

The Economic Impact of Southwest Healthcare Services on the Medical Service Area in North Dakota and South Dakota



Prepared by:

National Center for Rural Health Works
Oklahoma State University

April 2017

**The Economic Impact of Southwest Healthcare Services
on the Medical Service Area in North Dakota and South Dakota**

Prepared for:

Southwest Healthcare Services

and

Center for Rural Health

The University of North Dakota School of Medicine and Health Sciences
www.ruralhealth.und.edu

Prepared by:

Cheryl F. St. Clair, Associate Director and Associate State Extension Specialist
Email: cheryl@okstate.edu

Gerald A. Doeksen, Director and Regents Professor/Extension Economist
Email: gad@okstate.edu

Brittany Krehbiel, Student Assistant

National Center for Rural Health Works
Oklahoma Cooperative Extension Service
Oklahoma State University
(405) 744-9823, 9824, or 9814

April 2017

Executive Summary

Health services are vital to rural development. Industry and business seek locations with access to health and good education. Good health care is important to ensure a productive labor force and the cost of health care is another consideration for site location. Retirees seek locations with available health care and adequate protective services for a safe living environment.

Health care is a fast growing sector and is expected to continue to grow. Health care was 6.9 percent of gross domestic product in 1970 and had grown to 17.8 percent in 2015. Per capita health expenditures increased from \$355 in 1970 to \$9,990 in 2015. Employment in health care increased 394.1 percent from 1970 to 2015. Annual increase in health care employment was 2.6 percent from 2000 to 2015. Projected health care expenditures will account for 18.7 percent of gross domestic product by 2020 and increase to 20.1 percent in 2025. Per capita health expenditures are projected to increase to \$12,490 in 2020 and to \$16,032 in 2025. Hospital services represent 32.3 percent of total health care expenditures, making it the largest category of health services; followed by physician services with 26.2 percent.

The medical service area of Southwest Healthcare Services includes Bowman and Slope Counties in North Dakota and Harding County in South Dakota. This three-county area has a 2015 population estimated at 5,222; the population has increased 0.7 percent from 2000 to 2010 and 1.7 percent from 2014 to 2015. This compares to much larger population increases for both North Dakota and South Dakota.

The medical service area population is projected to increase to 5,348 in 2029; both states are also projected to increase in population. The over 65+ age group is decreasing in the medical service area; while it is increasing in both states. In the medical service area, the largest increase from 2000 to 2015 was the 20-24 age group.

The population of the medical service area and North Dakota is predominantly white. The Hispanic population is a very small percent of the total population for both the medical service area and North Dakota and is increasing over time.

County Business Patterns data show that health services employment as a percent of the total medical service area's employment decreased from 24.6 percent in 2004 to 8.5 percent in 2014; the health services payroll for the medical service area is following the same trend. Health services as a percent of total North Dakota employment and total state payroll have decreased over time but at a much slower rate than the medical service area.

BEA data show that health care and social assistance employment is 11.5 percent of the private employment in the medical service area in 2014 and increased to 12.1 percent in 2015. For North Dakota, it was 13.0 percent in 2014 and 13.4 percent in 2015. Health care and social assistance employment is the 4th largest sector in the medical service area in 2014 and the 3rd largest sector in 2015. For North Dakota, it is the largest sector in both 2014 and 2015.

BEA data further show that the income from the health care and social assistance sector is 9.0% of total primary nonfarm earnings in 2014 and 10.0 percent in 2015. For North Dakota, it is 11.8 percent in 2014 and 13.0 percent in 2015. The health care and social assistance income is the 4th largest category in the medical service area in 2014 and 3rd largest sector in 2015. For North Dakota, it is the 3rd largest sector in 2014 and the largest sector in 2015.

Economic indicators include per capita income for the medical service area that is larger than North Dakota and the nation. The unemployment rate is lower for the medical service area than North Dakota and the nation. The percent of people in poverty and the under age 18 in poverty is lower for the medical service area than North Dakota and the nation. Transfer receipts in total and for the Medicare category are lower for the medical service area than North Dakota and the nation. The transfer receipt category of Medicare is higher for the medical service area than North Dakota and the nation.

Southwest Healthcare Services provides the following services: 23-bed Critical Access Hospital, 40-bed Long Term Care Facility, Rural Health Clinic, 12-unit Assisted Living Facility, 12-unit Independent Living Facility, and Emergency Medical Services. Both the operating activities and construction activities of Southwest Healthcare Services impact the economy of the three-county medical service area. Often overlooked can be the economic impact created from construction activities. This report measures the impact that Southwest Healthcare Services will have on the economy due to its normal operating activities in 2016 and its construction activities from 2015-2018. The operating impact occurs every year; whereas, the construction impact will only occur during the construction year.

The total impact of a change in the economy consists of direct and secondary impacts. Direct impacts are the changes in the activities of the impacting industry (i.e., in this study, Southwest Healthcare Services). Southwest Healthcare Services changes its purchases of inputs as a result of the direct impact. This produces a change in spending in the business sectors and changes the flow of dollars to the households in the medical service area. Households alter their consumption accordingly. These impacts from the changes in business spending and household spending are the secondary impacts of Southwest Healthcare Services. Impacts can be either negative or positive. Southwest Healthcare Services could have a change that generates additional economic activity or it could have a change that decreases economic activity in the medical service area.

In 2016, Southwest Healthcare Services employed 98 full-time and part-time and contractual employees for hospital operations and 96 employees for the long term care facility operations, this generated \$4.0 million in labor income (wages, salaries, and benefits and contractual compensation) for hospital operations and \$2.7 million for the long term care facility operations. Total direct employment impact is 194 jobs with \$6.7 million labor income.

When the secondary impacts are included, the total employment impact from hospital operations is 136 jobs and the total labor income impact is \$5.2 million. For the long term care facility operations, the total employment impact is 113 jobs with \$3.3 labor income impact. The combined employment impact from all operations is 249 total employment impact, including 194 total direct employment impact, and 55 total secondary employment impact. The combined labor income impact from all operations is \$8.5 total labor income impact, which includes \$6.7 million

total direct labor income impact and \$1.8 million total secondary labor income impact. The employment and labor income impacts from operating activities are annual and will continue each and every year that Southwest Healthcare Services operates in the future; these are long term economic benefits of Southwest Healthcare Services.

In 2015, Southwest Healthcare Services had \$7.9 million in construction. This construction generated 47 direct jobs with \$2.8 million direct labor income. The total impact from the 2015 construction was 70 jobs and \$3.7 million labor income, with the secondary impacts of 23 jobs and \$0.9 million labor income. In 2016, construction activities are estimated in the amount of \$21.6 million. This construction will generate an estimated 128 direct jobs with \$7.7 million direct labor income. The total impact from the 2016 construction is estimated to generate a total employment impact of 189 and total labor income impact of \$10.2 million, with the secondary impacts of 61 jobs and \$2.5 million labor income. These construction impacts only occur during the year of construction. The impacts of the proposed 2017-2018 construction activities are also provided.

The impacts generated by Southwest Healthcare Services contribute to the local economy of the medical service area. The hospital employs local residents. The hospital and its employees spend money in the medical service area and generate a secondary impact. If the hospital increases or decreases in size, the medical health of the three-county medical service area as well as the economic health of the medical service area can be affected.

For the attraction of industrial firms, businesses, and retirees, the local area should have quality hospital and health services. A quality hospital and health sector can contribute to the overall economic health of the three-county medical service area, as well as the overall medical health of the residents. Given this, not only does Southwest Healthcare Services contribute to the health and wellness of the local residents but Southwest Healthcare Services also contributes to the overall economic strength of the three-county medical service area. Local decision makers should be aware of the economic contributions of Southwest Healthcare Services and support their local hospital and healthcare providers.

The Economic Impact of Southwest Healthcare Services on the Medical Service Area in North Dakota and South Dakota

Medical facilities have a tremendous medical and economic impact on the communities and counties in which they are located and in which they provide services. This is especially true with health care facilities, such as hospitals and nursing homes. These facilities not only employ a number of people and have a large payroll, but they also draw into the community or medical service area a large number of people from rural areas that need medical services. The overall objective of this study is to measure the economic impact of Southwest Healthcare Services on its medical service area, which includes Bowman and Slope Counties in North Dakota and Harding County in South Dakota. The specific objectives of this report are to:

1. Discuss the importance of health care services to rural development, including national health trend data;
2. Review demographic and economic data for the medical service area;
3. Summarize the direct economic activities of Southwest Healthcare Services from operations;
4. Present concepts of community economics and multipliers; and
5. Estimate the economic impact of Southwest Healthcare Services from operating activities.

No recommendations will be made in this report.

Health Services and Rural Development

The nexus between health care services and rural development is often overlooked. At least three primary areas of commonality exist. A strong health care system can help attract and maintain business and industry growth, and attract and retain retirees (**Table 1**). A strong health care system can also create jobs in the local area.

Table 1
Services that Impact Rural Development

Type of Growth	Services Important to Attract Growth
Industrial and Business	Health and Education
Retirees	Health and Safety

Studies have found that quality-of-life (QOL) factors are playing a dramatic role in business and industry location decisions. Among the most significant of the QOL variables are health care services, which are important for at least three reasons.

Business and Industry Growth

First, as noted by a member of the Board of Directors of a community economic development corporation, the presence of good health and education services is imperative to industrial and business leaders as they select a community for location. Employees and participating management may offer strong resistance if they are asked to move into a community with substandard or inconveniently located health services.

Secondly, when a business or industry makes a location decision, it wants to ensure that the local labor force will be productive, and a key factor in productivity is good health. Thus, investments in health care services can be expected to yield dividends in the form of increased labor productivity.

The cost of health care services is the third factor that is considered by business and industry in development decisions. Research shows that corporations take a serious look at health care costs in determining site locations. Sites that provide health care services at a lower cost are given higher consideration for new industry than sites with much higher health care costs.

Health Services and Attracting Retirees

A strong and convenient health care system is important to retirees, a special group of residents whose spending and purchasing can be a significant source of income for the local economy. Many rural areas have environments (e.g., outdoor activities) that enable them to be in a good position to attract and retain retirees. The amount of spending embodied in this population, including the purchasing power associated with Social Security, Medicare, and other transfer payments, is substantial. Additionally, middle and upper income retirees often have substantial net worth. Although the data are limited, several studies suggest health services may be a critical variable that influences the location decision of retirees. For example, one study found that four items were the best predictors of retirement locations: safety, recreational facilities, dwelling units, and health care. Another study found that nearly 60 percent of potential retirees said health services were in the “must have” category when considering a retirement community. Only protective services were mentioned more often than health services as a “must have” service.

Health Services and Job Growth

A factor important to the success of rural economic development is job creation. *The health care sector is an extremely fast growing sector, and based on the current demographics, there is every reason to expect this trend to continue.* Data in **Table 2** provide selected expenditure and employment data for the United States. Several highlights from the national data are:

- In 1970, health care services as a share of the national gross domestic product (GDP) were 6.9 percent and increased to 17.8 percent in 2015;

Table 2

**United States Health Expenditures and Employment Data
1970-2015; Projected for 2016-2025**

Year	Total Health Expenditures (\$Billions)	Per Capita Health Expenditures (\$)	Health as % of GDP (%)	Health Sector Employment (000)	Avg Annual Increase in Employment (%)
Historical					
1970	\$74.6	\$355	6.9%	3,052 ^a	
1980	255.3	1,108	8.9%	5,278 ^a	7.3%
1990	721.4	2,843	12.1%	8,211 ^a	5.6%
2000	1,369.7	4,857	13.3%	10,858 ^a	3.2%
2010	2,596.4	8,404	17.4%	13,777 ^b	2.7%
2011	2,687.9	8,638	17.3%	14,026 ^b	1.8%
2012	2,795.4	8,915	17.3%	14,282 ^b	1.8%
2013	2,877.6	9,110	17.2%	14,492 ^b	1.5%
2014	3,029.3	9,515	17.4%	14,677 ^b	1.3%
2015	3,205.6	9,990	17.8%	15,080 ^b	2.7%
				Avg Yrly Increase 2000 to 2015	2.6%
Projections					
2020	4,198.3	12,490	18.7%		
2025	5,631.0	16,032	20.1%		

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [January 2017]); U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, National Health Expenditures 1960-2015 and National Health Expenditure Projections 2016-2025. (<https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html> [October 2016]).

^a Based on Standard Industrial Classification (SIC) codes for health sector employment.

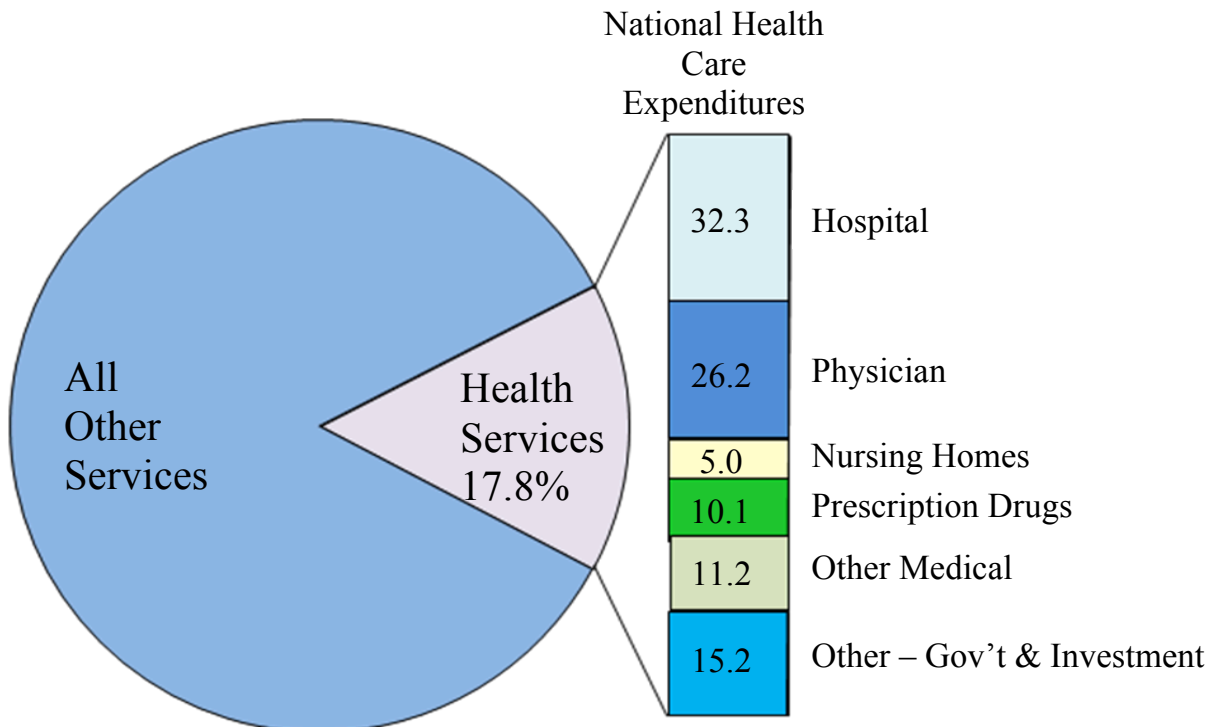
^b Based on North American Industrial Classification System (NAICS) for health sector employment.

- Per capita health expenditures increased from \$355 in 1970 to \$9,990 in 2015;
- Employment in the health sector increased 394.1 percent from 1970 to 2015; and
- Annual average increase in employment from 2000 to 2015 was 2.6 percent.

The U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, projects that health care expenditures will account for 18.7 percent of GDP by 2020 and increase to 20.1 percent of GDP in 2025. Per capita health care expenditures are projected to increase to \$12,490 in 2020 and to \$16,032 in 2025. Total health expenditures are projected to increase to over \$5.6 trillion in 2025.

Figure 1 illustrates 2015 health expenditures by percent of GDP and by type of health service. Health services represented 17.8 percent of national GDP in 2015. The largest category of health services was hospital care, representing 32.3 percent of the total and the second largest category was physician services with 26.2 percent of the total.

Figure 1
National Health Expenditures as a Percent of Gross Domestic Product
and by Health Service Type, 2015



SOURCE: U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, National Health Expenditures 2015 (<http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html> [January 2017]).

Three-County Medical Service Area Demographic and Economic Data

Southwest Healthcare Services is located in Bowman in Bowman County, North Dakota. The medical service area (MSA) includes Bowman and Slope Counties in North Dakota and Harding County in South Dakota. **Table 3** illustrates the last two U. S. Census Bureau populations (2000 and 2010) and the two most recent annual population estimates (2014 and 2015) for the three counties, the MSA, and for North Dakota and South Dakota. Additional data tables are included in **Appendix A** with more detailed data for the three counties.

The data in **Table 3** show Bowman County with population of 3,221 in 2015, an increase of 2.2 percent from 2010. Slope County shows a decreasing population trend, with 2015 estimated population of 673. Harding County has a 2015 estimated population of 1,328, an increase of 5.8 percent from 2010. The MSA has a 2015 estimated population of 5,222, an estimated 1.7 percent increase from 2010. The states both show an increase in population from 2010 to 2014 and 2015; North Dakota has larger increases than South Dakota.

Table 3
Population and Percent Change for Bowman and Slope Counties, ND,
Harding County, SD, and the States of North Dakota and South Dakota

	2000 Population	2010 Population	2014 Estimate	2015 Estimate	% Change '00-'10	% Change '10-'14	% Change '10-'15
Bowman County, ND	3,242	3,151	3,192	3,221	-2.8%	1.3%	2.2%
Slope County, ND	767	727	715	673	-5.2%	-1.7%	-7.4%
Harding County, SD	<u>1,353</u>	<u>1,255</u>	<u>1,263</u>	<u>1,328</u>	-7.2%	0.6%	5.8%
Medical Service Area	<u>5,362</u>	<u>5,133</u>	<u>5,170</u>	<u>5,222</u>	-4.3%	0.7%	1.7%
North Dakota	642,200	672,591	704,925	721,640	4.7%	4.8%	7.3%
South Dakota	754,844	814,180	834,708	843,190	7.9%	2.5%	3.6%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]).

The 2010 Census populations and population projections for the counties, the MSA, and the two states are illustrated in **Table 4**. The 2010 populations are from the U. S. Census Bureau. The North Dakota projections are from the North Dakota Housing Finance Agency, 2012 Statewide Housing Assessment Resource Project. The South Dakota projections are from the South Dakota Department of Labor and Regulation. Bowman County is projected to increase in population through 2029. Slope County is projected to increase through 2024 and then decrease through 2029. Harding County is projected to decrease through 2029. The MSA is projected to increase through 2029. Both states are projected to increase through 2029; North Dakota is projected to increase at a faster pace than South Dakota.

Table 4
2010 Census Population and Population Projections for Bowman and Slope
Counties, ND, and Harding County, SD and the States of North and South Dakota

	2010 Census	2019 Projection	2024 Projection	2029 Projection	% Change '10-'19	% Change '10-'24	% Change '10-'29
Bowman County, ND	3,151	3,468	3,554	3,563	10.1%	12.8%	13.1%
Slope County, ND	727	801	778	735	10.2%	7.0%	1.1%
Harding County, SD*	<u>1,255</u>	<u>1,152</u>	<u>1,113</u>	<u>1,050</u>	-8.2%	-11.3%	-16.3%
Medical Service Area	<u>5,133</u>	<u>5,421</u>	<u>5,445</u>	<u>5,348</u>	20.9%	26.8%	32.5%
North Dakota	672,591	813,282	852,615	891,268	20.9%	26.8%	32.5%
South Dakota*	814,180	889,447	922,748	951,885	9.2%	13.3%	16.9%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]); North Dakota Housing and Finance Agency, Statewide Housing Needs Assessment, Detailed Tables (www.ndhfa.org [March 2017]); South Dakota Department of Labor and Regulation (www.dlr.sd.gov [March 2017]).

* Harding County, SD, and South Dakota had projections for 2020, 2025, and 2030; for the purposes of illustration, these projections were used in place of the 2019, 2024, and 2029 projections, respectively.

Table 5 shows the populations for the MSA and the state of North Dakota by age group and gender for the 2000 and 2010 Census years and the 2014 and 2015 estimate years. From 2000 to 2010, the younger age groups (age 0-14 and age 15-19) in the MSA decreased in total population; these age groups increased from 2010 to 2014 and 2015. North Dakota showed the same trend for these two age groups. The age group in the MSA with the largest increase from 2000 to 2015 was the 20-24 year olds; North Dakota showed the same trend. For the MSA, the age 65+ group shows a decreasing population from 2000 to 2015; North Dakota showed an increasing trend for this age group. The male population for the MSA decreased from 2000 to 2015 and the female population for the MSA decreased from 2000 to 2010 and increased from 2010 to 2015; North Dakota increased in population for both males and females from 2000 to 2015.

Table 6 provides the populations of the three-county MSA and North Dakota by race groups and Hispanic origin. From 2000 to 2015, the white population for the MSA had a negative or flat percent, while North Dakota showed an increased in the white population. The population is predominantly white for the MSA and North Dakota. The Hispanic population is increasing for both the MSA and the state; however, it is still a very small percent of the total population for both the MSA and the state.

Data from County Business Patterns and Bureau of Economic Analysis show trends in the health services employment and payroll (labor income) over time; the two data sources have different definitions but the trends show how health services and industries, in general, change over time.

Data from U.S. Census Bureau, County Business Patterns, are illustrated in **Table 7**, showing employment and payroll for health services compared to the total employment and

Table 5
U.S. Census Bureau Population by Age Groups and Gender
for the Three-County Medical Service Area and the State of North Dakota

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2000 Census									
MSA	1,044	476	157	1,326	1,334	1,025	5,362	2,681	2,681
% of Total	19.5%	8.9%	2.9%	24.7%	24.9%	19.1%	100.0%	50.0%	50.0%
North Dakota	129,846	53,618	50,503	174,891	138,864	94,478	642,200	320,524	321,676
% of Total	20.2%	8.3%	7.9%	27.2%	21.6%	14.7%	100.0%	49.9%	50.1%
2010 Census									
MSA	894	330	192	1,058	1,650	1,009	5,133	2,635	2,498
% of Total	17.4%	6.4%	3.7%	20.6%	32.1%	19.7%	100.0%	51.3%	48.7%
North Dakota	124,461	47,474	58,956	165,747	178,476	97,477	672,591	339,864	332,727
% of Total	18.5%	7.1%	8.8%	24.6%	26.5%	14.5%	100.0%	50.5%	49.5%
2014 Estimate									
MSA	927	349	248	1,120	1,538	988	5,170	2,617	2,553
% of Total	17.9%	6.8%	4.8%	21.7%	29.7%	19.1%	100.0%	50.6%	49.4%
North Dakota	128,435	47,931	62,986	171,394	179,785	99,250	689,781	349,947	339,834
% of Total	18.6%	6.9%	9.1%	24.8%	26.1%	14.4%	100.0%	50.7%	49.3%
2015 Estimate									
MSA	988	353	272	1,107	1,536	966	5,222	2,628	2,594
% of Total	18.9%	6.8%	5.2%	21.2%	29.4%	18.5%	100.0%	50.3%	49.7%
North Dakota	147,666	49,444	72,293	197,791	182,452	107,281	756,927	388,853	368,074
% of Total	19.5%	6.5%	9.6%	26.1%	24.1%	14.2%	100.0%	51.4%	48.6%
% Change '00 to '10									
MSA	-14.4%	-30.7%	22.3%	-20.2%	23.7%	-1.6%	-4.3%	-1.7%	-6.8%
North Dakota	-4.1%	-11.5%	16.7%	-5.2%	28.5%	3.2%	4.7%	6.0%	3.4%
% Change '10 to '14									
MSA	3.7%	5.8%	29.2%	5.9%	-6.8%	-2.1%	0.7%	-0.7%	2.2%
North Dakota	3.2%	1.0%	6.8%	3.4%	0.7%	1.8%	2.6%	3.0%	2.1%
% Change '10 to '15									
MSA	10.5%	7.0%	41.7%	4.6%	-6.9%	-4.3%	1.7%	-0.3%	3.8%
North Dakota	18.6%	4.1%	22.6%	19.3%	2.2%	10.1%	12.5%	14.4%	10.6%

SOURCE: 2000 and 2010 Census population and 2014 and 2015 population estimates by age groups, ACS Demographic and Housing Estimates, U.S. Census Bureau (www.census.gov [March 2017]).

Table 6
U.S. Census Bureau Population by Race and Hispanic Origin
for the Three-County Medical Service Area and the State of North Dakota

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2000 Census							
MSA	5,295	5	16	19	27	5,362	45
% of Total	98.8%	0.1%	0.3%	0.4%	0.5%	100.0%	0.8%
N. Dakota	593,181	3,916	31,329	6,376	7,398	642,200	8,595
% of Total	92.4%	0.6%	4.9%	1.0%	1.2%	100.0%	1.3%
2010 Census							
MSA	4,998	4	53	39	39	5,133	110
% of Total	97.4%	0.1%	1.0%	0.8%	0.8%	100.0%	2.1%
N. Dakota	605,449	7,960	36,591	10,738	11,853	672,591	13,467
% of Total	90.0%	1.2%	5.4%	1.6%	1.8%	100.0%	2.0%
2014 Estimate							
MSA	4,955	13	53	107	42	5,170	131
% of Total	95.8%	0.3%	1.0%	2.1%	0.8%	100.0%	2.5%
N. Dakota	628,770	10,781	36,989	13,549	14,836	704,925	18,250
% of Total	89.2%	1.5%	5.2%	1.9%	2.1%	100.0%	2.6%
2015 Estimate							
MSA	4,998	17	64	91	52	5,222	159
% of Total	95.7%	0.3%	1.2%	1.7%	1.0%	100.0%	3.0%
N. Dakota	640,208	11,872	38,286	15,142	16,132	721,640	20,569
% of Total	88.7%	1.6%	5.3%	2.1%	2.2%	100.0%	2.9%
% Change '00 to '10							
MSA	-5.6%	-20.0%	231.3%	105.3%	44.4%	-4.3%	144.4%
N. Dakota	2.1%	103.3%	16.8%	68.4%	60.2%	4.7%	56.7%
% Change '10 to '14							
MSA	-0.9%	225.0%	0.0%	174.4%	7.7%	0.7%	19.1%
N. Dakota	3.9%	35.4%	1.1%	26.2%	25.2%	4.8%	35.5%
% Change '10 to '15							
MSA	0.0%	325.0%	20.8%	133.3%	33.3%	1.7%	44.5%
N. Dakota	5.7%	49.1%	4.6%	41.0%	36.1%	7.3%	52.7%

SOURCE: 2000 and 2010 Census population 2014 and 2015 population estimates by race and ethnic origin, U.S. Census Bureau (www.census.gov [March 2017]).

Table 7
Employment and Payroll for Health Services
in the Three-County Medical Service Area and North Dakota

	<i>Employment</i>			
	Health Services	Total MSA	Health Services as a % of Total MSA Employment	Health Services as a % of Total State Employment
2004	294	1,195	24.6%	19.4%
2005	307	1,211	25.4%	18.6%
2006	311	1,251	24.9%	18.4%
2007	300	1,433	20.9%	17.5%
2008	296	1,431	20.7%	17.0%
2009	282	1,366	20.6%	18.0%
2010	256	1,496	17.1%	18.6%
2011	227	1,571	14.4%	18.4%
2012	183	1,778	10.3%	17.4%
2013	144	1,654	8.7%	17.3%
2014	164	1,926	8.5%	16.5%
% Change '04-'14	-44.2%	61.2%		
	<i>Payroll (\$1000s)</i>			
	Health Services	Total MSA	Health Services as a % of Total MSA Payroll	Health Services as a % of Total State Payroll
2004	6,349	25,037	25.4%	20.9%
2005	6,745	26,567	25.4%	20.7%
2006	7,267	30,318	24.0%	19.9%
2007	7,689	35,268	21.8%	18.6%
2008	8,784	41,295	21.3%	18.4%
2009	8,076	37,448	21.6%	19.5%
2010	7,669	51,664	14.8%	19.5%
2011	6,890	63,836	10.8%	18.7%
2012	3,996	78,417	5.1%	17.0%
2013	3,060	83,720	3.7%	16.6%
2014	4,116	88,769	4.6%	15.7%
% Change '04-'14	-35.2%	254.6%		

SOURCE: U.S. Census Bureau, County Business Patterns; 2004-2014 based on NAICS (www.census.gov March 2017).

Estimates

payroll for the MSA and the state. The data show that the MSA health services employment decreased from 2004 to 2014 by 44.2 percent while the total MSA employment increased 61.2 percent. MSA health services employment as a percent of total MSA employment was 24.6 percent in 2004 and decreased to 8.5 percent in 2014; the state health services employment was 19.4 percent of total state employment in 2004 and decreased to 16.5 percent in 2014.

MSA health services payroll decreased from 2004 to 2014 by 35.2 percent, while total MSA payroll increased 254.6 percent from 2004 to 2014. MSA health services payroll as a percent of total MSA payroll was 25.4 percent in 2004 and decreased to 4.6 percent in 2014. This compares to the state health services payroll as a percent of total state payroll of 20.9 percent in 2004 which decreased to 15.7 percent in 2014.

Data from U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (BEA) are illustrated in **Tables 8** and **9**. **Table 8** shows full- and part-time employment by type and by industry for the three-county MSA compared to North Dakota. North Dakota was used since two of the three counties are in North Dakota and these two counties have the larger proportion of population. There was a significant amount of data that were not included in the original data from BEA; however, the missing data were estimated based on county and state trends. There is a significant error margin in these data.

Total MSA employment decreased 4.0 percent from 2014 to 2015, while North Dakota decreased by 1.3 percent. The MSA health care and social assistance sector was estimated at 363 employees in 2014 and 366 in 2015, a 0.8 percent increase. The North Dakota health care and social assistance sector showed a 1.9 percent increase. The health care and social assistance sector for the MSA in 2014 represented 11.5 percent of total private employment and in 2015, 12.1 percent. The North Dakota health care and social assistance sector accounted for 13.0

Table 8
Full- & Part-Time Employment by NAICS¹ Industry
for the Three-County Medical Service Area and North Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	MSA		ND	MSA		ND	% Chg	% Chg
	No. of Jobs	% of Total	% of Total	No. of Jobs	% of Total	% of Total	Three-Co. MSA	North Dakota
Total Employment	<u>4,535</u>	<u>100.0%</u>	<u>100.0%</u>	<u>4,354</u>	<u>100.0%</u>	<u>100.0%</u>	-4.0%	-1.3%
Wage & Salary	2,825	62.3%	79.1%	2,622	60.2%	78.4%	-7.2%	-2.1%
Proprietors'	<u>1,710</u>	<u>37.7%</u>	<u>20.9%</u>	<u>1,732</u>	<u>39.8%</u>	<u>21.6%</u>	1.3%	1.8%
Farm proprietors'	717	41.9%	20.9%	709	40.9%	20.3%	-1.1%	-1.1%
Nonfarm proprietors ²	<u>993</u>	<u>58.1%</u>	<u>79.1%</u>	<u>1,023</u>	<u>59.1%</u>	<u>79.7%</u>	3.0%	2.5%
By Industry:								
Farm employment	931	20.5%	5.6%	866	19.9%	5.2%	-7.0%	-7.1%
Nonfarm employment	<u>3,604</u>	<u>79.5%</u>	<u>94.4%</u>	<u>3,488</u>	<u>80.1%</u>	<u>94.8%</u>	-3.2%	-0.9%
Private employment	<u>3,148</u>	<u>87.3%</u>	<u>85.0%</u>	<u>3,024</u>	<u>69.5%</u>	<u>84.7%</u>	-3.9%	-1.3%
For, fshng, & related	57	1.8%	1.0%	57	1.9%	1.0%	0.0%	0.7%
Mining	489	15.5%	7.5%	412	13.6%	6.2%	-15.7%	-17.8%
Utilities	8	0.3%	0.8%	8	0.3%	0.8%	0.0%	3.6%
Construction	406	12.9%	9.3%	315	10.4%	9.3%	-22.4%	-1.4%
Manufacturing	61	1.9%	5.6%	59	2.0%	5.6%	-3.3%	-1.6%
Wholesale trade	290	9.2%	5.9%	306	10.1%	5.9%	5.5%	-1.2%
Retail trade	373	11.8%	12.7%	378	12.5%	12.9%	1.3%	0.7%
Transp & wrhsng	148	4.7%	6.0%	148	4.9%	5.7%	0.0%	-6.0%
Information	34	1.1%	1.6%	34	1.1%	1.6%	0.0%	-2.4%
Finance & Ins	108	3.4%	5.4%	110	3.6%	5.6%	1.9%	0.7%
RE/rental/leasing	116	3.7%	4.8%	119	3.9%	5.0%	2.6%	2.5%
Prof, sci, & techn svcs	82	2.6%	4.8%	90	3.0%	5.0%	9.8%	2.1%
Mgmt of cos & enterpr	65	2.1%	1.2%	67	2.2%	1.2%	3.1%	1.5%
Admin/waste svcs	77	2.4%	4.0%	78	2.6%	4.0%	1.3%	-2.0%
Educ services	66	2.1%	1.3%	62	2.1%	1.3%	-6.1%	5.1%
Hlth care & soc assist	363	11.5%	13.0%	366	12.1%	13.4%	0.8%	1.9%
Arts/entrtmmt/rec	36	1.1%	1.6%	41	1.4%	1.6%	13.9%	1.5%
Accommod/food svcs	190	6.0%	8.0%	200	6.6%	8.1%	5.3%	0.2%
Other except pub admin	<u>179</u>	<u>5.7%</u>	<u>5.6%</u>	<u>174</u>	<u>5.8%</u>	<u>5.7%</u>	-2.8%	0.5%
Gov't & Gov't entrprses	<u>456</u>	<u>14.5%</u>	<u>15.0%</u>	<u>464</u>	<u>15.3%</u>	<u>15.3%</u>	1.8%	1.4%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [April 2017]).

¹ The estimates of employment for 2011 forward are based on the 2012 North American Industry Classification System.

² Excludes limited partners.

Original data were not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Table 9
Personal Income by Major Component and Earnings by Industry based on NAICS¹
for the Three-County Medical Service Area and North Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	MSA		ND	MSA		ND	% Chg	% Chg
	Income (\$1000s)	% Total	% Total	Income (\$1000s)	% Total	% Total	Three-Co. MSA	North Dakota
Total Personal Income	<u>357,552</u>	<u>100.0%</u>	<u>100.0%</u>	<u>323,007</u>	<u>100.0%</u>	<u>100.0%</u>	-9.7%	-1.2%
Earnings by Place of Work	<u>258,307</u>	<u>72.2%</u>	<u>79.4%</u>	<u>218,970</u>	<u>67.8%</u>	<u>77.7%</u>	-15.2%	-3.3%
Wage & Salary Dsbrsmnts	128,770	49.9%	70.6%	115,503	52.7%	71.3%	-10.3%	-2.3%
Proprietors' income ²	102,696	39.8%	14.5%	78,221	35.7%	13.3%	-23.8%	-11.2%
All other earnings	<u>26,841</u>	<u>10.4%</u>	<u>14.9%</u>	<u>25,246</u>	<u>11.5%</u>	<u>15.4%</u>	-5.9%	-0.2%
Total by Industry:								
Farm earnings	64,780	25.1%	3.5%	34,913	15.9%	1.2%	-46.1%	-67.4%
Nonfarm earnings	<u>193,527</u>	<u>74.9%</u>	<u>96.5%</u>	<u>184,057</u>	<u>84.1%</u>	<u>98.8%</u>	-4.9%	-1.0%
Private nonfarm earnings	<u>173,113</u>	<u>89.5%</u>	<u>84.8%</u>	<u>162,652</u>	<u>88.4%</u>	<u>83.9%</u>	-6.0%	-2.0%
For, fshng, & related	1,750	1.0%	0.6%	1,840	1.1%	0.6%	5.1%	6.0%
Mining	36,656	21.2%	14.3%	28,118	17.3%	11.3%	-23.3%	-22.4%
Utilities	642	0.4%	1.7%	714	0.4%	1.9%	11.2%	8.4%
Construction	35,974	20.8%	12.6%	27,853	17.1%	12.7%	-22.6%	-0.7%
Manufacturing	3,958	2.3%	6.3%	4,801	3.0%	6.8%	21.3%	7.1%
Wholesale trade	25,753	14.9%	8.5%	29,345	18.0%	8.5%	13.9%	-2.6%
Retail trade	12,410	7.2%	7.7%	12,511	7.7%	8.0%	0.8%	2.0%
Transp & wrhsng	10,601	6.1%	8.8%	10,424	6.4%	8.4%	-1.7%	-5.7%
Information	767	0.4%	1.8%	702	0.4%	1.8%	-8.5%	-2.4%
Finance & Ins	3,656	2.1%	4.7%	4,174	2.6%	5.2%	14.2%	7.4%
RE/rental/leasing	2,450	1.4%	3.6%	2,440	1.5%	3.5%	-0.4%	-5.2%
Prof, sci, & techn svcs	4,164	2.4%	5.7%	4,333	2.7%	5.9%	4.1%	0.9%
Mgmt of cos & enterpr	4,011	2.3%	1.7%	4,347	2.7%	1.9%	8.4%	5.0%
Admin/waste svcs	2,090	1.2%	2.6%	1,968	1.2%	2.6%	-5.8%	-1.5%
Educ services	1,755	1.0%	0.5%	1,492	0.9%	0.5%	-15.0%	1.8%
Hlth care & soc assist	15,618	9.0%	11.8%	16,314	10.0%	13.0%	4.5%	7.7%
Arts/entrtnmnt/rec	302	0.2%	0.4%	420	0.3%	0.4%	39.1%	8.0%
Accommod/food svcs	3,909	2.3%	3.2%	3,864	2.4%	3.2%	-1.2%	-2.5%
Other except pub admin	<u>6,647</u>	<u>3.8%</u>	<u>3.7%</u>	<u>6,992</u>	<u>4.3%</u>	<u>3.9%</u>	5.2%	3.7%
Govt & govt enterpr	<u>20,414</u>	<u>10.5%</u>	<u>15.2%</u>	<u>21,405</u>	<u>11.6%</u>	<u>16.1%</u>	4.9%	4.9%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]).

¹The estimates are based on the North American Industry Classification System (NAICS). The estimates for 2011 forward are based on the 2012 NAICS.

²Proprietors' income includes the inventory valuation adjustment and capital consumption adjustment.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

percent of primary employment in 2014 and 13.4 percent in 2015. The largest private employment industry for the MSA was mining in both 2014 and 2015. For North Dakota, the largest industry in 2014 and 2015 was health care and social assistance. The industry with the largest percent change from 2014 to 2015 was construction for the MSA with a 22.4 percent decrease and was mining for North Dakota with a 17.8 percent decrease.

Table 9 shows personal income (earnings) by major components and by industry for the MSA and North Dakota for 2014 and 2015. Total MSA income decreased 9.7 percent from 2014 to 2015, while North Dakota decreased 1.2 percent. For the MSA, health care and social assistance made up 9.0 and 10.0 percent of all private nonfarm income in years 2014 and 2015 respectively; the state health care and social assistance income was 11.8 percent in 2014 and 13.0 percent in 2015. This sector increased in income for both the MSA (4.5 percent) and the state (7.7 percent). The largest industry was mining for the MSA in 2014 and wholesale trade in 2015. For North Dakota, the largest industry in 2014 was mining and in 2015, health care and social assistance. The industry with the largest percent change from 2014 to 2015 was the arts, entertainment, and recreation industry for the MSA (39.1 percent) and was the mining industry for the state (-22.4 percent).

Basic economic indicators for the three-county MSA, North Dakota, and the United States are illustrated in **Table 10**. North Dakota was used since two of the three counties are in North Dakota and these two counties have the larger proportion of population.

BEA data for 2015 show per capita income in the MSA at \$61,849, which is higher than North Dakota at \$55,950 and the nation at \$48,112. The employment and labor force data are from the U.S. Department of Labor, Bureau of Labor Statistics. For 2016, the annual unemployment rate was estimated at 2.5 percent for the MSA, compared to 3.3 percent for North

Table 10
Economic Indicators for the Three-County Medical Service Area,
North Dakota and the United States

Indicator	MSA	North Dakota	United States
Total Personal Income (2015)	\$322,977,000	\$42,349,688,000	\$15,463,981,000,000
Per Capita Income (2015)	\$61,849	\$55,950	\$48,112
Employment (2016)	2,884	414,000	151,436,000
Unemployment (2016)	71	14,000	7,751,000
Unemployment Rate (2016)	2.5%	3.3%	4.9%
Employment (January 2017)	2,694	418,476	152,081,000
Unemployment (January 2017)	79	12,594	7,635,000
Unemployment Rate (January 2017)	2.9%	3.0%	4.8%
% of People in Poverty (2015)	10.3%	11.5%	15.5%
% Under 18 in Poverty (2015)	8.0%	13.6%	21.7%
Transfer Receipts (2015)	\$37,164,000	\$5,326,398,000	\$2,678,606,000,000
Transfer Receipts as a % of Total Personal Income	11.5%	12.6%	17.3%
Transfer Receipts -- Subcategories			
Medicare (2015)	\$10,228,000	\$1,099,469,000	\$628,220,000,000
% of Total	27.5%	20.6%	23.5%
Medicaid (2015)	\$5,865,000	\$965,701,000	\$551,843,000,000
% of Total	15.8%	18.1%	20.6%

SOURCE: Employment and unemployment data, U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2017]); Personal income, per capita income, and transfer receipts, U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]); Poverty data, U.S. Census Bureau (www.census.gov [March 2017]).

Estimates only; averages of the three counties' averages are estimates only.

Estimates only; weighted averages based on unemployment were calculated; these should be considered estimates only.

Dakota and 4.9 percent for the U.S. For the preliminary year-to-date January 2017 employment and labor force data, the unemployment rate for the MSA was estimated at 2.9 percent; this compared to 3.0 percent for North Dakota and 4.8 percent for the U.S.

Based on 2015 U. S. Census poverty data, the MSA had 10.3 percent of the total people in poverty, while North Dakota had 11.5 percent and the nation, 15.5 percent. For the poverty percent for people under the age of 18, the MSA had 8.0 percent; this compared to 13.6 percent for North Dakota and 21.7 percent for the U.S.

From BEA 2014 data, transfer receipts as a percentage of total personal income for the MSA was 11.5 percent; as compared to North Dakota at 12.6 percent and the nation at 17.3 percent. This indicator shows the percent of total personal income that comes from federal and state funds for a particular geographic area. Two subcategories are provided: Medicare and Medicaid. The Medicare transfer receipts were 27.5 percent for the MSA, compared to North Dakota at 20.6 percent and the nation at 23.5 percent. The Medicaid transfer receipts were 15.8 percent for the MSA, compared to 18.1 percent for North Dakota and 20.6 percent for the nation.

Direct Economic Activities of Southwest Healthcare Services

The mission of Southwest Healthcare Services is to provide excellence in healthcare to those they are privileged to serve. Southwest Healthcare Services is guided by faith-based leadership and is a family of specialists, each performing a unique service. Southwest Healthcare Services provides the following services:

- 23-bed Critical Access Hospital
- 40-bed Long Term Care Facility
- Rural Health Clinic
- 12-unit Assisted Living Facility
- 12-unit Independent Living Facility
- Emergency Medical Services

The direct economic activities of Southwest Healthcare Services include the employees and their wages, salaries, and benefits to provide the health care services. The hospital includes the employment from operations of the hospital and from operations of the long term care facility. Construction impact was provided annually for four years, 2015 - 2018.

From **Table 11**, the total direct employment includes 98 jobs for the hospital and 96 jobs for the long term care facility, for a total of 194 direct jobs for Southwest Healthcare Services. These jobs generate wages, salaries, and benefits and contractual compensation (labor income) in the amount of \$4.0 million for the hospital and \$2.7 million for the long term care facility, for a combined total of \$6.7 million. These are the direct impacts from the operations of Southwest Healthcare Services on the three-county medical service area economy.

Table 11
Direct Economic Activities of Southwest Healthcare Services
in the Three-County Medical Service Area, North Dakota

DIRECT ACTIVITIES FROM OPERATIONS			
Categories		Employees	Labor Income
Hospital, 2016		98	\$3,964,093
Long Term Care, 2016		96	\$2,710,698
Operations Total		<u>194</u>	<u>\$6,674,791</u>
DIRECT ACTIVITIES FROM CONSTRUCTION			
Categories	Construction	Employees	Labor Income
Construction Activities, 2015	<u>\$7,900,000</u>	<u>47</u>	<u>\$2,826,063</u>
Construction Activities, 2016	<u>\$21,600,000</u>	<u>128</u>	<u>\$7,696,512</u>
Construction Activities, 2017	<u>\$1,830,000</u>	<u>11</u>	<u>\$661,419</u>
Construction Activities, 2018	<u>\$150,000</u>	<u>1</u>	<u>\$60,129</u>

SOURCE: Local data from Southwest Healthcare Services, 2016; Construction ratios and average construction compensation from IMPLAN Group, LLC.

The economic impact of construction activities can also be measured for employment and labor income. These activities only occur during the year of construction, while operations occur each and every year that Southwest Healthcare Services continues to operate. Data from IMPLAN were used to estimate the number of direct construction jobs and the direct construction labor income. In 2015, construction activities were \$7.9 million; the construction generated 47 jobs with labor income of \$2.8 million. In 2016, construction is estimated at \$21.6 million; this construction will generate an estimated 128 jobs with an estimated \$7.7 million in labor income. In 2017, construction is estimated at \$1.8 million generating eleven jobs with \$0.6 million labor income. In 2018, construction is estimated at \$150,000 generating one job with \$60,129 in labor income. These are direct impacts from construction activities of Southwest Healthcare Services on the MSA economy over the four year period.

The Impact of Southwest Healthcare Services

The direct impacts of Southwest Healthcare Services, measured by employment and labor income, are only a portion of the total impact. There are additional economic impacts created as Southwest Healthcare Services and its employees spend money. These are known as secondary impacts and are measured by multipliers using an input-output model and data from IMPLAN (the model and data are further discussed in **Appendix B**). This model is widely used by economists and other academics across the U. S.

A brief description of the input-output model and the multiplier effect is included and illustrated in **Figure 2**. **Figure 2** illustrates the major flows of goods, services, and dollars of any economy; in this study, it is a multi-county medical service area. The businesses which sell some or all of their goods and services to buyers outside of the MSA are the foundation of a MSA's economy. Such a business is a basic industry. The flow of products out of, and dollars into, a MSA are represented by the two arrows in the upper right portion of **Figure 2**. To produce these goods and services for "export" outside of the MSA, the basic industry purchases inputs from outside of the MSA (upper left portion of **Figure 2**), labor from the residents or "households" of the MSA (left side of **Figure 2**), and inputs from service industries located within the MSA (right side of **Figure 2**). The flow of labor, goods, and services in the MSA is completed by households using their earnings to purchase goods and services from the MSA's service industries (bottom of **Figure 2**). It is evident from the interrelationships shown in **Figure 2** that a change in any one segment of a MSA's economy will have reverberations throughout the entire economic system of the MSA.

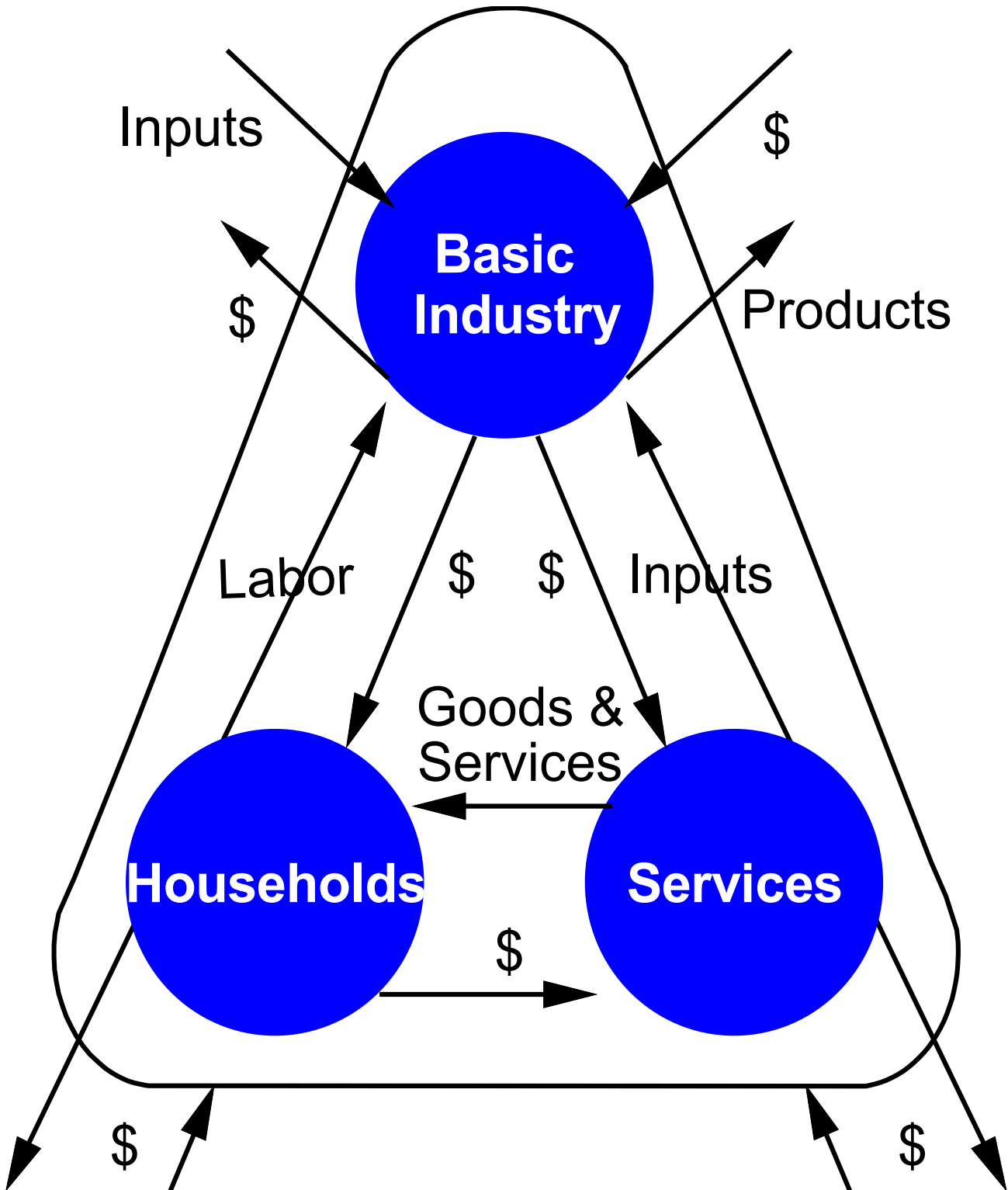


Figure 2
Medical Service Area Economic System

Consider, for instance, the closing of a hospital. The services sector will no longer pay employees and the dollars going to households will stop. Likewise, the hospital will not purchase goods from other businesses, and the dollar flow to other businesses will stop. This decreases income in the "households" segment of the economy. Since earnings would decrease, households decrease their purchases of goods and services from businesses within the "services" segment of the economy. This, in turn, decreases these businesses' purchases of labor and inputs. Thus, the change in the economic base works its way throughout the entire local economy.

The total impact of a change in the economy consists of direct, indirect, and induced impacts. Direct impacts are the changes in the activities of the impacting industry, such as the closing of a hospital. The impacting business, such as the hospital, changes its purchases of inputs as a result of the direct impact. This also produces an indirect impact in the business sectors. Both the direct and indirect impacts change the flow of dollars to the MSA's households. The households alter their consumption accordingly. The effect of this change in household consumption upon businesses in a MSA is referred to as an induced impact.

A measure is needed that yields the effects created by an increase or decrease in economic activity. In economics, this measure is called the multiplier effect. Multipliers are used in this report. An employment multiplier is defined as:

“...the ratio between direct employment, or that employment used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment.”

An employment multiplier of 3.0 indicates that if one job is created by a new industry, 2.0 jobs are created in other sectors due to business (indirect) and household (induced) spending. The same concept applies to labor income and output multipliers.

The Impact from Operations Activities

The direct employment and labor income impacts of Southwest Healthcare Services' operation activities were obtained from Southwest Healthcare Services. The multipliers were derived from IMPLAN data.

The hospital employs 98 employees (**Table 12**). The hospital employment multiplier is 1.39; this means for every job in the hospital sector, another 0.39 job is created in other sectors (businesses) in the MSA. The secondary employment generated in the MSA from the hospital sector is estimated to be 38 jobs. The hospital has a total impact of 136 jobs on the local economy of the MSA. With an employment multiplier of 1.18 for the long term care facility, the total employment impact is 113 jobs; this includes direct jobs of 96 and secondary jobs of 17. The total impact from operations is 249 jobs in the MSA, which includes 194 direct jobs and 55 secondary jobs.

Table 12
Economic Impact of Operations of Southwest Healthcare Services
on the Three-County Medical Service Area, 2016

EMPLOYMENT IMPACT FROM OPERATIONS				
Categories	Direct Employment	Employment Multiplier	Secondary Employment Impact	Total Employment Impact
Hospital, 2016	98	1.39	38	136
Long Term Care, 2016	96	1.18	17	113
Operations Total	<u>194</u>		<u>55</u>	<u>249</u>

LABOR INCOME IMPACT FROM OPERATIONS				
Categories	Direct Labor Income	Labor Income Multiplier	Secondary Labor Income Impact	Total Labor Income Impact
Hospital, 2016	\$3,964,093	1.30	\$1,189,228	\$5,153,321
Long Term Care, 2016	<u>\$2,710,698</u>	1.23	<u>\$623,461</u>	<u>\$3,334,159</u>
Operations Total	<u>\$6,674,791</u>		<u>\$1,812,689</u>	<u>\$8,487,480</u>

SOURCE: Direct employment and labor income data for 2016 provided by Southwest Healthcare Services, 2016; Multipliers from IMPLAN Group, LLC.

Data obtained from Southwest Healthcare Services indicate that direct labor income for the hospital is nearly \$4.0 million. Using the hospital labor income multiplier of 1.30 derived from IMPLAN, Southwest Healthcare Services generates secondary labor income impact of \$1.2 million and total labor income impact of \$5.2 million. Using the long term care labor income multiplier, the long term care facility has a direct labor income impact of \$2.7 million, secondary labor income impact of \$0.6 million, and total labor income impact of \$3.3 million. For the hospital and long term care facility combined, Southwest Healthcare Services has direct labor income impact of \$6.7 million, secondary labor income impact of \$1.8 million, and total labor income impact of \$8.5 million.

The Impact from Construction Activities

The employment and labor income impacts from the 2015 actual construction and the 2016-2018 estimated construction activities of Southwest Healthcare Services are presented in **Table 13**. Direct employment of 47 jobs and labor income of \$2.8 million from the \$7.9 million construction activities in 2015 were derived from IMPLAN data. Estimated direct employment of 128 jobs and labor income of \$7.7 million from the \$21.6 million construction activities in 2016 were also derived from IMPLAN data. For 2017, construction is estimated at \$1.8 million and will generate an estimated eleven jobs with \$0.6 million labor income. In 2018, construction is estimated at \$150,000 and will generate an estimated one job with labor income of \$60,129. The multipliers were derived from IMPLAN data.

In 2015 with a construction employment multiplier of 1.48, the construction activities generated 47 direct employment impact, 23 secondary employment impact and 70 total employment impact. In 2015 with a construction labor income multiplier of 1.32, the construction activities generated \$2.8 million direct labor income impact, \$0.9 million secondary labor income impact, and \$3.7 million total labor income impact. The same multipliers will be used for all the construction activities as these are the latest available.

In 2016, the construction activities are estimated to generate 128 direct employment impact, 61 secondary employment impact and 189 total employment impact. In 2016, the construction activities generated \$2.8 million direct labor income impact, \$0.9 million secondary labor income impact, and \$3.7 million total labor income impact. The estimated impacts from the 2017 and 2018 construction activities are also provided in **Table 13**.

Table 13
Economic Impact of Construction Activities of Southwest Healthcare Services
on the Three-County Medical Service Area, 2015-2018

EMPLOYMENT IMPACT FROM CONSTRUCTION				
Categories	Direct Employment	Employment Multiplier	Secondary Employment Impact	Total Employment Impact
Construction Activities, 2015	<u>47</u>	1.48	<u>23</u>	<u>70</u>
Construction Activities, 2016	<u>128</u>	1.48	<u>61</u>	<u>189</u>
Construction Activities, 2017	<u>11</u>	1.48	<u>5</u>	<u>16</u>
Construction Activities, 2018	<u>1</u>	1.48	<u>0</u>	<u>1</u>
LABOR INCOME IMPACT FROM CONSTRUCTION				
Categories	Direct Labor Income	Labor Income Multiplier	Secondary Labor Income Impact	Total Labor Income Impact
Construction Activities, 2015	<u>\$2,826,063</u>	1.32	<u>\$904,340</u>	<u>\$3,730,403</u>
Construction Activities, 2016	<u>\$7,696,512</u>	1.32	<u>\$2,462,884</u>	<u>\$10,159,396</u>
Construction Activities, 2017	<u>\$661,419</u>	1.32	<u>\$211,654</u>	<u>\$873,073</u>
Construction Activities, 2018	<u>\$60,129</u>	1.32	<u>\$19,241</u>	<u>\$79,370</u>

SOURCE: Construction ratios and construction average compensation used to estimate construction employment and labor income from IMPLAN data and multipliers from IMPLAN Group, LLC.

References

- Alward, G., Sivertz, E., Olson, D., Wagnor, J., Serf, D., and Lindall, S. Micro IMPLAN Software Manual. Stillwater, MN, University of Minnesota Press. 1989.
- Chirilos, Thomas N. and Gilbert Nostel (1985). "Further Evidence on the Economic Effects of Poor Health." Review of Economics and Statistics. 67(1), 61-69.
- Doeksen, Gerald A., Tom Johnson, Diane Biard-Holmes and Val Schott (1988). "A Healthy Health Sector is Crucial for Community Economic Development." Journal of Rural Health. Vol. 14, No. 1, pp. 66-72.
- Doeksen, Gerald A., Johnson, Tom, and Willoughby, Chuck. Measuring the Economic Importance of the Health Sector on a Local Economy: A Brief Literature Review and Procedures to Measure Local Impacts. Southern Rural Development Center. SRDC Pub. No. 202. 1997.
- Lyne, Jack (1988). "Quality-of-Life Factors Dominate Many Facility Location Decision." Site Selection Handbook. (33) 868-870.
- Lyne, Jack (1990). "Health Care and Education: Important QOL Factors, But Who's Accurately Measuring Them?" Site Selection Handbook. 35(5), 832-838.
- McGuire T. (1986). On the Relationship Between Infrastructure and Economic Development. Stony Brook: State University of New York.
- Miernyk, W.H. The Element of Input-Output Analysis. New York, NY; Random House. 1965.
- Minnesota IMPLAN Group, Inc. User's Guide, Analysis Guide, Data Guide: IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition. June 2000.
- Reginer, V. and L.E. Gelwicks (1981). "Preferred Supportive Services for Middle to Higher Income Retirement Housing." The Gerontologist. 21(1), 54-58.
- Scott, Loren C., Lewis H. Smith, and Brian Rungeling (1997). "Labor Force Participation in Southern Rural Labor Markets." American Journal of Agricultural Economics. 59(2), 266-274.
- Siverts, Eric, Charles Palmer, Ken Walters, and Greg Alward. IMPLAN USER'S GUIDE. U.S. Department of Agriculture, Forest Service, Systems Application Unit, Land Management Planning, Fort Collins, Colorado. 1983.
- Toseland, R., and J. Rasch (1978). "Factors Contributing to Older Persons' Satisfaction with Their Communities." The Gerontologist. 18(4), 395-402.

Appendix A
County Data Tables

Appendix Table 1a
Population and Percent Change for Bowman Towns and Rural Area,
Bowman County, and the State of North Dakota

	2000 Population	2010 Population	2014 Estimate	2015 Estimate	% Change '00 to '10	% Change '10-'14	% Change '10-'15
Bowman (County Seat)	1,600	1,650	1,649	1,677	3.1%	-0.1%	1.6%
Gascoyne	23	16	9	11	-30.4%	-43.8%	-31.3%
Rhame	189	169	199	176	-10.6%	17.8%	4.1%
Scranton	304	281	270	317	-7.6%	-3.9%	12.8%
Rural Area	<u>1,126</u>	<u>1,035</u>	<u>1,065</u>	<u>1,040</u>	-8.1%	2.9%	0.5%
Bowman County	<u>3,242</u>	<u>3,151</u>	<u>3,192</u>	<u>3,221</u>	-2.8%	1.3%	2.2%
North Dakota	642,200	672,591	704,925	721,640	4.7%	4.8%	7.3%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 1b
Population and Percent Change for Slope County Towns and Rural Area,
Slope County, and the State of North Dakota

	2000 Population	2010 Population	2014 Estimate	2015 Estimate	% Change '00 to '10	% Change '10-'14	% Change '10-'15
Amidon (County Seat)	26	20	32	32	-23.1%	60.0%	60.0%
Marmarth	140	136	137	154	-2.9%	0.7%	13.2%
Rural Area	<u>601</u>	<u>571</u>	<u>546</u>	<u>487</u>	-5.0%	-4.4%	-14.7%
Slope County	<u>767</u>	<u>727</u>	<u>715</u>	<u>673</u>	-5.2%	-1.7%	-7.4%
North Dakota	642,200	672,591	704,925	721,640	4.7%	4.8%	7.3%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 1c
Population and Percent Change for Harding County Towns and Rural Area,
Harding County, and the State of South Dakota

	2000 Population	2010 Population	2014 Estimate	2015 Estimate	% Change '00 to '10	% Change '10-'14	% Change '10-'15
Buffalo (County Seat)	380	330	358	359	-13.2%	8.5%	8.8%
Camp Crook	56	63	84	85	12.5%	33.3%	34.9%
Rural Area	<u>917</u>	<u>862</u>	<u>821</u>	<u>884</u>	-6.0%	-4.8%	2.6%
Harding County	<u>1,353</u>	<u>1,255</u>	<u>1,263</u>	<u>1,328</u>	-7.2%	0.6%	5.8%
South Dakota	754,844	814,180	834,708	843,190	7.9%	2.5%	3.6%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 2a
2010 Census Population and Population Projections
for Bowman County, North Dakota

	2010 Census	2019 Projection	2024 Projection	2029 Projection	% Change '10-'19	% Change '10-'24	%Change '10-'29
Bowman County	<u>3,151</u>	<u>3,468</u>	<u>3,554</u>	<u>3,563</u>	10.1%	12.8%	13.1%
North Dakota	672,591	813,282	852,615	891,268	20.9%	26.8%	32.5%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]); North Dakota Housing and Finance Agency, Statewide Housing Needs Assessment, Detailed Tables (www.ndhfa.org [March 2017]).

Appendix Table 2b
2010 Census Population and Population Projections
for Slope County, North Dakota

	2010 Census	2019 Projection	2024 Projection	2029 Projection	% Change '10-'19	% Change '10-'24	%Change '10-'29
Slope County	<u>727</u>	<u>801</u>	<u>778</u>	<u>735</u>	10.2%	7.0%	1.1%
North Dakota	672,591	813,282	852,615	891,268	20.9%	26.8%	32.5%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]); North Dakota Housing and Finance Agency, Statewide Housing Needs Assessment, Detailed Tables (www.ndhfa.org [March 2017]).

Appendix Table 2c
2010 Census Population and Population Projections
for Harding County, South Dakota

	2010 Census	2020 Projection	2025 Projection	2030 Projection	% Change '10-'20	% Change '10-'25	%Change '10-'30
Harding County	<u>1,255</u>	<u>1,152</u>	<u>1,113</u>	<u>1,050</u>	-8.2%	-11.3%	-16.3%
South Dakota	814,180	889,447	922,748	951,885	9.2%	13.3%	16.9%

SOURCE: U.S. Census Bureau (www.census.gov [March 2017]); South Dakota Department of Labor and Regulation (www.dlr.sd.gov [March 2017]).

Appendix Table 3a-1
U.S. Census Bureau Population by Age Groups and Gender
for Bowman County and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2000 Census									
Bowman	284	97	49	380	360	430	1,600	763	837
Gascoyne	3	4	0	2	6	8	23	13	10
Rhame	33	17	10	57	36	36	189	91	98
Scranton	61	26	4	73	86	54	304	149	155
Rural Area	<u>221</u>	<u>107</u>	<u>35</u>	<u>286</u>	<u>298</u>	<u>179</u>	<u>1,126</u>	<u>560</u>	<u>566</u>
Bowman County	602	251	98	798	786	707	3,242	1,576	1,666
Percent of Total	18.6%	7.7%	3.0%	24.6%	24.2%	21.8%	100.0%	48.6%	51.4%
North Dakota	129,846	53,618	50,503	174,891	138,864	94,478	642,200	320,524	321,676
Percent of Total	20.2%	8.3%	7.9%	27.2%	21.6%	14.7%	100.0%	49.9%	50.1%
2010 Census									
Bowman	255	97	74	329	454	441	1,650	800	850
Gascoyne	0	2	0	4	3	7	16	10	6
Rhame	24	9	13	37	60	26	169	89	80
Scranton	58	11	9	54	84	65	281	142	139
Rural Area	<u>224</u>	<u>51</u>	<u>33</u>	<u>218</u>	<u>356</u>	<u>153</u>	<u>1,035</u>	<u>539</u>	<u>496</u>
Bowman County	561	170	129	642	957	692	3,151	1,580	1,571
Percent of Total	17.8%	5.4%	4.1%	20.4%	30.4%	22.0%	100.0%	50.1%	49.9%
North Dakota	124,461	47,474	58,956	165,747	178,476	97,477	672,591	339,864	332,727
Percent of Total	18.5%	7.1%	8.8%	24.6%	26.5%	14.5%	100.0%	50.5%	49.5%
2014 Estimate									
Bowman	305	80	99	340	443	382	1,649	794	855
Gascoyne	0	0	0	0	0	9	9	6	3
Rhame	38	7	18	51	72	13	199	112	87
Scranton	51	16	8	53	82	60	270	130	140
Rural Area	<u>215</u>	<u>91</u>	<u>22</u>	<u>227</u>	<u>322</u>	<u>188</u>	<u>1,065</u>	<u>518</u>	<u>547</u>
Bowman County	609	194	147	671	919	652	3,192	1,560	1,632
Percent of Total	19.1%	6.1%	4.6%	21.0%	28.8%	20.4%	100.0%	48.9%	51.1%
North Dakota	132,664	48,403	65,331	176,711	180,914	100,902	704,925	358,862	346,063
Percent of Total	18.8%	6.9%	9.3%	25.1%	25.7%	14.3%	100.0%	50.9%	49.1%

Appendix Table 3a-2
U.S. Census Bureau Population by Age Groups and Gender
for Bowman County and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2015 Estimate									
Bowman	317	88	120	348	424	380	1,677	798	879
Gascoyne	0	0	1	0	0	10	11	7	4
Rhame	36	4	14	40	70	12	176	94	82
Scranton	70	16	11	60	96	64	317	157	160
Rural Area	<u>216</u>	<u>73</u>	<u>21</u>	<u>224</u>	<u>324</u>	<u>182</u>	<u>1,040</u>	<u>504</u>	<u>536</u>
Bowman County	639	181	167	672	914	648	3,221	1,560	1,661
Percent of Total	19.8%	5.6%	5.2%	20.9%	28.4%	20.1%	100.0%	48.4%	51.6%
North Dakota	137,588	48,032	67,990	183,393	181,997	102,640	721,640	367,963	353,677
Percent of Total	19.1%	6.7%	9.4%	25.4%	25.2%	14.2%	100.0%	51.0%	49.0%
% Change '00 to '10									
Bowman County	-6.8%	-32.3%	31.6%	-19.5%	21.8%	-2.1%	-2.8%	0.3%	-5.7%
North Dakota	-4.1%	-11.5%	16.7%	-5.2%	28.5%	3.2%	4.7%	6.0%	3.4%
% Change '10 to '14									
Bowman County	8.6%	14.1%	14.0%	4.5%	-4.0%	-5.8%	1.3%	-1.3%	3.9%
North Dakota	6.6%	2.0%	10.8%	6.6%	1.4%	3.5%	4.8%	5.6%	4.0%
% Change '10 to '15									
Bowman County	13.9%	6.5%	29.5%	4.7%	-4.5%	-6.4%	2.2%	-1.3%	5.7%
North Dakota	10.5%	1.2%	15.3%	10.6%	2.0%	5.3%	7.3%	8.3%	6.3%

SOURCE: 2000 and 2010 Census population and 2015 population estimates by age groups, ACS Demographic and Housing Estimates, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 3b-1
U.S. Census Bureau Population by Age Groups and Gender
for Slope County and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2000 Census									
Amidon	2	2	0	5	10	7	26	12	14
Marmarth	20	11	3	43	37	26	140	73	67
Rural Area	<u>113</u>	<u>56</u>	<u>19</u>	<u>144</u>	<u>165</u>	<u>104</u>	<u>601</u>	<u>328</u>	<u>273</u>
Slope County	135	69	22	192	212	137	767	413	354
% of Total	17.6%	9.0%	2.9%	25.0%	27.6%	17.9%	100.0%	53.8%	46.2%
North Dakota	129,846	53,618	50,503	174,891	138,864	94,478	642,200	320,524	321,676
% of Total	20.2%	8.3%	7.9%	27.2%	21.6%	14.7%	100.0%	49.9%	50.1%
2010 Census									
Amidon	2	0	0	3	5	10	20	10	10
Marmarth	27	7	4	37	33	28	136	74	62
Rural Area	90	37	14	99	234	97	571	312	259
Slope County	119	44	18	139	272	135	727	396	331
% of Total	16.4%	6.1%	2.5%	19.1%	37.4%	18.6%	100.0%	54.5%	45.5%
North Dakota	124,461	47,474	58,956	165,747	178,476	97,477	672,591	339,864	332,727
% of Total	18.5%	7.1%	8.8%	24.6%	26.5%	14.5%	100.0%	50.5%	49.5%
2014 Estimate									
Amidon	0	0	0	0	22	10	32	15	17
Marmarth	27	12	6	40	28	24	137	75	62
Rural Area	76	19	8	132	198	113	546	321	225
Slope County	103	31	14	172	248	147	715	411	304
% of Total	14.4%	4.3%	2.0%	24.1%	34.7%	20.6%	100.0%	57.5%	42.5%
North Dakota	132,664	48,403	65,331	176,711	180,914	100,902	704,925	358,862	346,063
% of Total	18.8%	6.9%	9.3%	25.1%	25.7%	14.3%	100.0%	50.9%	49.1%

Appendix Table 3b-2
U.S. Census Bureau Population by Age Groups and Gender
for Slope County and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2015 Estimate									
Amidon	0	0	0	0	22	10	32	15	17
Marmarth	28	12	11	38	29	36	154	82	72
Rural Area	82	16	2	99	194	94	487	279	208
Slope County	110	28	13	137	245	140	673	376	297
Percent of Total	16.3%	4.2%	1.9%	20.4%	36.4%	20.8%	100.0%	55.9%	44.1%
North Dakota	137,588	48,032	67,990	183,393	181,997	102,640	721,640	367,963	353,677
Percent of Total	19.1%	6.7%	9.4%	25.4%	25.2%	14.2%	100.0%	51.0%	49.0%
% Change '00 to '10									
Slope County	-11.9%	-36.2%	-18.2%	-27.6%	28.3%	-1.5%	-5.2%	-4.1%	-6.5%
North Dakota	-4.1%	-11.5%	16.7%	-5.2%	28.5%	3.2%	4.7%	6.0%	3.4%
% Change '10 to '14									
Slope County	-13.4%	-29.5%	-22.2%	23.7%	-8.8%	8.9%	-1.7%	3.8%	-8.2%
North Dakota	6.6%	2.0%	10.8%	6.6%	1.4%	3.5%	4.8%	5.6%	4.0%
% Change '10 to '15									
Slope County	-7.6%	-36.4%	-27.8%	-1.4%	-9.9%	3.7%	-7.4%	-5.1%	-10.3%
North Dakota	10.5%	1.2%	15.3%	10.6%	2.0%	5.3%	7.3%	8.3%	6.3%

SOURCE: 2000 and 2010 Census population and 2015 population estimates by age groups, ACS Demographic and Housing Estimates, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 3c-1
U.S. Census Bureau Population by Age Groups and Gender
for Harding County and the State of South Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2000 Census									
Buffalo	68	39	9	86	100	78	380	180	200
Camp Crook	10	2	1	15	25	3	56	27	29
Rural Area	229	115	27	235	211	100	917	485	432
Harding County	307	156	37	336	336	181	1,353	692	661
Percent of Total	22.7%	11.5%	2.7%	24.8%	24.8%	13.4%	100.0%	51.1%	48.9%
South Dakota	165,018	62,463	52,802	206,399	160,031	108,131	754,844	374,558	380,286
Percent of Total	21.9%	8.3%	7.0%	27.3%	21.2%	14.3%	100.0%	49.6%	50.4%
2010 Census									
Buffalo	58	21	10	81	101	59	330	174	156
Camp Crook	10	2	1	14	30	6	63	29	34
Rural Area	146	93	34	182	290	117	862	456	406
Harding County	214	116	45	277	421	182	1,255	659	596
Percent of Total	17.1%	9.2%	3.6%	22.1%	33.5%	14.5%	100.0%	52.5%	47.5%
South Dakota	169,112	57,628	57,596	198,541	214,722	116,581	814,180	407,381	406,799
Percent of Total	20.8%	7.1%	7.1%	24.4%	26.4%	14.3%	100.0%	50.0%	50.0%
2014 Estimate									
Buffalo	60	45	12	93	78	70	358	168	190
Camp Crook	10	0	23	17	24	10	84	42	42
Rural Area	145	79	52	167	269	109	821	436	385
Harding County	215	124	87	277	371	189	1,263	646	617
Percent of Total	17.0%	9.8%	6.9%	21.9%	29.4%	15.0%	100.0%	51.1%	48.9%
South Dakota	172,418	57,997	59,689	204,181	218,079	122,344	834,708	419,494	415,214
Percent of Total	20.7%	6.9%	7.2%	24.5%	26.1%	14.7%	100.0%	50.3%	49.7%

Appendix Table 3c-2
U.S. Census Bureau Population by Age Groups and Gender
for Harding County and the State of South Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2015 Estimate									
Buffalo	67	46	13	105	80	48	359	158	181
Camp Crook	4	2	29	15	20	15	85	41	44
Rural Area	168	96	50	178	277	115	884	493	411
Harding County	239	144	92	298	377	178	1,328	692	636
Percent of Total	18.0%	10.8%	6.9%	22.4%	28.4%	13.4%	100.0%	52.1%	47.9%
South Dakota	174,223	57,404	60,524	206,514	218,912	125,613	843,190	423,477	419,713
Percent of Total	20.7%	6.8%	7.2%	24.5%	26.0%	14.9%	100.0%	50.2%	49.8%
% Change '00 to '10									
Harding County	-30.3%	-25.6%	21.6%	-17.6%	25.3%	0.6%	-7.2%	-4.8%	-9.8%
North Dakota	2.5%	-7.7%	9.1%	-3.8%	34.2%	7.8%	7.9%	8.8%	7.0%
% Change '10 to '14									
Harding County	0.5%	6.9%	93.3%	0.0%	-11.9%	3.8%	0.6%	-2.0%	3.5%
North Dakota	2.0%	0.6%	3.6%	2.8%	1.6%	4.9%	2.5%	3.0%	2.1%
% Change '10 to '15									
Harding County	11.7%	24.1%	104.4%	7.6%	-10.5%	-2.2%	5.8%	5.0%	6.7%
North Dakota	3.0%	-0.4%	5.1%	4.0%	2.0%	7.7%	3.6%	4.0%	3.2%

SOURCE: 2000 and 2010 Census population and 2015 population estimates by age groups, ACS Demographic and Housing Estimates, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 3d-1

**U.S. Census Bureau Population by Age Groups and Gender for Bowman, Harding
and Slope Counties and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates**

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2000 Census									
Bowman County	602	251	98	798	786	707	3,242	1576	1666
Percent of Total	18.6%	7.7%	3.0%	24.6%	24.2%	21.8%	100.0%	48.6%	51.4%
Harding County	307	156	37	336	336	181	1,353	692	661
Percent of Total	22.7%	11.5%	2.7%	24.8%	24.8%	13.4%	100.0%	51.1%	48.9%
Slope County	135	69	22	192	212	137	767	413	354
Percent of Total	17.6%	9.0%	2.9%	25.0%	27.6%	17.9%	100.0%	53.8%	46.2%
North Dakota	129,846	53,618	50,503	174,891	138,864	94,478	642,200	320,524	321,676
Percent of Total	20.2%	8.3%	7.9%	27.2%	21.6%	14.7%	100.0%	49.9%	50.1%
2010 Census									
Bowman County	561	170	129	642	957	692	3,151	1580	1571
Percent of Total	17.8%	5.4%	4.1%	20.4%	30.4%	22.0%	100.0%	50.1%	49.9%
Harding County	214	116	45	277	421	182	1,255	659	596
Percent of Total	17.1%	9.2%	3.6%	22.1%	33.5%	14.5%	100.0%	52.5%	47.5%
Slope County	119	44	18	139	272	135	727	396	331
Percent of Total	16.4%	6.1%	2.5%	19.1%	37.4%	18.6%	100.0%	54.5%	45.5%
North Dakota	124,461	47,474	58,956	165,747	178,476	97,477	672,591	339,864	332,727
Percent of Total	18.5%	7.1%	8.8%	24.6%	26.5%	14.5%	100.0%	50.5%	49.5%
2014 Estimate									
Bowman County	609	194	147	671	919	652	3,192	1,560	1,632
Percent of Total	19.1%	6.1%	4.6%	21.0%	28.8%	20.4%	100.0%	48.9%	51.1%
Harding County	215	124	87	277	371	189	1,263	646	617
Percent of Total	30.1%	17.3%	12.2%	38.7%	51.9%	26.4%	176.6%	90.3%	86.3%
Slope County	103	31	14	172	248	147	715	411	304
Percent of Total	14.4%	4.3%	2.0%	24.1%	34.7%	20.6%	100.0%	57.5%	42.5%
North Dakota	128,435	47,931	62,986	171,394	179,785	99,250	689,781	349,947	339,834
Percent of Total	18.6%	6.9%	9.1%	24.8%	26.1%	14.4%	100.0%	50.7%	49.3%

Table 3d-2

U.S. Census Bureau Population by Age Groups and Gender for Bowman, Harding and Slope Counties and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	Age Groups						Totals	Gender	
	0-14	15-19	20-24	25-44	45-64	65+		Male	Female
2015 Estimate									
Bowman County	639	181	167	672	914	648	3,221	1,560	1,661
Percent of Total	19.8%	5.6%	5.2%	20.9%	28.4%	20.1%	100.0%	48.4%	51.6%
Harding County	239	144	92	298	377	178	1,328	692	636
Percent of Total	18.0%	10.8%	6.9%	22.4%	28.4%	13.4%	100.0%	52.1%	47.9%
Slope County	110	28	13	137	245	140	673	376	297
Percent of Total	16.3%	4.2%	1.9%	20.4%	36.4%	20.8%	100.0%	55.9%	44.1%
North Dakota	147,666	49,444	72,293	197,791	182,452	107,281	756,927	388,853	368,074
Percent of Total	19.5%	6.5%	9.6%	26.1%	24.1%	14.2%	100.0%	51.4%	48.6%
% Change '00 to '10									
Bowman County	-6.8%	-32.3%	31.6%	-19.5%	21.8%	-2.1%	-2.8%	0.3%	-5.7%
Harding County	-30.3%	-25.6%	21.6%	-17.6%	25.3%	0.6%	-7.2%	-4.8%	-9.8%
Slope County	-11.9%	-36.2%	-18.2%	-27.6%	28.3%	-1.5%	-5.2%	-4.1%	-6.5%
North Dakota	-4.1%	-11.5%	16.7%	-5.2%	28.5%	3.2%	4.7%	6.0%	3.4%
% Change '10 to '14									
Bowman County	8.6%	14.1%	14.0%	4.5%	-4.0%	-5.8%	1.3%	-1.3%	3.9%
Harding County	0.5%	6.9%	93.3%	0.0%	-11.9%	3.8%	0.6%	-2.0%	3.5%
Slope County	-13.4%	-29.5%	-22.2%	23.7%	-8.8%	8.9%	-1.7%	3.8%	-8.2%
North Dakota	3.2%	1.0%	6.8%	3.4%	0.7%	1.8%	2.6%	3.0%	2.1%
% Change '10 to '15									
Bowman County	13.9%	6.5%	29.5%	4.7%	-4.5%	-6.4%	2.2%	-1.3%	5.7%
Harding County	11.7%	24.1%	104.4%	7.6%	-10.5%	-2.2%	5.8%	5.0%	6.7%
Slope County	-7.6%	-36.4%	-27.8%	-1.4%	-9.9%	3.7%	-7.4%	-5.1%	-10.3%
North Dakota	18.6%	4.1%	22.6%	19.3%	2.2%	10.1%	12.5%	14.4%	10.6%

SOURCE: 2000 and 2010 Census population and 2015 population estimates by age groups, ACS Demographic and Housing Estimates, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 4a-1

U.S. Census Bureau Population by Race and Hispanic Origin

Bowman County and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2000 Census							
Bowman	1,586	0	2	2	10	1,600	12
Gascoyne	23	0	0	0	0	23	0
Rhame	186	0	0	0	3	189	0
Scranton	301	0	1	0	2	304	2
Rural Area	<u>1,113</u>	<u>1</u>	<u>2</u>	<u>4</u>	<u>6</u>	<u>1,126</u>	<u>8</u>
Bowman County	3,209	1	5	6	21	3,242	22
Percent of Total	99.0%	0.0%	0.2%	0.2%	0.6%	100.0%	0.7%
North Dakota	593,181	3,916	31,329	6,376	7,398	642,200	7,786
Percent of Total	92.4%	0.6%	4.9%	1.0%	1.2%	100.0%	1.2%
2010 Census							
Bowman	1,612	0	3	26	9	1,650	64
Gascoyne	16	0	0	0	0	16	0
Rhame	166	0	0	0	3	169	0
Scranton	270	0	9	0	2	281	2
Rural Area	<u>1,021</u>	<u>3</u>	<u>6</u>	<u>3</u>	<u>2</u>	<u>1,035</u>	<u>12</u>
Bowman County	3,085	3	18	29	16	3,151	78
Percent of Total	97.9%	0.1%	0.6%	0.9%	0.5%	100.0%	2.5%
North Dakota	605,449	7,960	36,591	10,738	11,853	672,591	13,467
Percent of Total	90.0%	1.2%	5.4%	1.6%	1.8%	100.0%	2.0%
2014 Estimate							
Bowman	1,550	0	17	82	0	1,649	86
Gascoyne	9	0	0	0	0	9	0
Rhame	199	0	0	0	0	199	13
Scranton	250	3	15	0	2	270	0
Rural Area	<u>1,033</u>	<u>0</u>	<u>0</u>	<u>14</u>	<u>18</u>	<u>1,065</u>	<u>23</u>
Bowman County	3,041	3	32	96	20	3,192	122
Percent of Total	95.3%	0.1%	1.0%	3.0%	0.6%	100.0%	3.8%
North Dakota	628,770	10,781	36,989	13,549	14,836	704,925	18,250
Percent of Total	89.2%	1.5%	5.2%	1.9%	2.1%	100.0%	2.6%

Appendix Table 4a-2
U.S. Census Bureau Population by Race and Hispanic Origin
Bowman County and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2015 Estimate							
Bowman	1587	1	24	65	0	1677	112
Gascoyne	11	0	0	0	0	11	0
Rhame	176	0	0	0	0	176	10
Scranton	298	3	14	0	2	317	0
Rural Area	<u>1,006</u>	<u>0</u>	<u>0</u>	<u>12</u>	<u>22</u>	<u>1,040</u>	<u>20</u>
Bowman County	3,078	4	38	77	24	3,221	142
Percent of Total	95.6%	0.1%	1.2%	2.4%	0.7%	100.0%	4.4%
North Dakota	640,208	11,872	38,286	15,142	16,132	721,640	20,569
Percent of Total	88.7%	1.6%	5.3%	2.1%	2.2%	100.0%	2.9%
% Change '00 to '10							
Bowman County	-3.9%	200.0%	260.0%	383.3%	-23.8%	-2.8%	254.5%
North Dakota	2.1%	103.3%	16.8%	68.4%	60.2%	4.7%	73.0%
% Change '10 to '14							
Bowman County	-1.4%	0.0%	77.8%	231.0%	25.0%	1.3%	56.4%
North Dakota	3.9%	35.4%	1.1%	26.2%	25.2%	4.8%	35.5%
% Change '10 to '15							
Bowman County	-0.2%	33.3%	111.1%	165.5%	50.0%	2.2%	82.1%
North Dakota	5.7%	49.1%	4.6%	41.0%	36.1%	7.3%	52.7%

SOURCE: 2000 and 2010 Census population and 2014 and 2015 population estimates by race and ethnic origin, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 4b-1

U.S. Census Bureau Population by Race and Hispanic Origin

Slope County and the State of North Dakota, 2000, 2010 and 2014 Estimates

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2000 Census							
Amidon	26	0	0	0	0	26	0
Marmarth	139	0	0	0	1	140	1
Rural Area	<u>600</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>601</u>	<u>0</u>
Slope County	765	0	1	0	1	767	1
Percent of Total	99.7%	0.0%	0.1%	0.0%	0.1%	100.0%	0.1%
North Dakota	593,181	3,916	31,329	6,376	7,398	642,200	7,786
Percent of Total	92.4%	0.6%	4.9%	1.0%	1.2%	100.0%	1.2%
2010 Census							
Amidon	20	0	0	0	0	20	0
Marmarth	122	0	13	0	1	136	11
Rural Area	567	0	3	0	1	571	1
Slope County	709	0	16	0	2	727	12
Percent of Total	97.5%	0.0%	2.2%	0.0%	0.3%	100.0%	1.7%
North Dakota	605,449	7,960	36,591	10,738	11,853	672,591	13,467
Percent of Total	90.0%	1.2%	5.4%	1.6%	1.8%	100.0%	2.0%
2014 Estimate							
Amidon	32	0	0	0	0	32	0
Marmarth	134	2	0	0	0	136	3
Rural Area	541	0	0	0	6	547	0
Slope County	707	2	0	0	6	715	3
Percent of Total	98.9%	0.3%	0.0%	0.0%	0.8%	100.0%	0.4%
North Dakota	628,770	10,781	36,989	13,549	14,836	704,925	18,250
Percent of Total	89.2%	1.5%	5.2%	1.9%	2.1%	100.0%	2.6%

Appendix Table 4b-2

U.S. Census Bureau Population by Race and Hispanic Origin

Slope County and the State of North Dakota, 2000, 2010 and 2014 Estimates

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2015 Estimate							
Amidon	32	0	0	0	0	32	0
Marmarth	147	4	0	0	3	154	2
Rural Area	478	0	0	0	9	487	0
Slope County	657	4	0	0	12	673	2
Percent of Total	97.6%	0.6%	0.0%	0.0%	1.8%	100.0%	0.3%
North Dakota	640,208	11,872	38,286	15,142	16,132	721,640	20,569
Percent of Total	88.7%	1.6%	5.3%	2.1%	2.2%	100.0%	2.9%
% Change '00 to '10							
Slope County	-7.3%	0.0%	1500.0%	0.0%	0.0%	-5.2%	1100.0%
North Dakota	2.1%	103.3%	16.8%	68.4%	60.2%	4.7%	73.0%
% Change '10 to '14							
Slope County	-0.3%	0.0%	-100.0%	0.0%	200.0%	-1.7%	-75.0%
North Dakota	3.9%	35.4%	1.1%	26.2%	25.2%	4.8%	35.5%
% Change '10 to '15							
Slope County	-7.3%	0.0%	-100.0%	0.0%	500.0%	-7.4%	-83.3%
North Dakota	5.7%	49.1%	4.6%	41.0%	36.1%	7.3%	52.7%

SOURCE: 2000 and 2010 Census population 2014 and 2015 population estimates by race and ethnic origin, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 4c-1
U.S. Census Bureau Population by Race and Hispanic Origin
Harding County and the State of South Dakota, 2000, 2010, 2014 & 2015 Estimates

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2000 Census							
Buffalo	377	0	0	0	3	380	4
Camp Crook	55	0	1	0	0	56	0
Rural Area	889	4	9	13	2	917	18
Harding County	1,321	4	10	13	5	1,353	22
Percent of Total	97.6%	0.3%	0.7%	1.0%	0.4%	100.0%	1.6%
South Dakota	669,404	4,685	62,283	8,316	10,156	754,844	10,903
Percent of Total	88.7%	0.6%	8.3%	1.1%	1.3%	100.0%	1.4%
2010 Census							
Buffalo	321	0	3	1	5	330	5
Camp Crook	63	0	0	0	0	63	1
Rural Area	820	1	16	9	16	862	14
Harding County	1,204	1	19	10	21	1,255	20
Percent of Total	95.9%	0.1%	1.5%	0.8%	1.7%	100.0%	1.6%
South Dakota	699,392	10,207	71,817	15,481	17,283	814,180	22,119
Percent of Total	85.9%	1.3%	8.8%	1.9%	2.1%	100.0%	2.7%
2014 Estimate							
Buffalo	351	3	0	4	0	358	0
Camp Crook	84	0	0	0	0	84	0
Rural Area	772	5	21	7	16	821	6
Harding County	1,207	8	21	11	16	1,263	6
Percent of Total	95.6%	0.6%	1.7%	0.9%	1.3%	100.0%	0.5%
South Dakota	712,496	12,642	72,016	16,861	20,693	834,708	26,459
Percent of Total	85.4%	1.5%	8.6%	2.0%	2.5%	100.0%	3.2%

Appendix Table 4c-2
U.S. Census Bureau Population by Race and Hispanic Origin
Harding County and the State of South Dakota, 2000, 2010, 2014 & 2015 Estimates

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2015 Estimate							
Buffalo	354	2	0	3	0	359	0
Camp Crook	85	0	0	0	0	85	0
Rural Area	824	7	26	11	16	884	15
Harding County	1,263	9	26	14	16	1,328	15
Percent of Total	95.1%	0.7%	2.0%	1.1%	1.2%	100.0%	1.1%
South Dakota	716,691	13,133	72,619	18,424	22,323	843,190	27,914
Percent of Total	85.0%	1.6%	8.6%	2.2%	2.6%	100.0%	3.3%
% Change '00 to '10							
Harding County	-8.9%	-75.0%	90.0%	-23.1%	320.0%	-7.2%	-9.1%
South Dakota	4.5%	117.9%	15.3%	86.2%	70.2%	7.9%	102.9%
% Change '10 to '14							
Harding County	0.2%	700.0%	10.5%	10.0%	-23.8%	0.6%	-70.0%
South Dakota	1.9%	23.9%	0.3%	8.9%	19.7%	2.5%	19.6%
% Change '10 to '15							
Harding County	4.9%	800.0%	36.8%	40.0%	-23.8%	5.8%	-25.0%
South Dakota	2.5%	28.7%	1.1%	19.0%	29.2%	3.6%	26.2%

SOURCE: 2000 and 2010 Census population 2014 and 2015 population estimates by race and ethnic origin, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 4d-1

**U.S. Census Bureau Population by Race and Hispanic Origin for Bowman, Harding
and Slope Counties and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates**

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2000 Census							
Bowman County	3,209	1	5	6	21	3,242	22
Percent of Total	99.0%	0.0%	0.2%	0.2%	0.6%	100.0%	0.7%
Harding County	1,321	4	10	13	5	1,353	22
Percent of Total	97.6%	0.3%	0.7%	1.0%	0.4%	100.0%	1.6%
Slope County	765	0	1	0	1	767	1
Percent of Total	99.7%	0.0%	0.1%	0.0%	0.1%	100.0%	0.1%
North Dakota	593,181	3,916	31,329	6,376	7,398	642,200	8,595
Percent of Total	92.4%	0.6%	4.9%	1.0%	1.2%	100.0%	1.3%
2010 Census							
Bowman County	3,085	3	18	29	16	3,151	78
Percent of Total	97.9%	0.1%	0.6%	0.9%	0.5%	100.0%	2.5%
Harding County	1,204	1	19	10	21	1,255	20
Percent of Total	95.9%	0.1%	1.5%	0.8%	1.7%	100.0%	1.6%
Slope County	709	0	16	0	2	727	12
Percent of Total	97.5%	0.0%	2.2%	0.0%	0.3%	100.0%	1.7%
North Dakota	605,449	7,960	36,591	10,738	11,853	672,591	13,467
Percent of Total	90.0%	1.2%	5.4%	1.6%	1.8%	100.0%	2.0%
2014 Estimate							
Bowman County	3,041	3	32	96	20	3,192	122
Percent of Total	95.3%	0.1%	1.0%	3.0%	0.6%	100.0%	3.8%
Harding County	1,207	8	21	11	16	1,263	6
Percent of Total	95.6%	0.6%	1.7%	0.9%	1.3%	100.0%	0.5%
Slope County	707	2	0	0	6	715	3
Percent of Total	98.9%	0.3%	0.0%	0.0%	0.8%	100.0%	0.4%
North Dakota	628,770	10,781	36,989	13,549	14,836	704,925	18,250
Percent of Total	89.2%	1.5%	5.2%	1.9%	2.1%	100.0%	2.6%

**Appendix Table 4d-2
U.S. Census Bureau Population by Race and Hispanic Origin for Bowman, Harding
and Slope Counties and the State of North Dakota, 2000, 2010, 2014 & 2015 Estimates**

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2015 Estimate							
Bowman County	3,078	4	38	77	24	3,221	142
Percent of Total	95.6%	0.1%	1.2%	2.4%	0.7%	100.0%	4.4%
Harding County	1,263	9	26	14	16	1,328	15
Percent of Total	95.1%	0.7%	2.0%	1.1%	1.2%	100.0%	1.1%
Slope County	657	4	0	0	12	673	2
Percent of Total	97.6%	0.6%	0.0%	0.0%	1.8%	100.0%	0.3%
North Dakota	640,208	11,872	38,286	15,142	16,132	721,640	20,569
Percent of Total	88.7%	1.6%	5.3%	2.1%	2.2%	100.0%	2.9%
% Change '00 to '10							
Bowman County	-3.9%	200.0%	260.0%	383.3%	-23.8%	-2.8%	254.5%
Harding County	-8.9%	-75.0%	90.0%	-23.1%	320.0%	-7.2%	-9.1%
Slope County	-7.3%	0.0%	1500.0%	0.0%	0.0%	-5.2%	1100.0%
North Dakota	2.1%	103.3%	16.8%	68.4%	60.2%	4.7%	56.7%
% Change '10 to '14							
Bowman County	-1.4%	0.0%	77.8%	-100.0%	500.0%	0.7%	56.4%
Harding County	0.2%	700.0%	10.5%	10.0%	-23.8%	0.6%	-70.0%
Slope County	-0.3%	0.0%	-100.0%	0.0%	200.0%	-1.7%	-75.0%
North Dakota	3.9%	35.4%	1.1%	26.2%	25.2%	4.8%	35.5%
% Change '10 to '15							
Bowman County	2.1%	200.0%	388.9%	-69.0%	143.8%	4.5%	129.5%
Harding County	4.9%	800.0%	36.8%	40.0%	-23.8%	5.8%	-25.0%
Slope County	-7.3%	0.0%	-100.0%	0.0%	500.0%	-7.4%	-83.3%
North Dakota	5.7%	49.1%	4.6%	41.0%	36.1%	7.3%	52.7%

SOURCE: 2000 and 2010 Census population 2014 and 2015 population estimates by race and ethnic origin, U.S. Census Bureau (www.census.gov [March 2017]).

**Appendix Table 5a
Employment and Payroll for Health Services
in Bowman County and North Dakota**

<i>Employment</i>				
	Health Services	Total County	Health Services as a % of Total County Employment	Health Services as a % of Total State Employment
2004	213	936	22.8%	19.4%
2005	203	934	21.7%	18.6%
2006	212	988	21.5%	18.4%
2007	195	1,143	17.1%	17.5%
2008	184	1,161	15.8%	17.0%
2009	164	1,088	15.1%	18.0%
2010	147	1,080	13.6%	18.6%
2011	124	1,123	11.0%	18.4%
2012	85	1,269	6.7%	17.4%
2013	58	1,171	5.0%	17.3%
2014	90	1,399	6.4%	16.5%
% Chg '04-'14	-57.7%	49.5%		
<i>Payroll (\$1000s)</i>				
	Health Services	Total County	Health Services as a % of Total County Payroll	Health Services as a % of Total State Payroll
2004	4,726	19,360	24.4%	20.9%
2005	4,962	20,288	24.5%	20.7%
2006	5,325	23,754	22.4%	19.9%
2007	5,001	27,852	18.0%	18.6%
2008	5,120	31,023	16.5%	18.4%
2009	4,876	29,353	16.6%	19.5%
2010	4,560	33,880	13.5%	19.5%
2011	3,850	41,016	9.4%	18.7%
2012	2,750	50,973	5.4%	17.0%
2013	1,883	53,530	3.5%	16.6%
2014	2,940	54,876	5.4%	15.7%
% Chg '04-'14	-37.8%	183.5%		

SOURCE: U.S. Census Bureau, County Business Patterns; 2004-2014 based on NAICS (www.census.gov March 2017).

"C" represents 100 to 249 employees

"D" represents data withheld to avoid disclosing data for individual companies; data are included in higher level totals.

Estimates

**Appendix Table 5b
Employment and Payroll for Health Services
in Slope County and North Dakota**

<i>Employment</i>				
	Health Services	Total County	Health Services as a % of Total County Employment	Health Services as a % of Total State Employment
2004	0	57	N/A	19.4%
2005	0	49	N/A	18.6%
2006	0	37	N/A	18.4%
2007	0	34	N/A	17.5%
2008	0	27	N/A	17.0%
2009	0	29	N/A	18.0%
2010	0	118	N/A	18.6%
2011	0	109	N/A	18.4%
2012	0	107	N/A	17.4%
2013	0	110	N/A	17.3%
2014	0	109	N/A	16.5%
% Chg '04-'14	0.0%	91.2%		

<i>Payroll (\$1000s)</i>				
	Health Services	Total County	Health Services as a % of Total County Payroll	Health Services as a % of Total State Payroll
2004	0	1,735	N/A	20.9%
2005	0	1,585	N/A	20.7%
2006	0	1,190	N/A	19.9%
2007	0	1,020	N/A	18.6%
2008	0	760	N/A	18.4%
2009	0	778	N/A	19.5%
2010	0	8,635	N/A	19.5%
2011	0	9,462	N/A	18.7%
2012	0	9,462	N/A	17.0%
2013	0	9,942	N/A	16.6%
2014	0	10,599	N/A	15.7%
% Chg '04-'14	0.0%	510.9%		

SOURCE: U.S. Census Bureau, County Business Patterns; 2004-2014 based on NAICS (www.census.gov March 2017)].

"B" represents 20-99 employees

"C" represents 100 to 249 employees

"D" represents data withheld to avoid disclosing data for individual companies; data are included in higher level totals.

**Appendix Table 5c
Employment and Payroll for Health Services
in Harding County and South Dakota**

	<i>Employment</i>			
	Health Services	Total County	Health Services as a % of Total County Employment	Health Services as a % of Total State Employment
2004	81	202	40.1%	17.8%
2005	104	228	45.6%	17.9%
2006	99	226	43.8%	17.6%
2007	105	256	41.0%	17.6%
2008	112	243	46.1%	17.6%
2009	118	249	47.4%	18.4%
2010	109	298	36.6%	18.8%
2011	103	339	30.4%	19.1%
2012	98	402	24.4%	18.9%
2013	86	373	23.1%	19.3%
2014	74	418	17.7%	18.8%
% Chg '04-'14	-28.8%	83.3%		

	<i>Payroll (\$1000s)</i>			
	Health Services	Total County	Health Services as a % of Total County Payroll	Health Services as a % of Total State Payroll
2004	1,623	3,942	41.2%	22.4%
2005	1,783	4,694	38.0%	22.0%
2006	1,942	5,374	36.1%	21.1%
2007	2,688	6,396	42.0%	21.2%
2008	3,664	9,512	38.5%	21.5%
2009	3,200	7,317	43.7%	23.1%
2010	3,109	9,149	34.0%	22.5%
2011	3,040	13,358	22.8%	22.6%
2012	1,246	17,982	6.9%	22.1%
2013	1,177	20,248	5.8%	23.5%
2014	1,176	23,294	5.0%	22.8%
% Chg '04-'14	-34.0%	396.3%		

SOURCE: U.S. Census Bureau, County Business Patterns; 2004-2014 based on NAICS (www.census.gov March 2017)].

"B" represents 20-99 employees

"C" represents 100 to 249 employees

"D" represents data withheld to avoid disclosing data for individual companies; data are included in higher level totals.

"E" represents 250 to 499 employees

Estimates

Appendix Table 6a
Full- & Part-Time Employment by NAICS¹ Industry
for Bowman County and North Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	Bowman County No. of Jobs	% of Total	State % of Total	Bowman County No. of Jobs	% of Total	State % of Total	% Change Bowman County	% Change North Dakota
Total Employment	<u>2,801</u>	<u>100.0%</u>	<u>100.0%</u>	<u>2,716</u>	<u>100.0%</u>	<u>100.0%</u>	-3.0%	-1.3%
Wage & Salary	1,922	68.6%	79.1%	1,824	67.2%	78.4%	-5.1%	-2.1%
Proprietors'	<u>879</u>	<u>31.4%</u>	<u>20.9%</u>	<u>892</u>	<u>32.8%</u>	<u>21.6%</u>	1.5%	1.8%
Farm proprietors'	299	34.0%	20.9%	296	33.2%	20.3%	-1.0%	-1.1%
Nonfarm proprietors ²	<u>580</u>	<u>66.0%</u>	<u>79.1%</u>	<u>596</u>	<u>66.8%</u>	<u>79.7%</u>	2.8%	2.5%
By Industry:								
Farm employment	380	13.6%	5.6%	353	13.0%	5.2%	-7.1%	-7.1%
Nonfarm employment	<u>2,421</u>	<u>86.4%</u>	<u>94.4%</u>	<u>2,363</u>	<u>87.0%</u>	<u>94.8%</u>	-2.4%	-0.9%
Private employment	<u>2,138</u>	<u>88.3%</u>	<u>85.0%</u>	<u>2,075</u>	<u>76.4%</u>	<u>84.7%</u>	-2.9%	-1.3%
For, fshng, & related	22	1.0%	1.0%	24	1.2%	1.0%	N/A	0.7%
Mining	164	7.7%	7.5%	152	7.3%	6.2%	-7.3%	-17.8%
Utilities	6	0.3%	0.8%	6	0.3%	0.8%	N/A	3.6%
Construction	264	12.3%	9.3%	176	8.5%	9.3%	-33.3%	-1.4%
Manufacturing	44	2.1%	5.6%	42	2.0%	5.6%	-4.5%	-1.6%
Wholesale trade	251	11.7%	5.9%	269	13.0%	5.9%	7.2%	-1.2%
Retail trade	283	13.2%	12.7%	281	13.5%	12.9%	-0.7%	0.7%
Transp & wrhsng	89	4.2%	6.0%	91	4.4%	5.7%	N/A	-6.0%
Information	28	1.3%	1.6%	27	1.3%	1.6%	-3.6%	-2.4%
Finance & Ins	103	4.8%	5.4%	104	5.0%	5.6%	N/A	0.7%
RE/rental/leasing	56	2.6%	4.8%	56	2.7%	5.0%	N/A	2.5%
Prof/sci/techn svcs	76	3.6%	4.8%	82	4.0%	5.0%	7.9%	2.1%
Mgmt of cos/enterpr	65	3.0%	1.2%	67	3.2%	1.2%	N/A	1.5%
Admin/wste svcs	30	1.4%	4.0%	30	1.4%	4.0%	N/A	-2.0%
Educ services	15	0.7%	1.3%	16	0.8%	1.3%	6.7%	5.1%
Hlth care/soc assist	319	14.9%	13.0%	322	15.5%	13.4%	0.9%	1.9%
Arts/entrtnmnt/rec	27	1.3%	1.6%	27	1.3%	1.6%	0.0%	1.5%
Accomm/food svcs	165	7.7%	8.0%	177	8.5%	8.1%	7.3%	0.2%
Other NOT pub adm	<u>131</u>	<u>6.1%</u>	<u>5.6%</u>	<u>126</u>	<u>6.1%</u>	<u>5.7%</u>	-3.8%	0.5%
Gov't & Gov't entrprses	<u>283</u>	<u>13.2%</u>	<u>15.0%</u>	<u>288</u>	<u>13.9%</u>	<u>15.3%</u>	1.8%	1.4%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [April 2017]).

¹ The estimates of employment for 2011 forward are based on the 2012 North American Industry Classification System.

² Excludes limited partners.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Appendix Table 6b
Full- & Part-Time Employment by NAICS¹ Industry
for Slope County and North Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	Slope County		State	Slope County		State	% Change	% Change
	No. of Jobs	% of Total	% of Total	No. of Jobs	% of Total	% of Total	Slope County	North Dakota
Total Employment	<u>594</u>	<u>100.0%</u>	<u>100.0%</u>	<u>507</u>	<u>100.0%</u>	<u>100.0%</u>	-14.6%	-1.3%
Wage & Salary	301	50.7%	79.1%	212	41.8%	78.4%	-29.6%	-2.1%
Proprietors'	<u>293</u>	<u>49.3%</u>	<u>20.9%</u>	<u>295</u>	<u>58.2%</u>	<u>21.6%</u>	0.7%	1.8%
Farm proprietors'	199	67.9%	20.9%	197	66.8%	20.3%	-1.0%	-1.1%
Nonfarm proprietors ²	<u>94</u>	<u>32.1%</u>	<u>79.1%</u>	<u>98</u>	<u>33.2%</u>	<u>79.7%</u>	4.3%	2.5%
By Industry:								
Farm employment	243	40.9%	5.6%	228	45.0%	5.2%	-6.2%	-7.1%
Nonfarm employment	<u>351</u>	<u>59.1%</u>	<u>94.4%</u>	<u>279</u>	<u>55.0%</u>	<u>94.8%</u>	-20.5%	-0.9%
Private employment	<u>309</u>	<u>88.0%</u>	<u>85.0%</u>	<u>231</u>	<u>45.6%</u>	<u>84.7%</u>	-25.2%	-1.3%
For/fshng/related	22	7.1%	1.0%	19	8.2%	1.0%	-13.6%	0.7%
Mining	156	50.5%	7.5%	86	37.2%	6.2%	-44.9%	-17.8%
Utilities	1	0.3%	0.8%	1	0.4%	0.8%	0.0%	3.6%
Construction	10	3.2%	9.3%	11	4.8%	9.3%	10.0%	-1.4%
Manufacturing	5	1.6%	5.6%	5	2.2%	5.6%	0.0%	-1.6%
Wholesale trade	19	6.1%	5.9%	15	6.5%	5.9%	-21.1%	-1.2%
Retail trade	11	3.6%	12.7%	11	4.8%	12.9%	0.0%	0.7%
Transp & wrhsng	23	7.4%	6.0%	18	7.8%	5.7%	-21.7%	-6.0%
Information	2	0.6%	1.6%	2	0.9%	1.6%	0.0%	-2.4%
Finance & Ins	1	0.3%	5.4%	1	0.4%	5.6%	0.0%	0.7%
RE/rental/leasing	9	2.9%	4.8%	10	4.3%	5.0%	11.1%	2.5%
Prof/sci/techn svcs	2	0.6%	4.8%	3	1.3%	5.0%	50.0%	2.1%
Mgmt cos/enterpr	0	0.0%	1.2%	0	0.0%	1.2%	0.0%	1.5%
Admin/waste svcs	9	2.9%	4.0%	9	3.9%	4.0%	0.0%	-2.0%
Educ services	7	2.3%	1.3%	6	2.6%	1.3%	-14.3%	5.1%
Hlth care/soc assist	3	1.0%	13.0%	4	1.7%	13.4%	33.3%	1.9%
Arts/entrtnmnt/rec	0	0.0%	1.6%	4	1.7%	1.6%	0.0%	1.5%
Accomm/food svcs	9	2.9%	8.0%	8	3.5%	8.1%	-11.1%	0.2%
Other not pub adm	<u>20</u>	<u>6.5%</u>	<u>5.6%</u>	<u>18</u>	<u>7.8%</u>	<u>5.7%</u>	-10.0%	0.5%
Gov't/Gov't entrprses	<u>42</u>	<u>13.6%</u>	<u>15.0%</u>	<u>48</u>	<u>20.8%</u>	<u>15.3%</u>	14.3%	1.4%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]).

¹ The estimates of employment for 2011 forward are based on the 2012 North American Industry Classification System.

² Excludes limited partners.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Original data are not provided by BEA due to this item being less than 10 jobs; however, estimates have been provided for these items based on county and state records.

Appendix Table 6c
Full- & Part-Time Employment by NAICS¹ Industry
for Harding County and South Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	Harding County		State	Harding County		State	% Change	% Change
	No. of Jobs	% of Total	% of Total	No. of Jobs	% of Total	% of Total	Harding County	South Dakota
Total Employment	<u>1,140</u>	<u>100.0%</u>	<u>100.0%</u>	<u>1,131</u>	<u>100.0%</u>	<u>100.0%</u>	-0.8%	1.0%
Wage & Salary	602	52.8%	75.4%	586	51.8%	75.2%	-2.7%	0.7%
Proprietors'	<u>538</u>	<u>47.2%</u>	<u>24.6%</u>	<u>545</u>	<u>48.2%</u>	<u>24.8%</u>	1.3%	1.9%
Farm proprietors'	219	40.7%	19.0%	216	39.6%	18.4%	-1.4%	-1.3%
Nonfarm proprietors ²	<u>319</u>	<u>59.3%</u>	<u>81.0%</u>	<u>329</u>	<u>60.4%</u>	<u>81.6%</u>	3.1%	2.6%
By Industry:								
Farm employment	308	27.0%	5.8%	285	25.2%	5.4%	-7.5%	-5.4%
Nonfarm employment	<u>832</u>	<u>73.0%</u>	<u>94.2%</u>	<u>846</u>	<u>74.8%</u>	<u>94.6%</u>	1.7%	1.4%
Private employment	<u>701</u>	<u>84.3%</u>	<u>84.8%</u>	<u>718</u>	<u>63.5%</u>	<u>85.0%</u>	2.4%	1.6%
For/fshng/related	13	1.9%	1.3%	14	1.9%	1.3%	7.7%	2.0%
Mining	169	24.1%	0.6%	174	24.2%	0.6%	3.0%	0.8%
Utilities	1	0.1%	0.4%	1	0.1%	0.4%	0.0%	1.8%
Construction	132	18.8%	7.1%	128	17.8%	7.2%	-3.0%	3.3%
Manufacturing	12	1.7%	9.5%	12	1.7%	9.4%	0.0%	0.7%
Wholesale trade	20	2.9%	4.8%	22	3.1%	4.8%	10.0%	2.9%
Retail trade	79	11.3%	14.1%	86	12.0%	14.2%	8.9%	2.3%
Transp & wrhsng	36	5.1%	3.4%	39	5.4%	3.4%	8.3%	2.2%
Information	4	0.6%	1.5%	5	0.7%	1.5%	25.0%	-1.6%
Finance & Ins	4	0.6%	8.4%	5	0.7%	8.1%	25.0%	-1.2%
RE/rental/leasing	51	7.3%	4.9%	53	7.4%	5.0%	3.9%	3.7%
Prof/sci/tchn svcs	4	0.6%	4.5%	5	0.7%	4.5%	25.0%	1.6%
Mgmt cos/enterpr	0	0.0%	1.1%	0	0.0%	1.1%	0.0%	8.2%
Admin/wste svcs	38	5.4%	4.0%	39	5.4%	4.0%	2.6%	0.4%
Educ services	44	6.3%	2.2%	40	5.6%	2.3%	-9.1%	4.8%
Hlth care/soc asst	41	5.8%	14.2%	40	5.6%	14.1%	-2.4%	1.1%
Arts/entrtmnt/rec	9	1.3%	2.5%	10	1.4%	2.5%	11.1%	2.7%
Accomm/food svcs	16	2.3%	9.2%	15	2.1%	9.2%	-6.3%	1.8%
Other not pub adm	<u>28</u>	<u>4.0%</u>	<u>6.3%</u>	<u>30</u>	<u>4.2%</u>	<u>6.3%</u>	7.1%	1.0%
Gov't/Gov't entrprses	<u>131</u>	<u>18.7%</u>	<u>15.2%</u>	<u>128</u>	<u>17.8%</u>	<u>15.0%</u>	-2.3%	-0.2%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]).

¹ The estimates of employment for 2011 forward are based on the 2012 North American Industry Classification System.

² Excludes limited partners.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Appendix Table 7a
Personal Income by Major Component and Earnings by Industry based on NAICS¹
for Bowman County and North Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	Bowman County		State	Bowman County		State	% Change	% Change
	Income (\$1000s)	% Total	% Total	Income (\$1000s)	% Total	% Total	Bowman County	North Dakota
Total Personal Income	<u>222,896</u>	<u>100.0%</u>	<u>100.0%</u>	<u>207,255</u>	<u>100.0%</u>	<u>100.0%</u>	-7.0%	-1.2%
Earnings by Place of Work	<u>150,386</u>	<u>67.5%</u>	<u>79.4%</u>	<u>137,269</u>	<u>66.2%</u>	<u>77.7%</u>	-8.7%	-3.3%
Wage/Salary Dsbrsmnts	84,882	56.4%	70.6%	81,368	59.3%	71.3%	-4.1%	-2.3%
Proprietors' income ²	48,040	31.9%	14.5%	38,918	28.4%	13.3%	-19.0%	-11.2%
All other earnings	<u>17,464</u>	<u>11.6%</u>	<u>14.9%</u>	<u>16,983</u>	<u>12.4%</u>	<u>15.4%</u>	-2.8%	-0.2%
Total by Industry:	-	-	-	-	-	-	-	-
Farm earnings	27,112	18.0%	3.5%	14,843	10.8%	1.2%	-45.3%	-67.4%
Nonfarm earnings	<u>123,274</u>	<u>82.0%</u>	<u>96.5%</u>	<u>122,426</u>	<u>89.2%</u>	<u>98.8%</u>	-0.7%	-1.0%
Private nonfarm earnings	<u>109,949</u>	<u>89.2%</u>	<u>84.8%</u>	<u>108,287</u>	<u>88.5%</u>	<u>83.9%</u>	-1.5%	-2.0%
For, fshng, & related	530	0.5%	0.6%	660	0.6%	0.6%	24.5%	6.0%
Mining	15,016	13.7%	14.3%	14,631	13.5%	11.3%	-2.6%	-22.4%
Utilities	470	0.4%	1.7%	530	0.5%	1.9%	12.8%	8.4%
Construction	19,158	17.4%	12.6%	11,960	11.0%	12.7%	-37.6%	-0.7%
Manufacturing	2,452	2.2%	6.3%	2,233	2.1%	6.8%	-8.9%	7.1%
Wholesale trade	22,747	20.7%	8.5%	26,535	24.5%	8.5%	16.7%	-2.6%
Retail trade	8,749	8.0%	7.7%	8,736	8.1%	8.0%	-0.1%	2.0%
Transp & wrhsng	5,200	4.7%	8.8%	5,500	5.1%	8.4%	5.8%	-5.7%
Information	475	0.4%	1.8%	393	0.4%	1.8%	-17.3%	-2.4%
Finance & Ins	3,350	3.0%	4.7%	3,850	3.6%	5.2%	14.9%	7.4%
RE/rental/leasing	1,430	1.3%	3.6%	1,380	1.3%	3.5%	-3.5%	-5.2%
Prof/sci/techn svcs	3,801	3.5%	5.7%	3,924	3.6%	5.9%	3.2%	0.9%
Mgmt cos/enterpr	4,011	3.6%	1.7%	4,347	4.0%	1.9%	8.4%	5.0%
Admin/waste svcs	620	0.6%	2.6%	700	0.6%	2.6%	12.9%	-1.5%
Educ services	239	0.2%	0.5%	219	0.2%	0.5%	-8.4%	1.8%
Hlth care/soc assist	13,176	12.0%	11.8%	13,942	12.9%	13.0%	5.8%	7.7%
Arts/entrtnmnt/rec	192	0.2%	0.4%	249	0.2%	0.4%	29.7%	8.0%
Accomm/food svcs	3,366	3.1%	3.2%	3,326	3.1%	3.2%	-1.2%	-2.5%
Other not pub admin	<u>4,967</u>	<u>4.5%</u>	<u>3.7%</u>	<u>5,172</u>	<u>4.8%</u>	<u>3.9%</u>	4.1%	3.7%
Govt & govt enterpr	<u>13,325</u>	<u>10.8%</u>	<u>15.2%</u>	<u>14,139</u>	<u>11.5%</u>	<u>16.1%</u>	6.1%	4.9%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]).

¹The estimates are based on the North American Industry Classification System (NAICS). The estimates for 2011 forward are based on the 2012 NAICS.

²Proprietors' income includes the inventory valuation adjustment and capital consumption adjustment.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Appendix Table 7b
Personal Income by Major Component and Earnings by Industry based on NAICS¹
for Slope County and North Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	Slope County		State	Slope County		State	% Change	% Change
	Income (\$1000s)	% Total	% Total	Income (\$1000s)	% Total	% Total	Slope County	North Dakota
Total Personal Income	<u>53,916</u>	<u>100.0%</u>	<u>100.0%</u>	<u>46,173</u>	<u>100.0%</u>	<u>100.0%</u>	-14.4%	-1.2%
Earnings by Place of Work	<u>41,211</u>	<u>76.4%</u>	<u>79.4%</u>	<u>27,403</u>	<u>59.3%</u>	<u>77.7%</u>	-33.5%	-3.3%
Wage/Salary Dsbrsmnts	19,994	48.5%	70.6%	10,950	40.0%	71.3%	-45.2%	-2.3%
Proprietors' income ²	17,958	43.6%	14.5%	14,306	52.2%	13.3%	-20.3%	-11.2%
All other earnings	<u>3,259</u>	<u>7.9%</u>	<u>14.9%</u>	<u>2,147</u>	<u>7.8%</u>	<u>15.4%</u>	-34.1%	-0.2%
Total by Industry:								
Farm earnings	13,804	33.5%	3.5%	7,393	27.0%	1.2%	-46.4%	-67.4%
Nonfarm earnings	<u>27,407</u>	<u>66.5%</u>	<u>96.5%</u>	<u>20,010</u>	<u>73.0%</u>	<u>98.8%</u>	-27.0%	-1.0%
Private nnfrm earnings	<u>26,104</u>	<u>95.2%</u>	<u>84.8%</u>	<u>18,541</u>	<u>92.7%</u>	<u>83.9%</u>	-29.0%	-2.0%
For, fshng, & related	820	3.1%	0.6%	810	4.4%	0.6%	-1.2%	6.0%
Mining	17,340	66.4%	14.3%	9,633	52.0%	11.3%	-44.4%	-22.4%
Utilities	68	0.3%	1.7%	86	0.5%	1.9%	26.5%	8.4%
Construction	1,003	3.8%	12.6%	1,166	6.3%	12.7%	16.3%	-0.7%
Manufacturing	180	0.7%	6.3%	177	1.0%	6.8%	-1.7%	7.1%
Wholesale trade	1,596	6.1%	8.5%	1,420	7.7%	8.5%	-11.0%	-2.6%
Retail trade	932	3.6%	7.7%	1,072	5.8%	8.0%	15.0%	2.0%
Transp & wrhng	1,967	7.5%	8.8%	1,690	9.1%	8.4%	-14.1%	-5.7%
Information	49	0.2%	1.8%	49	0.3%	1.8%	0.0%	-2.4%
Finance & Ins	82	0.3%	4.7%	84	0.5%	5.2%	2.4%	7.4%
RE/rental/leasing	239	0.9%	3.6%	234	1.3%	3.5%	-2.1%	-5.2%
Prof/sci/techn svcs	143	0.5%	5.7%	166	0.9%	5.9%	16.1%	0.9%
Mgmt cos/enterpr	0	0.0%	1.7%	0	0.0%	1.9%	0.0%	5.0%
Admin/waste svcs	360	1.4%	2.6%	253	1.4%	2.6%	-29.7%	-1.5%
Educ services	170	0.7%	0.5%	168	0.9%	0.5%	-1.2%	1.8%
Hlth care/soc assist	142	0.5%	11.8%	202	1.1%	13.0%	42.3%	7.7%
Arts/entrtmmt/rec	0	0.0%	0.4%	63	0.3%	0.4%	0.0%	8.0%
Accomm/food svcs	223	0.9%	3.2%	268	1.4%	3.2%	20.2%	-2.5%
Other nott pub admin	<u>790</u>	<u>3.0%</u>	<u>3.7%</u>	<u>1,000</u>	<u>5.4%</u>	<u>3.9%</u>	26.6%	3.7%
Govt & govt enterpr	<u>1,303</u>	<u>4.8%</u>	<u>15.2%</u>	<u>1,469</u>	<u>7.3%</u>	<u>16.1%</u>	12.7%	4.9%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]).

¹The estimates are based on the North American Industry Classification System (NAICS). The estimates for 2011 forward are based on the 2012 NAICS.

²Proprietors' income includes the inventory valuation adjustment and capital consumption adjustment.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Original data are not provided by BEA due to this item being less than \$50,000 earning; however, estimates have been provided for these items based on county and state records.

Appendix Table 7c

Personal Income by Major Component and Earnings by Industry based on NAICS¹
for Harding County and South Dakota, 2014 and 2015

	2014			2015			'14-'15	'14-'15
	Harding County		State	Harding County		State	% Change	% Change
	Income (\$1000s)	% Total	% Total	Income (\$1000s)	% Total	% Total	Harding County	South Dakota
Total Personal Income	<u>80,740</u>	<u>100.0%</u>	<u>100.0%</u>	<u>69,579</u>	<u>100.0%</u>	<u>100.0%</u>	-13.8%	4.8%
Earnings by Place of Work	<u>66,710</u>	<u>82.6%</u>	<u>71.4%</u>	<u>54,298</u>	<u>78.0%</u>	<u>71.7%</u>	-18.6%	5.3%
Wage & Salary								
Dsbrsmnts	23,894	35.8%	60.8%	23,185	42.7%	60.2%	-3.0%	4.4%
Proprietors' income ²	36,698	55.0%	23.7%	24,997	46.0%	24.3%	-31.9%	8.2%
All other earnings	<u>6,118</u>	<u>9.2%</u>	<u>15.5%</u>	<u>6,116</u>	<u>11.3%</u>	<u>15.4%</u>	0.0%	4.7%
Total by Industry:	-	-	-	-	-	-		
Farm earnings	23,864	35.8%	8.5%	12,677	23.3%	6.3%	-46.9%	-21.8%
Nonfarm earnings	<u>42,846</u>	<u>64.2%</u>	<u>91.5%</u>	<u>41,621</u>	<u>76.7%</u>	<u>93.7%</u>	-2.9%	7.8%
Prvte nonfarm earnings	<u>37,060</u>	<u>86.5%</u>	<u>82.0%</u>	<u>35,824</u>	<u>86.1%</u>	<u>82.9%</u>	-3.3%	9.0%
For, fshng, & related	400	1.1%	0.9%	370	1.0%	0.9%	-7.5%	12.2%
Mining	4,300	11.6%	0.3%	3,854	10.8%	0.3%	-10.4%	4.3%
Utilities	104	0.3%	1.0%	98	0.3%	1.0%	-5.8%	5.7%
Construction	15,813	42.7%	8.7%	14,727	41.1%	8.6%	-6.9%	8.6%
Manufacturing	1,326	3.6%	13.2%	2,391	6.7%	14.6%	80.3%	20.0%
Wholesale trade	1,410	3.8%	7.5%	1,390	3.9%	7.3%	-1.4%	5.1%
Retail trade	2,729	7.4%	10.3%	2,703	7.5%	9.8%	-1.0%	4.3%
Transp & wrhsng	3,434	9.3%	3.9%	3,234	9.0%	3.8%	-5.8%	5.4%
Information	243	0.7%	2.1%	260	0.7%	2.2%	7.0%	13.6%
Finance & Ins	224	0.6%	10.4%	240	0.7%	10.6%	7.1%	11.7%
RE/rental/leasing	781	2.1%	2.3%	826	2.3%	2.2%	5.8%	6.6%
Prof/sci/techn svcs	220	0.6%	5.5%	243	0.7%	5.6%	10.5%	11.4%
Mgmt cos & enterpr	0	0.0%	2.3%	0	0.0%	2.3%	0.0%	9.7%
Admin/waste svcs	1,110	3.0%	2.6%	1,015	2.8%	2.5%	-8.6%	3.6%
Educ services	1,346	3.6%	1.3%	1,105	3.1%	1.2%	-17.9%	3.1%
Hlth care/soc assist	2,300	6.2%	18.1%	2,170	6.1%	17.6%	-5.7%	6.1%
Arts/entrtnmnt/rec	110	0.3%	0.7%	108	0.3%	0.7%	-1.8%	7.5%
Accomm/food svcs	320	0.9%	4.2%	270	0.8%	4.1%	-15.6%	7.5%
Other not pub admin	<u>890</u>	<u>2.4%</u>	<u>4.7%</u>	<u>820</u>	<u>2.3%</u>	<u>4.5%</u>	-7.9%	5.3%
Govt & govt enterpr	<u>5,786</u>	<u>13.5%</u>	<u>18.0%</u>	<u>5,797</u>	<u>13.9%</u>	<u>17.1%</u>	0.2%	2.7%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]).

¹The estimates are based on the North American Industry Classification System (NAICS). The estimates for 2011 forward are based on the 2012 NAICS.

²Proprietors' income includes the inventory valuation adjustment and capital consumption adjustment.

Original data are not provided by BEA to avoid disclosure of confidential information; however, estimates have been provided for these items based on county and state trends.

Appendix Table 8a
Economic Indicators for Bowman County,
North Dakota and the United States

Indicator	Bowman County	North Dakota	United States
Total Personal Income (2015)	207,225,000	42,349,688,000	15,463,981,000,000
Per Capita Income (2015)	62,919	55,950	48,112
Employment (2016)	1,741	414,000	151,436,000
Unemployment (2016)	40	14,000	7,751,000
Unemployment Rate (2016)	2.3%	3.3%	4.9%
Employment (January 2017)	1,614	418,476	152,081,000
Unemployment (January 2017)	50	12,594	7,635,000
Unemployment Rate (January 2017)	3.0%	3.0%	4.8%
% of People in Poverty (2015)	7.4%	11.5%	15.5%
% Under 18 in Poverty (2015)	5.1%	13.6%	21.7%
Transfer Receipts (2015)	25,692,000	5,326,398,000	2,678,606,000,000
Transfer Receipts as a % of Total Personal Income	12.4%	12.6%	17.3%
Transfer Receipts -- Subcategories			
Medicare (2015)	6,731,000	1,099,469,000	628,220,000,000
% of Total	26.2%	20.6%	23.5%
Medicaid (2015)	4,912,000	965,701,000	551,843,000,000
% of Total	19.1%	18.1%	20.6%

SOURCE: Employment and unemployment data, U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2017]); Personal income, per capita income, and transfer receipts, U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]); Poverty data, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 8b
Economic Indicators for Slope County,
North Dakota and the United States

Indicator	Slope County	North Dakota	United States
Total Personal Income (2015)	46,173,000	42,349,688,000	15,463,981,000,000
Per Capita Income (2015)	60,199	55,950	48,112
Employment (2016)	396	414,000	151,436,000
Unemployment (2016)	11	14,000	7,751,000
Unemployment Rate (2016)	2.8%	3.3%	4.9%
Employment (January 2017)	380	418,476	152,081,000
Unemployment (January 2017)	10	12,594	7,635,000
Unemployment Rate (January 2017)	2.6%	3.0%	4.8%
% of People in Poverty (2015)	10.1%	11.5%	15.5%
% Under 18 in Poverty (2015)	8.3%	13.6%	21.7%
Transfer Receipts (2015)	5,341,000	5,326,398,000	2,678,606,000,000
Transfer Receipts as a % of Total Personal Income	11.6%	12.6%	17.3%
Transfer Receipts - Subcategories			
Medicare (2015)	1,445,000	1,099,469,000	628,220,000,000
% of Total	27.1%	20.6%	23.5%
Medicaid (2015)	775,000	965,701,000	551,843,000,000
% of Total	14.5%	18.1%	20.6%

SOURCE: Employment and unemployment data, U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2017]); Personal income, per capita income, and transfer receipts, U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]); Poverty data, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 8c
Economic Indicators for Harding County,
North Dakota and the United States

Indicator	Harding County	North Dakota	United States
Total Personal Income (2015)	69,579,000	42,349,688,000	15,463,981,000,000
Per Capita Income (2015)	54,916	55,950	48,112
Employment (2016)	747	414,000	151,436,000
Unemployment (2016)	20	14,000	7,751,000
Unemployment Rate (2016)	2.6%	3.3%	4.9%
Employment (January 2017)	700	418,476	152,081,000
Unemployment (January 2017)	19	12,594	7,635,000
Unemployment Rate (January 2017)	2.6%	3.0%	4.8%
% of People in Poverty (2015)	13.4%	11.5%	15.5%
% Under 18 in Poverty (2015)	10.5%	13.6%	21.7%
Transfer Receipts (2015)	6,131,000	5,326,398,000	2,678,606,000,000
Transfer Receipts as a % of Total Personal Income	8.8%	12.6%	17.3%
Transfer Receipts -- Subcategories			
Medicare (2015)	2,052,000	1,099,469,000	628,220,000,000
% of Total	33.5%	20.6%	23.5%
Medicaid (2015)	178,000	965,701,000	551,843,000,000
% of Total	2.9%	18.1%	20.6%

SOURCE: Employment and unemployment data, U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2017]); Personal income, per capita income, and transfer receipts, U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]); Poverty data, U.S. Census Bureau (www.census.gov [March 2017]).

Appendix Table 8d
Economic Indicators for Bowman and Slope Counties in North Dakota, Harding County in South Dakota,
North Dakota and the United States

Indicator	Bowman County	Slope County	Harding County	MSA	North Dakota	United States
Total Personal Income (2015)	\$207,225,000	\$46,173,000	\$69,579,000	\$322,977,000	\$42,349,688,000	\$15,463,981,000,000
Per Capita Income (2015)	\$62,919	\$60,199	\$54,916	\$61,849	\$55,950	\$48,112
Employment (2016)	1,741	396	747	2,884	414,000	151,436,000
Unemployment (2016)	40	11	20	71	14,000	7,751,000
Unemployment Rate (2016)	2.3%	2.8%	2.6%	2.5%	3.3%	4.9%
Employment (January 2017)	1,614	380	700	2,694	418,476	152,081,000
Unemployment (January 2017)	50	10	19	79	12,594	7,635,000
Unemployment Rate (January 2017)	3.0%	2.6%	2.6%	2.9%	3.0%	4.8%
% of People in Poverty (2015)	7.4%	10.1%	13.4%	10.3%	11.5%	15.5%
% Under 18 in Poverty (2015)	5.1%	8.3%	10.5%	8.0%	13.6%	21.7%
Transfer Receipts (2015)	\$25,692,000	\$5,341,000	\$6,131,000	\$37,164,000	\$5,326,398,000	\$2,678,606,000,000
Transfer Receipts as a % of Total Personal Income	12.4%	11.6%	8.8%	11.5%	12.6%	17.3%
Transfer Receipts -- Subcategories						
Medicare (2015)	\$6,731,000	\$1,445,000	\$2,052,000	\$10,228,000	\$1,099,469,000	\$628,220,000,000
% of Total	26.2%	27.1%	33.5%	27.5%	20.6%	23.5%
Medicaid (2015)	\$4,912,000	\$775,000	\$178,000	\$5,865,000	\$965,701,000	\$551,843,000,000
% of Total	19.1%	14.5%	2.9%	15.8%	18.1%	20.6%

SOURCE: Employment and unemployment data, U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2017]); Personal income, per capita income, and transfer receipts, U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2017]); Poverty data, U.S. Census Bureau (www.census.gov [March 2017]).

Estimates only; averages of the three percents are averaged which is not technically correct; these should be considered estimates only.

Estimates only; weighted averages based on unemployment were calculated; these should be considered estimates only.

Appendix B

IMPLAN Software and Data from IMPLAN:

Model and Data Used to Derive Multipliers

**IMPLAN Software and Data from IMPLAN Group, LLC:
Model and Data Used to Derive Multipliers**

A Review of Input-Output Analysis

Input-output (I/O) (Miernyk, 1965) was designed to analyze the transactions among the industries in an economy. These models are largely based on the work of Wassily Leontief (1936). Detailed I/O analysis captures the indirect and induced interrelated circular behavior of the economy. For example, an increase in the demand for health services requires more equipment, more labor, and more supplies, which, in turn, requires more labor to produce the supplies, etc. By simultaneously accounting for structural interaction between sectors and industries, I/O analysis gives expression to the general economic equilibrium system. The analysis utilizes assumptions based on linear and fixed coefficients and limited substitutions among inputs and outputs. The analysis also assumes that average and marginal I/O coefficients are equal.

Nonetheless, the framework has been widely accepted and used. I/O analysis is useful when carefully executed and interpreted in defining the structure of an area, the interdependencies among industries, and forecasting economic outcomes.

The I/O model coefficients describe the structural interdependence of an economy. From the coefficients, various predictive devices can be computed, which can be useful in analyzing economic changes in a state, an area or a county. Multipliers indicate the relationship between some observed change in the economy and the total change in economic activity created throughout the economy.

The basis of IMPLAN was developed by the U. S. Forest Service to construct input/output accounts and models. The complexity of this type of modeling had hindered practitioners from constructing models specific to a community requesting an analysis. The University of Minnesota utilized the U.S. Forest Service model to further develop the methodology and expand the data sources to form the model known as IMPLAN. The founders of IMPLAN, Scott Lindall and Doug Olson, joined the University of Minnesota in 1984 and, as an outgrowth of their work with the University of Minnesota, entered into a technology transfer agreement with the University of Minnesota that allowed them to form Minnesota IMPLAN Group, Inc. (MIG).

In 2013, Minnesota IMPLAN Group, Inc. was purchased by IMPLAN Group, LLC. In 2015, IMPLAN Group, LLC became IMPLAN and relocated to:

IMPLAN
16905 Northcross Drive, Suite 120
Huntersville, NC 28078

IMPLAN support can be reached by phone at 800-507-9426 or by email on their web page at: <http://implan.com/company/contact-us/>.

IMPLAN Software and Data

At first, IMPLAN focused on database development and provided data that could be used in the Forest Service version of the software. In 1995, IMPLAN took on the task of writing a new version of the IMPLAN software from scratch that extended the previous Forest Service version by creating an entirely new modeling system – an extension of input-output accounts and resulting Social Accounting Matrices (SAM) multipliers. Version 2 of the new IMPLAN software became available in May of 1999. The latest development of the software is now available, IMPLAN Version 3 Software System, the new economic impact assessment software system.

With IMPLAN Version 3 software, the packaging of products has changed. Version 3 utilizes 2007 or later data. When data are ordered, the data cost plus shipping are the only costs. Version 3.0 software is included in the cost of the data. There are no additional fees to upgrade to IMPLAN Version 3.0. Data files are subject to licensing restrictions. Version 2 is no longer compatible with 2008 and later data sets.

Version 3 allows the user to do much more detailed analyses. Users can continue to create detailed economic impact estimates. Version 3.0 takes the analysis further, providing a new method for estimating regional imports and exports is being implemented - a trade model. IMPLAN can construct a model for any state, region, area, county, or zip code area in the United States by using available national, state, county, and zip code level data. Impact analysis can be performed once a regional input/output model is constructed.

IMPLAN online is an additional feature offered, allowing users to subscribe to online availability of the data and software. To purchase IMPLAN online, contact the company. Model economic impacts can be done from anywhere by utilizing IMPLAN online. IMPLAN online subscribers always have access to the latest data releases and most current software updates. Plus, subscribers also receive access to historical datasets (back to 2010) in addition to the data year of their selection.

IMPLAN Data

Five different sets of multipliers are estimated by IMPLAN, corresponding to five measures of regional economic activity. These are: total industry output, personal income, total income, value added, and employment. Two types of multipliers are generated. Type I multipliers measure the impact in terms of direct and indirect effects. Direct impacts are the changes in the activities of the focus industry or firm, such as the closing of a hospital. The focus business changes its purchases of inputs as a result of the direct impacts. This produces indirect impacts in other business sectors. However, the total impact of a change in the economy consists of direct, indirect, and induced changes. Both the direct and indirect impacts change the flow of dollars to the households. Subsequently, the households alter their consumption accordingly. The effect of the changes in household consumption on businesses in a community is referred to as an induced effect. To measure the total impact, a Type II (or Type SAM) multiplier is used. The Type II multiplier compares direct, indirect, and induced effects with the direct effects generated by a change in final demand (the sum of direct, indirect, and induced

divided by direct).

IMPLAN also provide an additional feature that shows the state and local tax impacts and the federal tax impacts for a particular industry or a scenario for a specific employer.