



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# Contribution of Cankdeska Cikana Community College to North Dakota's Economy in 2012



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



**CANKDESKA CIKANA  
COMMUNITY COLLEGE**  
*Spirit Lake Dakota Nation*

**NDSU** AGRIBUSINESS AND  
APPLIED ECONOMICS

## Acknowledgments

Financial support for this project was provided through a grant from the American Indian Higher Education Consortium (AIHEC). This study was commissioned by the North Dakota Association of Tribal Colleges and Universities (NDATC), a private, non-profit organization established in 1994 and comprised of the five Tribal Colleges and Universities (TCUs) located in North Dakota. Members of the Association who make up the Board of Directors include:

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.

This research effort was based on actual expenditures data (annual audits) provided by each of the five respective Tribal Colleges in North Dakota. Special thanks are extended to all those entities that provided information. This effort would not have been possible without their participation.

Thanks are extended to Norma Ackerson for document preparation and to our colleagues in the Department of Agribusiness and Applied Economic for document review.

The authors assume responsibility for any errors of omission, logic, or otherwise. Any opinions, findings, and conclusions expressed in this publication are those of the authors and do not necessarily reflect the view of the Department of Agribusiness and Applied Economics, North Dakota State University, or the study sponsors.

This publication is available electronically at this web site: <http://agecon.lib.umn.edu/>.

NDSU is an equal opportunity institution.

North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, race, religion, sex, sexual orientation, or status as a U.S. veteran. Please address your inquiries regarding this publication to: Department of Agribusiness & Applied Economics, P.O. Box 6050, Fargo, ND 58108-6050, Phone: 701-231-7441, Fax: 701-231-7400, Email: [ndsu.agribusiness@ndsu.edu](mailto:ndsu.agribusiness@ndsu.edu).

Copyright © 2013 by Coon, Bangsund and Hodur. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided this copyright notice appears on all such copies.

## TABLE OF CONTENTS

	<u>Page</u>
List of Tables. . . . .	ii
List of Figures. . . . .	ii
List of Appendix Tables. . . . .	ii
Executive Summary. . . . .	iii
Background of Cankdeska Cikana Community College. . . . .	2
Methods. . . . .	2
Results. . . . .	3
Student Economic Impact. . . . .	4
Value of a College Education. . . . .	8
Conclusions. . . . .	12
References. . . . .	14
Appendix . . . . .	17

**LIST OF TABLES**

	<u>Page</u>
Table 1. Direct, Secondary, and Total Economic Impacts for Cankdeska Cikana Community Colleges’ Operations, FY2012.....	4
Table 2. Direct Economic Impacts for the Standard Living Expenses, Cankdeska Cikana Community College, Summer School 2011 and Academic Year 2011-2012.....	6
Table 3. Direct, Secondary, and Total Economic Impacts for Cankdeska Cikana Community College Student Spending, Academic Year 2011-2012.....	7

**LIST OF FIGURES**

	<u>Page</u>
Figure 1. Unemployment Rate by Level of Education in the United States, 2011.....	11
Figure 2. Medium Annual Earnings of Adults Age 25 and Older, Full-time Workers in the United States, 2011. ....	11
Figure 3. Ratio of Expected Lifetime Earnings Relative to High School Graduates in the United States, by Education Level, 2005.....	12

**LIST OF APPENDIX TABLE**

	<u>Page</u>
Table 1. Standardized AKIS Student Enrollment and Credit Hours Reporting Data, Cankdeska Cikana Community College, Summer School 2011 and Academic Year 2011-2012.....	18

## 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 each of the individual colleges and five Tribal Colleges collectively. A previous report provided the economic impact for the combined NDATC colleges, but this report will focus on Cankdeska Cikana Community College, which serves the Spirit Lake Reservation. Student living expenses also has an economic impact beyond that of Cankdeska Cikana Community College. 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. Cankdeska Cikana Community College spent over \$9 million in North Dakota in Fiscal Year (FY) 2012. Over half of these expenditures (direct effects) (\$4.4 million) were to the *Households* Sector, primarily for wages and salaries. Total economic impact of Cankdeska Cikana Community College was over \$27 million in FY2012. The highest level of total economic impact business activity was in the *Households* Sector (economy-wide personal income) with \$10.5 million, followed by *Retail Trade* Sector with \$6.6 million. Total employment at Cankdeska Cikana Community College was 78 full-time and 6 part-time workers. Levels of business activity generated by Cankdeska Cikana Community College's expenditures would support an additional 74 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 college. Expenditures by full-time and part-time students for personal items, recreation, books, supplies, and room and board amounted to \$2.0 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 \$4.9 million (\$2.0 million in direct impacts plus \$2.9 million in secondary impacts). Student spending would generate enough economic activity to support 11 secondary (indirect and induced) jobs in North Dakota.

Cankdeska Cikana Community College and its students have substantial impacts on their local economy. The college also provides valuable post-secondary educational programs. Cankdeska Cikana Community College provides both social and economic benefits to the North Dakota community that is home to this college. 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.



## **Contribution of Cankdeska Cikana Community College to North Dakota's Economy 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. One of the colleges that comprise the North Dakota Association of Tribal Colleges is Cankdeska Cikana Community College (CCCC) which serves the Spirit Lake Reservation. The Tribal Colleges are relatively new to the state's educational system with CCCC being established in 1974. In addition to educational opportunities for students, CCCC has an economic impact on the community where it is located. Cankdeska Cikana Community College makes expenditures for goods and services purchased in the state, hires employees to staff their institutions, and constructs campus buildings for the purpose of providing educational opportunities. The purpose of this study is to estimate the economic impact CCCC's operations have on the North Dakota economy. A previous study analyzed the economic impact of the 5 Tribal Colleges collectively (Coon et al. 2013), but this report will focus on the economic impacts of CCCC individually.

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 was the first of its type to be 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 Association of Tribal Colleges and the North Dakota University System.

Similar methods, analysis, and format will be used so this document will contain corresponding information. This report will provide an estimate of the economic impact of CCCC and its student spending. Also, a section of this report will provide selected background information about the college. The background information will include a history of the school, campus location, academic areas of study, degrees granted, and the mission of the college. Consistent with other studies, an economic impact analysis also will be completed for each of the other four Tribal Colleges 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 any of the Tribal Colleges, but rather provides salient information regarding a college education in general. 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.

---

\* The authors are, respectively, research specialist, research scientist, and research assistant professor in the Department of Agribusiness and Applied Economics, North Dakota State University, Fargo.



## **Background of Cankdeska Cikana Community College**

Cankdeska Cikana (Little Hoop) Community College 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 11<sup>th</sup> 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 Higher Learning Commission, 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.

## **Methods**

In-state expenditures for Cankdeska Cikana Community College comprise the direct economic impacts, or first-round effects. Data provided by CCCC were used to estimate the direct impacts. The member colleges of the NDATC 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 to provide consistent and uniform in-state expenditures, which 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 individual colleges were involved in on-going building projects. The North Dakota Input-Output Model was previously used to estimate the economic impacts for the 5 combined Tribal Colleges (Coon et al. 2013) and 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 Cankdeska Cikana Community College's 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 Cankdeska Cikana Community College. 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 college's operations. 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 CCCC's operations.

## **Results**

Cankdeska Cikana Community College's expenditures to North Dakota entities for FY2012 totaled \$9.4 million (Table 1). Total in-state expenditures for CCCC's operations were provided by the college. 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 \$17.7 million in FY2012. The largest secondary impacts occurred in the *Households* and *Retail Trade* Sectors. Total (direct plus secondary) economic impacts totaled \$27.1 million in FY2012. Total economic impact for the CCCC would generate business activity in the *Households* Sector (personal income) of \$10.5 million and retail sales of \$6.6 million.

Cankdeska Cikana Community College provided employment for 78 full-time and 6 part-time workers. Levels of business activity resulting from CCCC's spending would support an additional 74 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 \$305,000, personal income taxes of \$157,000, and corporate income taxes of \$47,000. In FY2012, Cankdeska Cikana Community College had a measurable impact on the local and state economies.

**Table 1. Direct, Secondary, and Total Economic Impacts for Cankdeska Cikana Community Colleges' Operations, FY2012**

Sector	Direct	Secondary	Total
	-----\$000-----		
Construction	1,915	673	2,588
Communication & Public Utilities	166	882	1,048
Retail Trade	1,022	5,576	6,598
Finance, Insurance, Real Estate	645	1,230	1,875
Business & Personal Services	558	457	1,015
Professional & Social Services	680	698	1,378
Households	4,393	6,058	10,451
Other <sup>1</sup>	47	2,150	2,197
Total	9,426	17,724	27,150

<sup>1</sup>Other includes agriculture, mining, transportation, manufacturing, and government.

### Student Economic Impact

Student spending also creates an economic impact in addition to that of Cankdeska Cikana Community College. 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 CCCC (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 was \$9,850 per year for Cankdeska Cikana Community College. The average age for students enrolled at Cankdeska Cikana Community College for the Fall 2012 semester was nearly 30 years old. Many of these older students had families and jobs that ranged from part-time to full-time. Expenditure patterns for older students may differ from those of a single 18 to 20 year old student, but data were not available to adjust the North Dakota Career Resources Network student spending estimates. Cankdeska Cikana Community College provided full-time and part-time student enrollment numbers and associated credit hours 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 Table 1). 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 419 FTE students at Cankdeska Cikana Community College (Appendix Table 1).

All of the North Dakota 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 (Appendix Table 1). 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 (286) (head count) plus the FTE part-time students (133) (calculated using credit hours). The estimate of FTE students (419) used to calculate student spending was less than the sum of the total full-time and part-time students (565) enrolled at the Cankdeska Cikana Community College (Appendix Table 1).

The 2011 Summer session and the 2011-2012 academic year FTE students were calculated separately (Appendix Table 1). 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). Table 2 presents the student spending from CCCC students that resulted in a \$2.0 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, 419 FTE students were enrolled at Cankdeska Cikana Community College. Based on expenditures per FTE student, students were estimated to have spent \$2.0 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.

Table 2. Direct Economic Impacts for Student Living Expenses, Cankdeska Cikana Community College, Summer School 2011 and Academic Year 2011-2012

Institution	Term	2011-2012 FTE Students <sup>1</sup>	Student Living Expenses <sup>2</sup>	Total Expenditures
			-----\$-----	
Cankdeska Cikana CC				
	Academic Year	374	4,925	1,841,950
	Summer School	<u>45</u>	3,283	<u>147,735</u>
	<b>Total</b>	<b>419</b>		<b>1,989,685</b>

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

<sup>1</sup> 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.

<sup>2</sup> 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.

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.

Student spending was estimated to be \$2.0 million for the 2011-2012 academic year, which most closely approximated the FY2012 used for CCCC’s expenditures. Student expenditures are in addition to operational expenditures for CCCC, without accounting for potential double counting previously discussed. Student expenditures at CCCC were 21.1 percent of the college’s outlays, lower than the 34.9 percent for all of the Tribal Colleges and 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 \$2.0 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 \$2.9 million, resulting in a total economic impact of \$4.9 million for academic year 2011-2012. The *Retail Trade* Sector received the largest economic impact, with \$2.2 million in retail trade activity. The *Households* Sector (economy-wide personal income) was estimated to be \$1.2 million. Retail purchases result in sales and use tax collections. The total level of retail activity generated by student spending would result in \$104,000 in sales tax revenues, assuming all purchases were made in the North Dakota economy. Personal income tax collections of \$18,000 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 11 secondary (indirect and induced) jobs in the state.

**Table 3. Direct, Secondary, and Total Economic Impacts for Cankdeska Cikana Community College Student Spending, Academic Year 2011-2012**

Sector	Direct	Secondary	Total
	-----\$000-----		
Construction	--	89	89
Communication & Public Utilities	--	145	145
Retail Trade	1,492	745	2,237
Finance, Insurance, Real Estate	498	157	655
Business & Personal Services	--	67	67
Professional & Social Services	--	82	82
Households	--	1,200	1,200
Other <sup>1</sup>	<u>--</u>	<u>470</u>	<u>470</u>
Total	1,990	2,955	4,945

<sup>1</sup>Other 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.

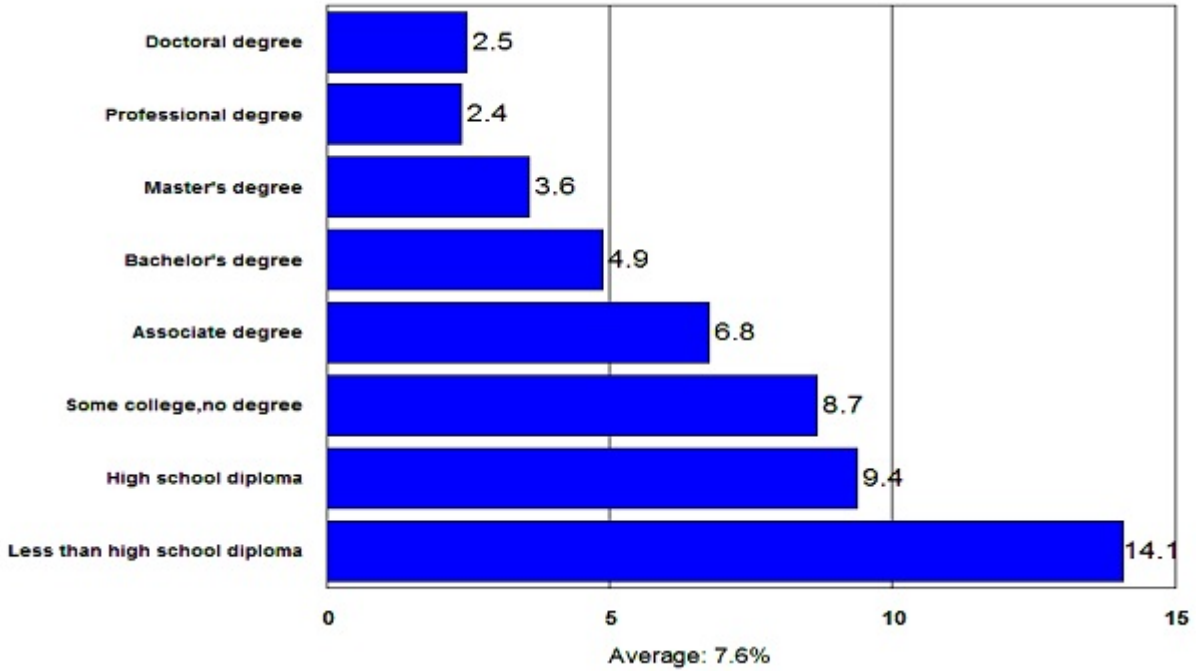


Figure 1. Unemployment Rate by Level of Education in the United States, 2011.  
 Source: U.S. Bureau of Labor Statistics 2012.

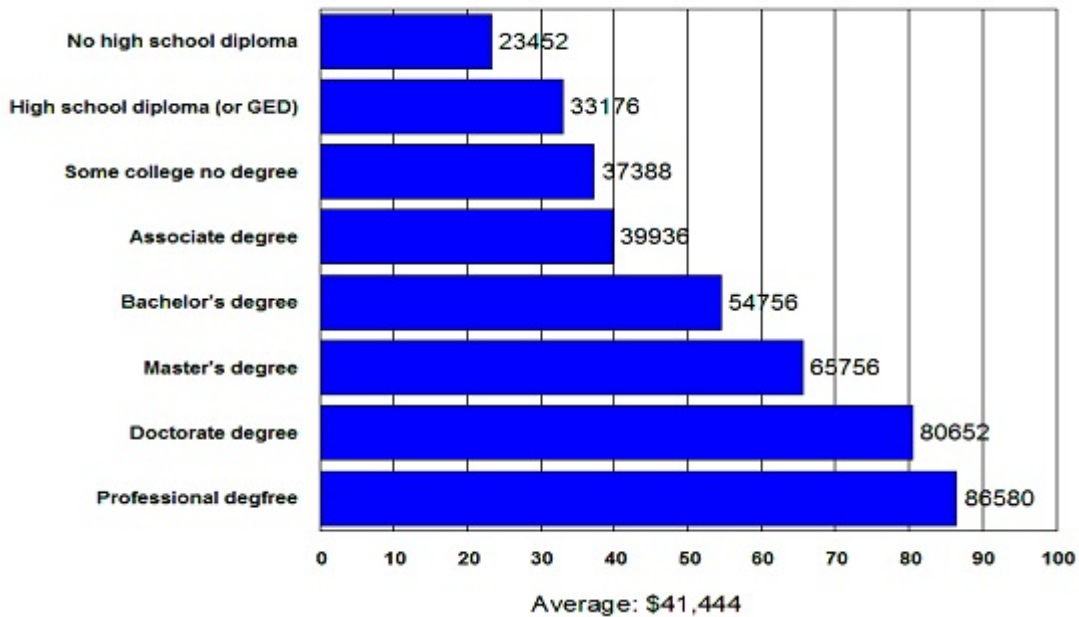


Figure 2. Median Annual Earnings of Adults Age 25 and Older, Full-time Workers in the United States, 2011  
 Source: U.S. Bureau of Labor Statistics 2012.

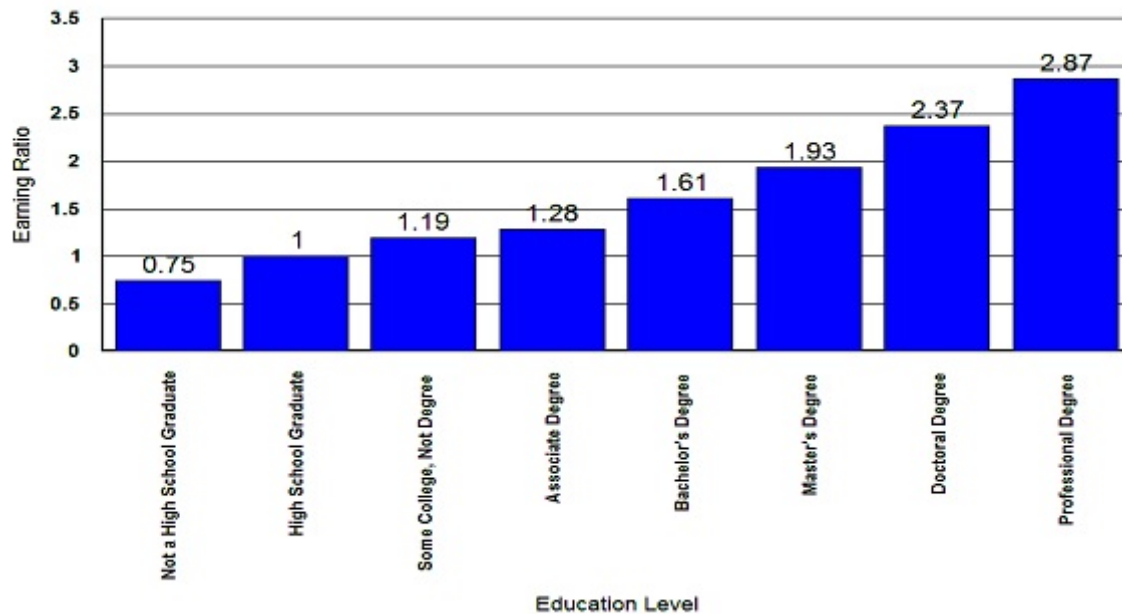


Figure 3. Ratio of Expected Lifetime Earnings Relative to High School Graduates in the United States, by Education Level, 2005.  
Source: Baum and Ma 2007.

### Conclusions

The North Dakota Association of Tribal Colleges (NDATC) consists of five colleges located in North Dakota. Each of these colleges has an economic impact through their spending for goods and services and wages and salaries. Expenditures data for this economic impact analysis were provided by Cankdeska Cikana Community College, as were the employment and student enrollments. In addition to the college operational expenditures, student spending also has an economic impact.

Cankdeska Cikana Community College spent \$9.4 million in FY2012 in the North Dakota economy. They employed 78 full-time workers and 6 part-time workers. The over \$9.4 million in expenditures comprise the direct, or first-round, economic impacts for Cankdeska Cikana Community College. The North Dakota Input-Output Model was used to estimate the total economic impact resulting from CCCC's expenditures. CCCC's 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 for CCCC was \$27.1 million in FY2012, which included \$17.7 million of secondary impacts. The *Households* Sector (economy-wide personal income) was estimated to be \$10.5 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 CCCC's expenditures were estimated to be \$6.6 million in FY2012. Business activity generated by CCCC's expenditures would produce \$305,000 in sales and use taxes, and \$157,000 in personal income taxes. In addition to the 78 full-time and 6 part-time jobs at Cankdeska Cikana

Community College, their expenditures would generate enough business activity to support another 74 secondary (indirect and induced) jobs.

Student expenditures for living expenses also create an economic impact. Expenditures by the 419 FTE students at Cankdeska Cikana Community College for personal items, recreation, books, supplies, and room and board amounted to \$2.0 million for the 2011-2012 academic year. These expenditures, or direct economic effects are in addition to those of Cankdeska Cikana Community College. 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 (\$2.2 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 \$1.2 million. Total economic impact from student spending was \$4.9 million, with the secondary economic effects being \$2.9 million. These levels of business activity from student spending would support 11 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 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).

Cankdeska Cikana Community College and its students have substantial impacts on North Dakota's economy. The College employs 78 full-time and 6 part-time workers. A total of 565 students were enrolled on a full-time or part-time basis during the 2011-2012 academic year. The number of students enrolled was converted to an estimated 419 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 Cankdeska Cikana Community College's expenditures affects the state and local economies, and further provides students with an education that has social and economic benefits.

## References

- Alliance For Excellent Education. 2012. *Inseparable Imperatives: Equity in Education and the Future of the American Economy*. Internet Website. [www.all4ed.org/files/inseparableimperatives.pdf](http://www.all4ed.org/files/inseparableimperatives.pdf). Washington, D.C.
- Balfanz, Robert, John M. Bridgeland, Mary Bruce, and Joanna Hornig Fox. 2012. *Building a Grad Nation: Progress and Challenge in Ending the High School Dropout Epidemic*. Annual Update. A Report to AT&T and Pearson Foundation. Washington, D.C.: Civic Enterprises, Everyone Graduates Center at John Hopkins University, America's Promise Alliance, and Alliance for Excellent Education.
- Bangsund, Dean A., F. Larry Leistritz, and Randal C. Coon. 2010. *Economic Impact of the North Dakota University System in 2010*. AAEA Report No. 672. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Bangsund, Dean A., and F. Larry Leistritz. 2004. *Economic Contributions of the Sugarbeet Industry to Minnesota, North Dakota, and Eastern Montana*. AAE Report No. 532. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Baum, Sandy and Jennifer Ma. 2007. *Education Pays: The Benefits of Higher Education for Individuals and Society*. Trends in Higher Education Series. Trends College Board Internet Website. [www.trends.collegeboard.org](http://www.trends.collegeboard.org).
- Bureau of Economic Analysis. 2012. Personal Income by Major Sources and Earning by Industry. Table SA05. Internet Website Interactive Tables. [www.bea.gov](http://www.bea.gov). Washington, D.C.: U.S. Department of Commerce.
- Cankdeska Cikana Community College. 2010. *2009 Economic Impact & Return on Investment Report: Our Story*. Fort Totten, ND: Spirit Lake Dakota Nation, Cankdeska Cikana Community College.
- Cankdeska Cikana Community College. 2012. *Cankdeska Cikana Community College History: College Namesake*. Cankdeska Cikana Community College Internet Website. [www.littlehoop.edu](http://www.littlehoop.edu). Fort Totten, ND.
- Coon, Randal C., Dean A. Bangsund, Nancy M. Hodur. 2012a. *Economic Impact of the North Dakota University System in 2011*. AAE Report No. 690. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., Dean A. Bangsund, and Nancy M. Hodur. 2012b. *The Economic Base of North Dakota*. AAE Staff Paper 12002. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., Dean A. Bangsund, and Nancy M. Hodur. 2012c. *North Dakota Input-Output Model Data Base*. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.

- Coon, Randal C., Dean A. Bangsund, Nancy M. Hodur. 2013. *Economic Contribution of North Dakota's Tribal Colleges in 2012*. AAE Report No. 709. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., F. Larry Leistritz, Thor A. Hertsgaard, and Arlen G. Leholm. 1989. *The North Dakota Input-Output Model: A Tool for Analyzing Economic Linkages*. AE Report No. 187. Fargo: North Dakota State University, Department of Agricultural Economics.
- Departments of the Treasury and Education. 2012. *The Economics of Higher Education*. U.S. Department of Education Official Blog Site.  
[www.treasury.gov/connect/blog/documents/20121212\\_economics%20of%20higher%20eduFINAL](http://www.treasury.gov/connect/blog/documents/20121212_economics%20of%20higher%20eduFINAL) Washington, D.C.:U.S. Department of the Treasury and Education
- Gipp, David M., Tom Katus, and Michael Madden. 2011. *The Economic Impact of United Tribes Technical College on the Economy of the Bismarck/Mandan, ND Area*. Bismarck: United Tribes Technical College with the assistance of TK Associates International.
- Hardy, Marcelina. 2010. 7 Benefits of Earning a College Degree. Yahoo! Education Internet Website. [www.education.yahoo.net/articles.yahoo!education](http://www.education.yahoo.net/articles.yahoo!education).
- Kyle, Chris. 2010. *Education Pays 2010*. Yahoo! Education Internet Website. [www.education.yahoo.net/articles.yahoo!education](http://www.education.yahoo.net/articles.yahoo!education).
- Leistritz, F. Larry. 1995. *Potential Local Socioeconomic Impacts of the Proposed ProGold Processing Plant*. Agr. Econ. Rpt. No. 328. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Leistritz, F. Larry, and Randal C. Coon. 2005. *Economic Impact of the North Dakota University System*. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Leistritz, F. Larry, and Randal C. Coon. 2007. *Economic Impact of the North Dakota University System*. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Leistritz, F. Larry, and Dean A. Bangsund. 2008. *Economic Impact of Cankdeska Cikana Community College*. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Leistritz, F. Larry, and Dean A. Bangsund. 2010. *Economic Impact of Sitting Bull College on the Regional Economy*. AAE10002. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Leistritz, F. Larry, and Randal C. Coon. 2009. *Economic Impact of the North Dakota University System*. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.

- Longly, Robert. 2010. *Lifetime Earnings Soar with Education*. About.Com Internet Website. [www.usgovinfo.about.com](http://www.usgovinfo.about.com). Washington, D.C.: About.Com, US Government Info.
- North Dakota Career Resource Network. 2012. *Career Outlook*. 28<sup>th</sup> Edition. Bismarck: North Dakota Career Resource Network, North Dakota Department of Career and Technical Education.
- North Dakota Department of Public Instruction. 2010. *Annual Adequate Yearly Progress Report - School Year 2009-2010*. Internet Website. [www.dpi.state.us/dpi/reports/profile/0910/AYPDistrict/03030.pdf](http://www.dpi.state.us/dpi/reports/profile/0910/AYPDistrict/03030.pdf) Bismarck: North Dakota Department of Public Instruction.
- Northwest Area Foundation. 2006. *North Dakota Educational Attainment*. Northwest Area Foundation Indicators Website. [www.indicators.nwaf.org](http://www.indicators.nwaf.org). St. Paul, Minnesota.
- Pew Research Center. 2011. *\$650,000 - The Monetary Value & College Education*. Pew Research Center Internet Website. [www.pewresearch.org](http://www.pewresearch.org). Washington, D.C.: Pew Research Center.
- Rawley, L. And S. Hurtado. 2002. *The Non-monetary Benefits of an Undergraduate Education*. Ann Arbor: University of Michigan, Center for Study of Higher and Post-secondary Education.
- Robinson, Jenna. 2010. *Lifetime Earnings: Bachelor's Degree vs. High School Graduate*. Intellectual Takeout Internet Website. [www.intellectualltakeout.org](http://www.intellectualltakeout.org). Raleigh, N.C.: The John William Pope Center for Higher Education Policy.
- U.S. Bureau of Labor Statistics. 2012. *Employment Projections: Education Pays*. Internet Website. [www.data.bls.gov](http://www.data.bls.gov). Washington, D.C.: U.S. Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections.
- U.S. Bureau of Census. 2012. *American Community Survey*. Bureau of Census Factfinder Website. [www.facfinder2.census.gov](http://www.facfinder2.census.gov). Washington, D.C.: U.S. Department of Commerce, U.S. Census Bureau.
- Zaback, Katie, Andy Carlson, and Matt Crellin. 2012. *The Economic Benefit of Post Secondary Degree: A State and National Level Analysis*. Internet Website. [www.live.sheeo.gotpantheon.com](http://www.live.sheeo.gotpantheon.com). Boulder, Colorado: State Higher Education Executive Officers and National Center for Higher Education Management Systems.

# APPENDIX



Table 1. Standardized AKIS<sup>1</sup> Student Enrollment and Credit Hours Reporting Data, Cankdeska Cikana Community College, 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
Cankdeska 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

<sup>1</sup>AIMS (American Indian Measures for Success) Key Indication System (AKIS) .