultural-based educational opportunities on several of 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 for the five Tribal Colleges. Student spending also has an economic impact beyond that of the Tribal Colleges. Student spending was used to estimate the economic impact resulting from student living expenses.

Expenditures by the colleges constitute the direct, or first-round, economic effects. The five Tribal Colleges collectively spent over \$48 million in North Dakota in Fiscal Year (FY) 2012. Over half of these expenditures (direct effects) (\$28.7 million) were to the *Households* Sector, primarily for wages and salaries. Total economic impact of the Tribal Colleges was over \$142 million in FY2012. The highest level of total economic impact business activity was in the *Households* Sector (economy-wide personal income) with \$59.0 million, followed by *Retail Trade* Sector with \$35.3 million. Total employment at the five Tribal Colleges was 615 full-time and 209 part-time workers. Levels of business activity generated by the Tribal Colleges expenditures would support an additional 392 secondary jobs in various sectors of the North Dakota economy.

Student spending also creates an economic impact in addition to the impacts associated with the five colleges. Expenditures by full-time and part-time students for personal items, recreation, books, supplies, and room and board amounted to \$16.0 million in the 2011-2012 academic year. Applying these expenditures to the North Dakota Input-Output Model provided an estimate of the total economic impact associated with student spending. Total economic impact from student spending was \$39.6 million (\$16.0 million in direct impacts plus \$23.6 million in secondary impacts). Student spending would generate enough economic activity to support 83 secondary (indirect and induced) jobs in North Dakota.

The Five Tribal Colleges and their students have substantial impacts on North Dakota's economy. These colleges also provide valuable post-secondary educational programs. Tribal Colleges provide both social and economic benefits to the North Dakota communities that are home to these colleges. Measuring the social value of a college degree is difficult, but the economic value can be identified in terms of lower unemployment, higher median annual earnings, and a higher total lifetime income.

Economic Contribution of North Dakota's Tribal Colleges in 2012

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

North Dakota is home to numerous institutions that provide higher education opportunities. The North Dakota University System (NDUS) has 11 colleges and the North Dakota Association of Tribal Colleges (NDATC) consists of 5 institutions. Colleges that comprise the North Dakota Association of Tribal Colleges include Cankdeska Cikana Community College serving the Spirit Lake Reservation, Sitting Bull College serving the Standing Rock Reservation, Turtle Mountain Community College serving the Turtle Mountain Band of Chippewa, United Tribes Technical College based in Bismarck and serving multi-tribal members from across the United States, and Fort Berthold Community College serving the Three Affiliated Tribes (Mandan, Arikara, and Hidatsa). The Tribal Colleges are relatively new to the state's educational system with United Tribes Technical College first offering classes in 1969. 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 for the purpose of providing educational opportunities. The purpose of this study is to estimate the economic impact the Tribal Colleges' operations have on the North Dakota economy.

The North Dakota University System has sponsored economic impact assessments for Fiscal Year (FY) 1999 and 2004 (Leistriz and Coon 2005), FY2006 (Leistriz and Coon 2007), FY2008 (Leistriz and Coon 2009), FY2009 (Bangsund et al. 2010), and FY2011 (Coon et al. 2012a). While a combined economic impact analysis for the five Tribal College has not previously been completed, individual colleges have sponsored economic impact analyses including Cankdeska Cikana Community College for FY2008 (Leistriz and Bangsund 2008), Sitting Bull College for FY2009 (Leistriz and Bangsund 2010), and United Tribes Technical College for FY2010 (Gipp et al. 2011). This analysis is intended to be a parallel study to those conducted for the North Dakota University System.

Similar methods, analysis, and format will be used so the documents will contain corresponding information. This report will provide an estimate of the collective economic impact of the five Tribal Colleges and their student spending. Also, a section of this report will provide background information for each of the Tribal Colleges. The background information will include a history for each school, campus location, academic areas of study, degrees granted, and the mission of each respective college. Consistent with other studies, an economic impact analysis also will be completed for each individual college and presented in separate reports.

In addition to the traditional economic impact analysis including direct and secondary effects resulting from expenditures by the colleges and their students, this study will include a brief examination of the value of a college education. No original research was conducted for this topic, but a comprehensive review of published literature was conducted to summarize the social and economic benefits of a college education. This information is not specific to the Tribal Colleges, but rather provides salient information regarding a college education in general.

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Extensive research has been conducted on the value of a college degree and selected statistics will be presented to highlight the economic value of a post-secondary education.

Background

This economic impact analysis is for the North Dakota Association of Tribal Colleges. The five Tribal Colleges included in this study were Cankdeska Cikana Community College (CCCC), Sitting Bull College (SBC), Turtle Mountain Community College (TMCC), United Tribes Technical College (UTTC), and Fort Berthold Community College (FBCC). A brief discussion about each college provides insights into their programs, mission, employment, and student enrollment.

Cankdeska Cikana Community College

Cankdeska Cikana (Little Hoop) Community College was established in 1974 by the Spirit Lake Tribal Council 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, as are the other four North Dakota Tribal Colleges. 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.

CCCC was granted accreditation at the Associate Degree granting level from the North Central Association of Colleges and Schools in 1990. CCCC offers 17 programs of study with degrees in Associate of Arts (5), Associate of Science (3), Associate of Applied Sciences (6), and 3 certificate degree programs. In 2012, CCCC had 286 full-time and 279 part-time students, and the college employed 78 full-time and 6 part-time workers. 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. In addition to the college curriculum, CCCC also provides an Adult Learning Center and childcare services, but does not have student housing at the present time.

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 people on staff. In 1975, Standing Rock Community College began the accreditation process. The North Central Association of Colleges and Schools Commission on Higher Education granted Standing Rock Community College full accreditation in 1984. At this time the college's name was changed to Standing Rock College. The Standing Rock Sioux Tribal Council changed the college's name to Sitting Bull College in 1996. Sitting Bull College began adding Bachelor of Science degrees (business administration and elementary education) in 2004 and added 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 began building a new campus overlooking the Missouri River in 1998. The construction projects included buildings for academics, administration, athletics, arts, as well as family housing and dormitories. Expansion of the campus and college resulted in employment growth with over 64 full-time and 69 part-time workers in 2012 and enrollment reaching 567 full-time and 165 part-time students. Sitting Bull College grants Bachelor of Science degrees, Associate of Arts degrees, Associate of Science degrees, Associate of Applied Science degrees, and certificate of completion degrees for achievement in vocational training programs. Bachelor of Science degrees are awarded in business administration, early childhood education, elementary education, secondary science education, special education, environmental science, and general studies. SBC provides various student services including childcare and tutoring.

Turtle Mountain Community College

Turtle Mountain Community College 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 3 miles north of Belcourt, overlooking Belcourt Lake, and to date the majority of programs operate out of this facility. The new 123-acre main campus north of Belcourt has classrooms, labs, library, gymnasium, auditorium and other facilities. Currently, TMCC operates three college campuses.

The 102-acre Anishinabe Education and Cultural campus is located 2 miles north of Belcourt and is the primary base for their land grant activities and cultural activities. The Belcourt downtown campus encompasses 5 acres and was the main campus prior to 1999. The downtown campus currently provides a location for 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.

TMCC applied for accreditation in 1978 with the North Central Association of Colleges and Schools 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 12 Associate of Arts programs, 16 Associate of Science programs, 3 Bachelor of Science programs, 7 Certificate programs, Career and Technical Education, and Native American Career and Technical Education Program. Bachelor of Science degrees are granted for elementary education, early childhood 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.

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. In 2012, TMCC had 1,345 full-time students and 181 part-time students enrolled at the college. TMCC employs 142 full-time and 44 part-time workers.

United Tribes Technical College

The United Tribes of North Dakota Development Corporation was chartered in 1968 to address the need for training and jobs development for Native Americans. United Tribes consists of the five federally recognized tribes in the state: the Three Affiliated Tribes of the Mandan/Hidasta/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.

UTTC purchased an additional 132 acres in 2000 where a new campus is currently being built. The new campus includes educational facilities, a gymnasium, a wellness center, and residence halls that include family housing. UTTC student housing consists of 3 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 (but located on the UTTC Campus), offers an additional housing option for students. Approximately 300 students can reside in UTTC campus housing. UTTC 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 to parents of small children who have not completed high school 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.

In 1975, the college was renamed United Tribes Educational Technical Center, and in 1982 it was granted accreditation as United Tribes Technical Center. Two vocational programs at the Associate of Applied Science degree level (licensed practical nursing and medical records technology) applied for accreditation in 1987, while at the same time changing its name to United Tribes Technical College. Business clerical and criminal justice programs were added in 1990, and three additional programs (automotive service technology, art/art marketing, and early childhood education) were added in 1993. Currently, UTTC offers 22 Associate of Applied Science Degrees and 7 certificate programs and/or vocational programs. UTTC was accredited in 2011 for Bachelors Degrees in business administration, criminal justice, and elementary

education. In 2012, UTTC had 1,319 full-time and 211 part-time students enrolled and employed 276 full-time and 71 part-time workers.

Fort Berthold Community College

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. The cooperating colleges included University of Mary, Minot State, and the University of North Dakota-Williston. FBCC added academic programs and was granted accreditation in 2006 by the North Central Association of Colleges and Schools. FBCC was one of the 29 Tribal colleges that was designated as a “1994 Tribal Land Grant College”. The mission statement for the college states that the Fort Berthold Community College will provide quality cultural, academic, and vocational education and services for the Mandan, Hidatsa, and Arikara Nation. FBCC is a commuter college which does not provide any on-campus housing, but the Early Childhood Learning Center provides childcare. FBCC 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.

FBCC 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 and environmental science. A Bachelor of Arts Degree is offered in Native American studies. Eight Associate of Arts Degrees are offered for business administration/management, addictive studies, early childhood education, elementary education, human services, liberal arts, Native American studies, and public/Tribal administration. Five Associate of Science Degrees programs offered are for environmental science, mathematics, pre-engineering, science, and agriculture. FBCC offers Associate of Applied Science Degrees in 10 fields of study and grants Vocational Certificates in 14 fields (e.g., building maintenance, home health care, technician, welding). In 2012, FBCC had 309 full-time and 130 part-time students enrolled in classes and employed 55 full-time and 19 part-time workers.

Methods

In-state expenditures for the five tribal colleges comprise the direct economic impacts, or first-round effects. Data provided by each respective Tribal College were used to estimate the direct impacts. The Tribal Colleges do not subscribe to a common accounting and reporting system, and as a result, the FY2012 data from each college were not available in a standardized format. The data were reconciled and the in-state expenditures were allocated to industrial categories, or sectors, defined by the North Dakota Input-Output Model (Coon et al. 2012b). These expenditures included both outlays for capital improvements and general campus operations. Several of the Tribal Colleges had on-going building projects. The North Dakota Input-Output Model was previously used to estimate the economic impacts for the North Dakota University System (Coon et al. 2012a) and will also be used for this analysis.

The North Dakota Input-Output Model was used to estimate the secondary economic impacts based on the Tribal Colleges’ expenditure data. 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 the five Tribal Colleges. Increased business volumes are used to estimate secondary employment and tax revenues based on historic relationships. The procedures used in the analysis are similar to those used in estimating the impact of other facilities and activities in the state (Leistriz 1995; Bangsund and Leistriz 2004) and the North Dakota University System (Coon et al. 2012a). Empirical testing has confirmed the model's accuracy in estimating changes in levels of economic activity in North Dakota; over the period 1958-2011, estimates of statewide personal income derived from the model averaged within 10 percent of comparable values reported by the U.S. Department of Commerce (Coon et al. 2012c, Bureau of Economic Analysis 2012).

This analysis will also include the economic impact of student living expenses. Student spending has an economic impact beyond that of the five Tribal Colleges. Estimated student budgets for 2011-2012 academic year were available from the North Dakota Career Resource Network (2012). Total student spending was estimated using enrollment numbers provided by each individual college. Student living expenditures are the direct economic impacts, and provide the data needed to estimate the total economic impact. The direct and total economic impact of student spending will be presented separately from the impacts associated with Tribal Colleges' operations.

Results

The five Tribal Colleges' expenditures to North Dakota entities for FY2012 totaled more than \$48 million (Table 1). Total expenditures for the Tribal Colleges were obtained by adding the expenditures provided by each of the five individual colleges (Appendix A, Table 1). When expenditures were allocated to the North Dakota Input-Output Model sectors, the largest amount went to the *Households* Sector (e.g., payrolls), followed by outlays to the *Construction and Retail Trade* Sectors. Also, there were significant levels of spending in the *Professional and Social Services, Finance, Insurance, and Real Estate, and Business and Personal Services* Sectors. When the North Dakota Input-Output Model coefficients (multipliers) were applied to the direct impacts, secondary impacts were estimated to be \$93.8 million in FY2012. The largest secondary impacts occurred in the *Households* and *Retail Trade* Sectors. Total (direct plus secondary) economic impacts totaled over \$142 million in FY2012. Total economic impact for the Tribal Colleges would generate business activity in the *Households* Sector (personal income) of \$59.0 million and retail sales of \$35.3 million.

The five Tribal Colleges provided employment for 615 full-time and 209 part-time workers (Appendix A, Table 2). Levels of business activity resulting from Tribal College spending would support an additional 392 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 \$1.6 million, personal income taxes of \$885,000, and corporate income taxes of \$231,000. In FY2012, the five Tribal Colleges had a measurable impact on the local and state economies of North Dakota.

Table 1. Direct, Secondary, and Total Economic Impacts for the North Dakota Tribal Colleges' Operations, FY2012

Sector	Direct	Secondary	Total
	-----\$000-----		
Construction	4,935	3,682	8,617
Communication & Public Utilities	1,919	4,731	6,650
Retail Trade	4,884	30,399	35,283
Finance, Insurance, Real Estate	2,659	6,785	9,444
Business & Personal Services	2,199	2,499	4,698
Professional & Social Services	2,683	3,878	6,561
Households	28,696	30,296	58,992
Other ¹	474	11,573	12,047
Total	48,449	93,843	142,292

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

Student Economic Impact

Student spending also creates an economic impact in addition to that of the Tribal Colleges. Student spending included outlays for personal items, recreation, books, supplies, and room and board. Excluded from student expenditures were outlays for tuition and fees. Estimates of student expenditures for an academic year were available for each of the five Tribal Colleges (North Dakota Career Resources Network 2012). The North Dakota Career Resource Network estimated student spending for personal and recreation to be \$3,400 for the 2011-2012 school year. Total per student living expenses for 2011-2012 school year ranged from \$7,000 per year at United Tribes Technical College to \$9,850 per year at Cankdeska Cikana Community College. Each of the five Tribal Colleges provided full-time and part-time student enrollment numbers for the 2011-2012 academic year, which included the 2011 Summer session, in their American Indian Measures for Success Key Indicator System (AKIS) reports (Appendix A, Table 6). Part-time students numbers were converted to FTE students based on credit hours taken by part-time students. The head count of full-time students and FTE equivalent for part-time students were summed to obtain total 4,252 FTE students at the five Tribal Colleges (Appendix A, Table 5).

Tribal Colleges reported their student enrollment numbers for the 2011-2012 academic year in a standardized format on the AKIS forms. Data reported on the AKIS forms covered student enrollment for the Summer 2011 session, the Fall 2011 semester, and the Spring 2012 semester for full-time and part-time students. Credit hours taken by students were also reported in a similar manner. Part-time students were converted to FTE by dividing total credit hours taken by those students by 12 credit hours, the number of credit hours needed to be classified as a full-

time student. The total FTE students were the sum of the enrolled full-time students (head count) plus the FTE part-time students (calculated using credit hours). The estimate of FTE students (4,252) used to calculate student spending was less than the sum of the total full-time and part-time students (4,792) enrolled at the 5 Tribal Colleges (Appendix A, Table 4).

The 2011 Summer session and the 2011-2012 academic year FTE students were calculated separately (Appendix A, Table 5). The number of students for the academic year represents the sum of students enrolled in the Fall and Spring semesters. Estimated per-student expenditures for the academic year were divided by two to avoid double counting of student spending when using estimates of total students for the academic year. Likewise, Summer session student expenditures were based on a 3-month term, or one-third of the 9-month academic year (i.e., the academic-year student spending was divided by three). The FTE students for the academic year and the Summer session were multiplied by the estimated student living expenses for each of the respective colleges, to obtain total student spending (i.e., direct economic impacts from student expenditures). Appendix A, Table 3 presents the student spending from each college that resulted in a \$16.9 million direct economic impact. Methodology and data sources used to estimate student direct economic impacts in this study were similar to those used in the North Dakota University System study (Coon et al. 2012a).

Multiplying student enrollment for each school by their respective per-student living expenditures provided an estimate of direct impacts or first-round effects associated with student spending. However, using North Dakota Career Resource Network estimates for room and board may overstate the economic effects of student expenditures. Although a large number of students live on-campus or live independently off-campus, some students live at home. Students living at home would likely incur less expense for room and board compared to those living on-campus or independently off-campus. Also complicating estimates of the effects of student spending is that some of the revenues for room and board for students living in college dormitories could be considered double counting with expenditures by the college. Revenues received by colleges for on-campus room and board would likely be dispersed for inputs and services associated with student housing. As such, expenditures for providing student housing are likely to be at least partially captured in the analyses of college spending. Therefore, including room and board expenses for all students might result in some double counting. Data were unavailable to adjust the economic contribution of student spending to account for those students living at home or to adjust for the percentage of room and board expenses already captured in this assessment.

Another area of potential double counting could occur in how expenses are handled for books and other educational materials. Books and educational materials purchased by students through campus-sponsored book stores are likely to be fully or partially captured by college expenditures. Since those facilities are part of the college, expenses for staff, facilities, and materials/inventory would necessarily be included in the college analysis. Further, it is likely that most of college text books would be purchased from publishing entities outside of North Dakota, and accordingly would not represent in-state expenditures by the colleges. However, to the extent that educational materials are purchased by students from off-campus sources, those expenditures would not represent double counting. The degree of overlap between student spending for books and educational supplies and college expenditures associated with book stores is unknown, as is the degree of those supplies purchased from out-of-state entities. Despite these potential problems, the cost of books was included in the student spending analysis for consistency with previous analyses (Coon et. al. 2012a). Although the potential for some double counting of spending does

exist, it most likely would be relatively small compared to the total expenditures used for the impact assessment.

For the 2011-2012 academic year, 4,252 FTE students were enrolled in the five Tribal Colleges. Based on expenditures per FTE student, students were estimated to have spent \$16.0 million in North Dakota on books, room and board, personal items, and recreation (Table 2). Of course, students also incur expenses for fees, tuition, and other items not covered in this analysis. Those expenditures were not included in this study and would be captured by the analysis of university expenditures.

A large share of the student spending would occur in the communities where the institutions are located, due to the nature of their purchases (i.e., books, supplies, and room and board). Some of the student expenditures for recreation and personal items will occur in cities and trade areas other than those where the college is located. However for this analysis, all student spending will be assumed to remain in close proximity to the community where the college is located (Appendix A, Table 3).

Student spending was estimated to be \$16.0 million for the 2011-2012 academic year, which most closely approximated the FY2012 used for the Tribal Colleges' expenditures. Student expenditures are in addition to operational expenditures for the five Tribal Colleges, without accounting for potential double counting previously discussed. Student expenditures were 32.9 percent of the Tribal Colleges outlays, slightly lower than the 33.6 percent for the North Dakota University System (Coon et al. 2012a).

Spending by students 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 was \$16.0 million for academic year 2011-2012 (Table 2). Applying these expenditures to the North Dakota Input-Output Model produces the total (direct and secondary) economic impact. Secondary economic impacts resulting from student spending totaled \$23.6 million, resulting in a total economic impact of \$39.6 million for academic year 2011-2012. The *Retail Trade* Sector received the largest economic impact, with \$17.9 million in retail trade activity. The *Households* Sector (economy-wide personal income) was estimated to be \$9.6 million. Retail purchases result in sales and use tax collections. The total level of retail activity generated by student spending would result in \$830,000 in sales tax revenues, assuming all purchases were made in the North Dakota economy. Personal income tax collections of \$144,000 would result from increased levels of income activity in the *Households* Sector due to student spending. Also, the business activity from student spending would support 83 secondary (indirect and induced) jobs in the state.

Table 2. Direct, Secondary, and Total Economic Impacts for the North Dakota Tribal Colleges' Student Spending, Academic Year 2011-2012

Sector	Direct	Secondary	Total
	-----\$000-----		
Construction	- -	710	710
Communication & Public Utilities	- -	1,160	1,160
Retail Trade	11,963	5,967	17,930
Finance, Insurance, Real Estate	3,987	1,258	5,245
Business & Personal Services	- -	537	537
Professional & Social Services	- -	656	656
Households	- -	9,617	9,617
Other ¹	<u>- -</u>	<u>3,776</u>	<u>3,776</u>
Total	15,950	23,681	39,631

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 indicates that the economic value of a college degree in the United States has been studied extensively. While the monetary value of higher education has been measured by many studies, the social benefits have been acknowledged but are very difficult to quantify. An analysis of the value of a college education at all of the Tribal Colleges in North Dakota was beyond the scope of this study. However, this topic will be discussed to provide some additional insight into how a college education can benefit a community beyond the economic impacts of the Tribal Colleges.

One obvious advantage of a college degree is better wages, but benefits extend beyond increased salaries. Adults with a college degree are healthier, more active citizens, who read to their children more often than those without a college degree (Kyle 2010). Specifically, college graduates are 14 percent less likely to be obese than high school grads and nearly twice as likely to exercise vigorously. Only 9 percent of college graduates smoke compared to 27 percent with 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) (Kyle 2012). 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”.

The Alliance For Excellent Education (2012) published a report stressing the importance of providing a quality education to all children, regardless of their skin color or socioeconomic status. This report states that in order to maintain the United States economic strength, it is imperative to equitably 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 90 percent of the students in the class of 2011 were to graduate from high school (750,000 additional graduates), an additional \$9 billion could be earned each year. This revenue could increase tax collections by \$2 billion per year at the federal, state, and local levels (Balfanz 2012). Although the study did not report statistics specifically for Native American students, it stated that 31 percent of whites aged twenty five and older held a bachelors degree in 2011, compared to just 20 percent for blacks and 14 percent for Hispanics (Alliance for Excellent Education 2012). Northwest Area Foundation Indicators Website (2006) showed 22 percent of North Dakota’s population had a bachelors degree compared to 4 percent of the Spirit Lake Tribe’s population in 2000. The Northwest Area Foundation Indicators Website has been discontinued, but current census data provides similar statistics. In 2011, 26.3 percent of North Dakota’s population had a bachelors degree or higher and 5.3 percent of the Spirit Lake Tribes population held a bachelors degree or higher for the 2007-2011 period (U.S. Bureau of the Census 2012). Non-white K-12 school enrollment in North Dakota has grown from 8 percent in the 1989-1990 school year to 13 percent in the 2009-2010 school year (Alliance for Excellent Education 2012), indicating the educational disparity is becoming a larger problem. North Dakota Department of Public Instruction (2010) reported high school graduation rates as low as 40 percent at one reservation school. 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 undeserved 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. These reasons indicate how important a college education is for social and economic welfare of our nation.

Research by Hardy (2010) compiled seven benefits associated with higher education. These seven benefits can be categorized as three being economic and four as social. The economic benefits include: higher earnings potential, employer-provided health care coverage, and job stability. Social benefits were listed as 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 children benefits 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. Also, 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 are due to assumptions regarding unemployment and underemployment. Robinson (2010) assumes that 29 percent of college grads are underemployed (i.e., working at high school-level jobs). Current national unemployment rates remain in the 8 percent range, and many college graduates may be forced to take employment below their educational level. However, these workers will move into jobs in their career field as they become available. This study 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, but is a figure that is often cited. People with less than a high school degree are at a distinct disadvantage. The unemployment rate for individuals with less than a high school diploma was 14.1 percent compared to 4.9 percent for college graduates in 2011 (Figure 1). In 2011, an estimated 40 percent of the population 25 years and older had a two-year or four-year college degree (Department of Treasury and Education 2012). Women in the 25-34 year age cohort are currently more likely to be college-educated than men, with 37 percent having at least a bachelor's degree compared to 29 percent for men in the same age group.

Adults with a high school degree received 60 percent lower mean annual earnings than those with a bachelor's degree (Figure 2). Bachelor's degree holders mean annual earnings were \$54,756 compared to \$33,176 for a high school degree. A comprehensive study (Baum and Ma 2007) on the value of higher education 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 3 presents the earnings ratio for various levels of education.

A bachelor's degree has an earnings ratio of 1.61, meaning that over their working life the college graduate will earn 61 percent more than the high school graduate (Baum and Ma 2007). 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. The ratios presented in Figure 3 provide a graphic representation of the income-earning potential for each level of education. Clearly, education achievement at every level is rewarded with greater lifetime earnings. The value of a college education can be quantified in monetary terms, but the social benefits are also important and should not be overlooked.

Zaback et al. (2012) also developed earnings ratios for education levels relative to a high school degree. This study developed the ratios for different academic areas (i.e., arts and humanities, business) and for each state. This analysis supports the belief that a college degree results in a higher median income, even though the variation across states and disciplines is substantial. Also, the study indicates that almost without exception each successive level of higher education attainment results in additional economic benefits.

The social and economic benefits that result from attainment of college education are important to the five Tribal Colleges and the reservations in North Dakota. Higher education results in increased earnings and improved social conditions. Higher earnings and reduced unemployment also act to strengthen the rural Native American communities. Improved economic and social conditions that have occurred because of post-secondary education tend to enhance the quality of life for all. As the social and economic benefits of a college education get passed onto

subsequent generations, the Tribal Colleges serve a role in improving economic and social conditions for people and communities in North Dakota. Although the study was not able to quantify the direct economic benefits of a college education specifically for graduates of the five Tribal Colleges, the social and economic benefits of higher education have a positive economic effect on Native American reservations.

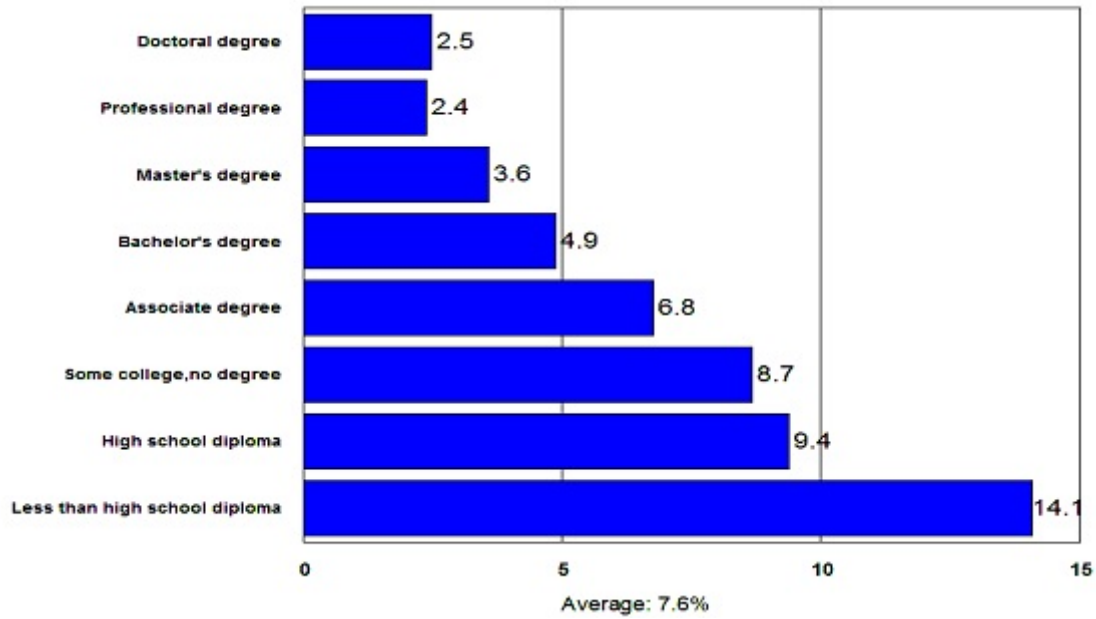


Figure 1. Unemployment Rate by Level of Education in the United States, 2011.
Source: U.S. Bureau of Labor Statistics 2012.

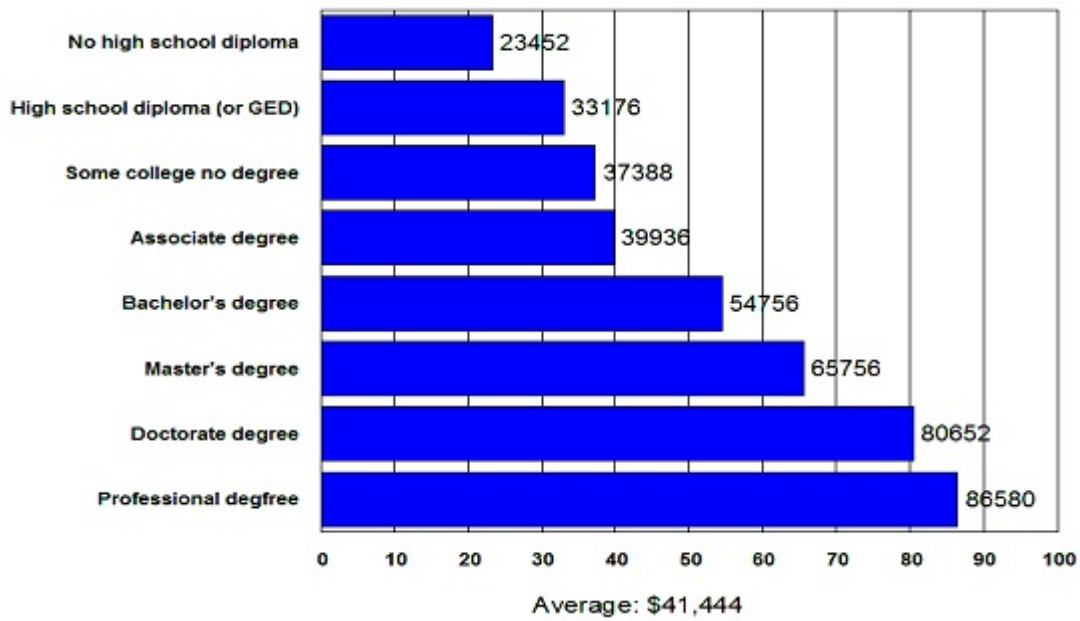


Figure 2. Median Annual Earnings of Adults Age 25 and Older, Full-time Workers in the United States, 2011

Source: U.S. Bureau of Labor Statistics 2012.

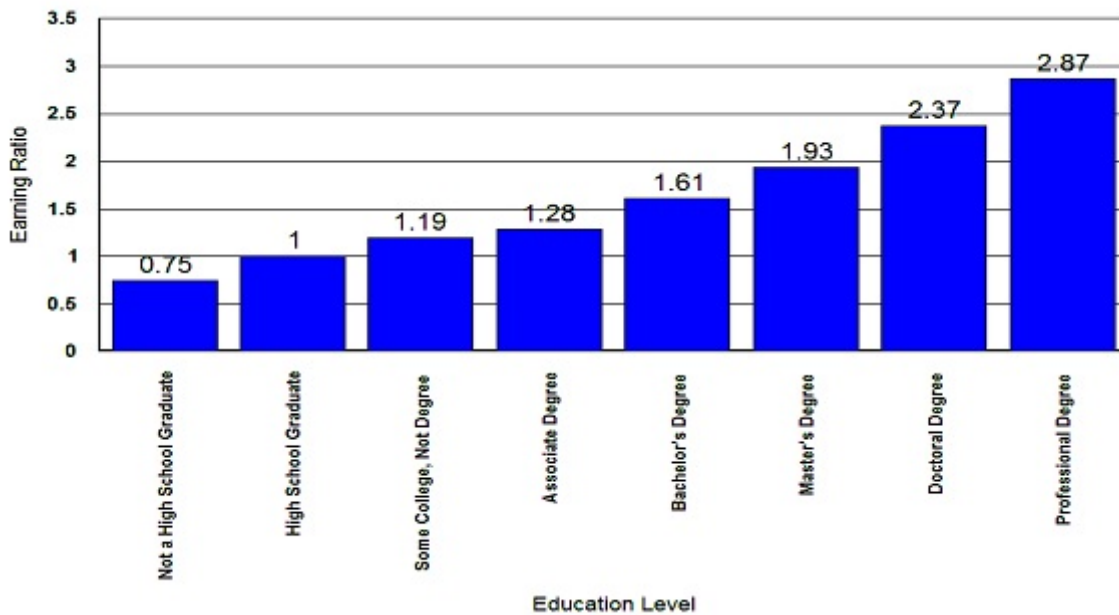


Figure 3. Ratio of Expected Lifetime Earnings Relative to High School Graduates in the United States, by Education Level, 2005.

Source: Baum and Ma 2007.

Conclusions

The North Dakota Association of Tribal Colleges (NDATC) consists of five colleges located in North Dakota. These colleges have an economic impact through their spending for goods and services and wages and salaries. Expenditures data were provided by each respective college, as were the employment and student enrollments. In addition to the college operational expenditures, student spending also has an economic impact.

Tribal Colleges collectively spent over \$48 million in FY2012 in the North Dakota economy. They employed 615 full-time workers and 209 part-time workers. The over \$48 million in expenditures comprise the direct, or first-round, economic impacts for the Tribal Colleges. The North Dakota Input-Output Model was used to estimate the total economic impact resulting from Tribal College expenditures. Tribal College expenditures, or direct effects, were allocated to various sectors of the North Dakota Input-Output Model. Interdependence coefficients within the model were used to estimate secondary economic effects. Combining direct and secondary economic effects provides an estimate of the total economic impact. Total economic impact of the Tribal colleges was over \$142 million in FY2012, which included nearly \$94 million of secondary impacts. The *Households* Sector (economy-wide personal income) was estimated to be \$59.0 million in FY2012. This was the sector with the highest level of business activity, not uncommon for an industry that has its largest expense for wages and salaries. Retail trade activity attributed to Tribal Colleges expenditures were estimated to be \$35.3 million in FY2012. Business activity generated by Tribal Colleges' expenditures would produce \$1.6 million in sales and use taxes, and \$885,000 in personal income taxes. In addition to the 615 full-time and 209 part-time jobs at the five Tribal Colleges, their expenditures would generate enough business activity to support another 392 secondary (indirect and induced) jobs.

Student expenditures for living expenses also create an economic impact. Expenditures by the 4,252 FTE students at the five Tribal Colleges for personal items, recreation, books, supplies, and room and board amounted to \$16.0 million for the 2011-2012 academic year. These expenditures, or direct economic effects are in addition to those of the five Tribal Colleges. Applying the student spending to the North Dakota Input-Output Model produces estimates of the total economic impact. The *Retail Trade* Sector had the largest economic impact (\$17.9 million) of any sector, largely due to the high percentage of student spending for retail trade items. The next highest level of business activity was in the *Households* Sector (economy-wide personal income) at \$9.6 million. Total economic impact from student spending was \$39.6 million, with the secondary economic effects being \$23.6 million. These levels of business activity from student spending would support 83 secondary workers in various sectors of the North Dakota economy.

Beyond the economic impacts that the Tribal Colleges and their student spending creates, are the social and economic benefits of a post-high school education. Original research on this topic was not possible within the scope of this study, but a review of published literature was conducted to provide validation for the time and expense of obtaining a college a degree. Previous studies have determined that college graduates have healthier life style, healthier children, more job satisfaction, have shown decreased prejudice, enhanced knowledge of world affairs, and have enhanced social status. Also, many of these benefits are passed onto succeeding generations. Economic benefits are more easily quantified as college graduates have lower unemployment rates and higher annual incomes. Unemployment for high school graduates was 9.4 percent in 2011,

much higher than the 4.9 percent rate for person with a college bachelors degree. That same year the median annual earnings for a college degree was \$54,756, over 65 percent higher than the median for a high school degree (\$33,176).

The five Tribal Colleges and their students have substantial impacts on North Dakota's economy. These Tribal Colleges collectively employ 615 full-time and 209 part-time workers. A total of 4,792 students were enrolled at the 5 Tribal Colleges on a full-time or part-time basis during the 2011-2012 academic year. The number of students enrolled was converted to an estimated 4,252 FTE students so that the economic impact of student spending could be determined. Expenditures by the colleges and students provide a direct economic effect, that when applied to the multiplier effect, create a secondary impact. The total economic impact resulting from the Tribal Colleges' expenditures affects the state and local economies, and further provides students with an education that has social and economic benefits.

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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 2012

Sector	Cankdeska	Sitting Bull	Turtle Mt.	United Tribes	Ft. Berthold	Total
	----- \$000 -----					
Construction	1,915	1,200	925	895	- -	4,935
Transportation	47	28	289	38	72	474
Comm & Public Utilities	166	311	429	787	226	1,919
Retail Trade	1,022	715	869	1,680	598	4,884
Fin, Ins, Real Estate	645	1,039	121	319	535	2,659
Bus & Pers Service	558	237	242	839	323	2,199
Prof & Soc Service	680	323	866	479	335	2,683
Households	<u>4,393</u>	<u>1,441</u>	<u>8,409</u>	<u>12,369</u>	<u>2,084</u>	<u>28,696</u>
Totals	9,426	5,294	12,150	17,406	4,173	48,449

Table A2. Full-time and Part-time Employees at North Dakota’s Tribal Colleges, 2011-2012 Academic Year

College	Full-time Employment	Part-time Employment
	-----number of workers -----	
Cankdeska Cikana CC	78	6
United Tribes TC	276	71
Sitting Bull CC	64	69
Turtle Mountain CC	142	44
Ft Berthold CC	<u>55</u>	<u>19</u>
Total	615	209

Table A3. Direct Economic Impacts for Student Living Expenses, North Dakota Tribal Colleges, Summer School 2011 and Academic Year 2011-2012

Institution	Term	2011-2012 FTE Students ¹	Student Living Expenses ²	Total Expenditures
			-----\$-----	
Cankdeska Cikana CC				
	Academic Year	374	4,925	1,841,950
	Summer School	45	3,283	147,735
United Tribes TC				
	Academic Year	1,150	3,500	4,025,000
	Summer School	252	2,333	587,916
Sitting Bull College				
	Academic Year	581	4,900	2,846,900
	Summer School	65	3,267	212,355
Turtle Mountain CC				
	Academic Year	1,059	3,732	3,952,188
	Summer School	361	2,488	898,168
Ft Berthold CC				
	Academic Year	322	4,100	1,320,200
	Summer School	<u>43</u>	2,733	<u>117,519</u>
Total		4,252		15,949,931

Sources: North Dakota Career Resource Network (2012) and AKIS reports from individual colleges.

¹ Full-time equivalent students based on data obtained from AKIS academic reports. AIMS (American Indian Measures for Success) Key Indication System (AKIS) requires colleges to separately report students taking 12 credits or more per semester, and report students taking less than 12 credit hours per semester. Full-time equivalent students were estimated based on a head count of students in fall and spring semesters taking 12 credits or more, and total credit hours for part-time students in fall and spring semesters divided by 12 credit hours. Summer school full-time students also represented those taking 12 credit hours or more, and total credit hours for part-time summer students divided by 12 credit hours.

² Student living expenses include room, board, supplies and \$3,400 for personal recreation and miscellaneous spending for the 2011-2012 academic year. North Dakota Career Resource Network academic-year student spending estimates were divided by two because full-time equivalent students were the sum of enrollment in fall and spring semesters. Because the 3 months of summer school represents one-third of an academic year, academic-year student spending was divided by 3 to estimate student spending during summer school.

Table A4. Full-time, Part-time, and Estimated Full-time Equivalent Students Attending North Dakota’s Tribal Colleges, 2011-2012 Academic Year

College	Student Head Count		
	Full-time Students	Part-time Students	Estimated Full-time Students ¹
	---- number of students ----		
Cankdeska Cikana CC	286	279	419
United Tribes TC	1,319	211	1,402
Sitting Bull College	567	165	646
Turtle Mountain CC	1,345	181	1,420
Ft Berthold CC	<u>309</u>	<u>130</u>	<u>365</u>
Total	3,826	966	4,252

¹ Full-time equivalent students based on data obtained from AKIS academic reports. AIMS (American Indian Measures for Success) Key Indication System (AKIS) requires colleges to separately report students taking 12 credits or more per semester, and report students taking less than 12 credit hours per semester. Full-time equivalent students were estimated based on a head count of students in fall and spring semesters taking 12 credits or more, and total credit hours for part-time students in fall and spring semesters divided by 12 credit hours. Summer school full-time students also represented those taking 12 credit hours or more, and total credit hours for part-time summer students divided by 12 credit hours. The estimated student count of 4,252 was used to estimate student spending impacts.

Table A5. AKIS Data on Student Enrollment and Credit Hours Taken for Full-time and Part-time Students, and Estimated Full-time Equivalent Students, North Dakota Tribal Colleges, Summer School 2011 and Academic Year 2011-2012

College	Full-time Students (Head Count)			Part-time Students						FTE Students ²		
				Credit Hours		Full-time Equivalents ¹						
	Academic Year	Summer School	Total	Academic Year	Summer School	FTE Academic Year	FTE Summer School	Total	Academic Year	Summer School	Total	
Candeska Cikana CC	283	3	286	1,088	511	91	42	133	374	45	419	
United Tribes TC	1,081	238	1,319	829	177	69	14	83	1,150	252	1,402	
Sitting Bull College	510	57	567	852	101	71	8	79	581	65	646	
Turtle Mountain CC	1,003	342	1,345	668	232	56	19	75	1,059	361	1,420	
Ft. Berthold CC	279	30	<u>309</u>	514	157	43	13	<u>56</u>	322	43	<u>365</u>	
Totals			3,826					426			4,252	

¹ Full-time equivalents for part-time students were calculated by dividing total credit hours for part-time students by 12 credit hours.

² Full-time equivalent students were estimated based on a head count of students in fall and spring semesters taking 12 credits or more, and total credit hours for part-time students in fall and spring semesters divided by 12 credit hours. Summer school full-time students also represented those taking 12 credit hours or more, and total credit hours for part-time summer students divided by 12 credit hours. The estimated student count of 4,252 was used to estimate student spending impacts.

Table A6. Standardized AKIS¹ Student Enrollment and Credit Hours Reporting Data, North Dakota Tribal Colleges, Summer School 2011 and Academic Year 2011-2012

College/Period	Part-time AI Students	Part-time Non-AI Students	Full-time AI Students	Full-time Non-AI Students	Part-time AI Credits	Part-time Non-AI Credits	Full-time AI Credits	Full-time Non-AI Credits
Candeska Cikana CC								
Summer 2011	89	8	3	0	474	37	36	0
Fall 2011	82	11	121	6	458	51	1,775	80
Spring 2012	<u>78</u>	<u>11</u>	<u>147</u>	<u>9</u>	<u>526</u>	<u>53</u>	<u>2,045</u>	<u>121</u>
Total	249	30	271	15	1,458	141	3,856	201
United Tribes TC								
Summer 2011	25	27	203	35	92	85	1,654	274
Fall 2011	26	36	537	56	160	197	8,256	830
Spring 2012	<u>56</u>	<u>41</u>	<u>435</u>	<u>53</u>	<u>238</u>	<u>234</u>	<u>6,635</u>	<u>768</u>
Total	107	104	1,175	144	490	516	16,545	1,872
Sitting Bull College								
Summer 2011	27	5	55	2	86	15	374	17
Fall 2011	54	11	231	13	357	55	3,246	197
Spring 2012	<u>52</u>	<u>26</u>	<u>253</u>	<u>13</u>	<u>302</u>	<u>138</u>	<u>3,575</u>	<u>186</u>
Total	133	42	539	28	745	208	7,195	400

- continued -

Table A6. Continued

College/Period	Part-time AI Students	Part-time Non-AI Students	Full-time AI Students	Full-time Non-AI Students	Part-time AI Credits	Part-time Non-AI Credits	Full-time AI Credits	Full-time Non-AI Credits
Turtle Mountain CC								
Summer 2011	59	13	334	8	178	54	2,266	34
Fall 2011	41	5	508	24	271	19	7,282	226
Spring 2012	<u>59</u>	<u>4</u>	<u>450</u>	<u>21</u>	<u>359</u>	<u>19</u>	<u>6,446</u>	<u>293</u>
Total	159	22	1,292	53	808	92	15,994	553
Ft. Berthold CC								
Summer 2011	41	5	26	4	138	19	175	30
Fall 2011	36	10	136	2	212	52	1,837	31
Spring 2012	<u>35</u>	<u>3</u>	<u>137</u>	<u>4</u>	<u>230</u>	<u>20</u>	<u>1,959</u>	<u>60</u>
Total	112	18	299	10	580	91	3,971	121

¹AIMS (American Indian Measures for Success) Key Indication System (AKIS) .