The Economic Impact of First Care Health Center on Walsh County, North Dakota

March 2019

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Prepared for:

First Care Health Center

and

Center for Rural Health
University of North Dakota School of Medicine and Health Sciences
https://ruralhealth.und.edu

Prepared by:

Cheryl F. St. Clair, Consultant
Email: cheryl@okstate.edu
Phone: 580-370-8484

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Medical facilities have a tremendous medical and economic impact on the community or county in which they are located. 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 county 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 First Care Health Center on Walsh County in North 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 Walsh County;
3. Summarize the direct economic activities of First Care Health Center from operations and construction in Walsh County;
4. Present concepts of community economics and multipliers;
5. Estimate the economic impact of First Care Health Center from operating and construction activities in Walsh County; and
6. Estimate the economic impact from both operations and construction on state and local taxes and on federal taxes.

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 17.9 percent in 2017;

Table 2
United States Health Expenditures and Employment Data
1970-2017; Projected for 2019-2027

Year	Total Health Expenditures ($Billions)	Per Capita Health Expenditures ($)	Health as % of GDP (%)	Health Sector Employment 0	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	1,369.2	4,855	13.4%	10,858 [a]	3.2%
2010	2,598.6	8,411	17.3%	13,777 [b]	2.7%
2011	$2,690.7	8,649	17.3%	14,026 [b]	1.8%
2013	2,881.8	9,129	17.2%	14,492 [b]	1.7%
2015	3,205.9	10,006	17.6%	15,042 [b]	1.9%
2017	3,492.1	10,739	17.9%	15,717 [b]	2.2%
				Avg Yrly Increase 2000 to 2017	2.6%
Projections					
2019	$3,823.1	11,559	17.8%		
2021	4,255.2	12,656	18.0%		
2023	4,767.1	13,954	18.5%		
2025	5,344.8	15,396	18.9%		
2027	5,963.2	16,907	19.4%		

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2019]); U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, National Health Expenditures 1970-2017 and National Health Expenditure Projections 2019-2027. (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html [March 2019]).

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

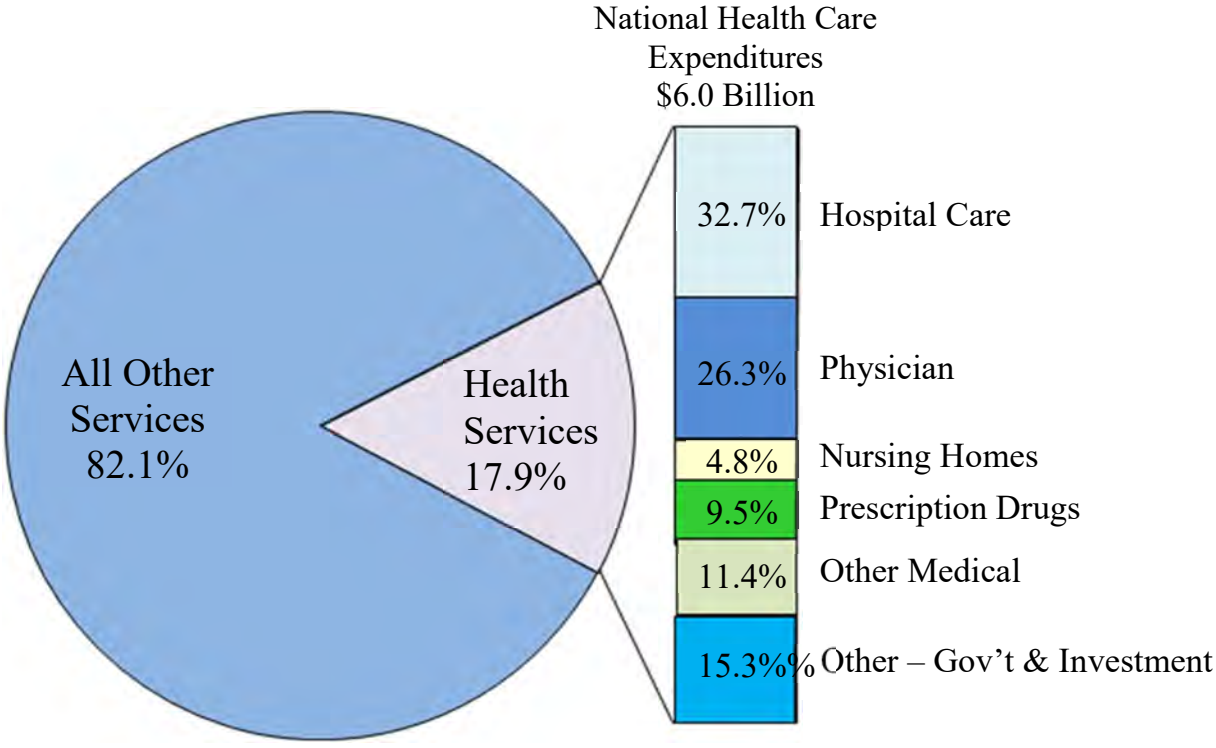
[b] Based on North American Industrial Classification System (NAICS) for health sector employment.

- Per capita health expenditures increased from $355 in 1970 to $10,739 in 2017;
- Employment in the health sector increased 415.0 percent from 1970 to 2017; and
- Annual increases in employment from 2000 to 2017 ranged from 1.7 percent to 3.2 percent, with an average of 2.6 percent.

The U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, project that health care expenditures will account for 18.5 percent of GDP by 2023 and are projected to increase to 19.4 percent of GDP in 2027. Per capita health care expenditures are projected to increase to $13,954 in 2023 and to $16,907 in 2027. Total health expenditures are projected to increase to just under $6.0 trillion in 2027.

Figure 1 illustrates 2017 health expenditures by percent of gross domestic product (GDP) and by type of health service. Health services represented 17.9 percent of national GDP in 2017.

Figure 1
National Health Expenditures as % of GDP and by Health Service Type, 2017



SOURCE: U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, National Health Expenditures 2017 (http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html [March 2019]).

The largest category of health services was hospital care, representing 32.7 percent of the total and the second largest category was physician services with 26.3 percent of the total.

Walsh County Demographic and Economic Data

First Care Health Center is located in Park River in Walsh County, North Dakota. The medical service area is Walsh County, North Dakota. **Table 3** illustrates U. S. Census Bureau populations for Walsh County cities and surrounding rural area, Walsh County and North Dakota. The most current census year populations are provided for 2000 and 2010 and population estimates for 2017. The population decreased for most of the cities, the rural area, and for Walsh County from 2000 to 2010. From 2000 to 2017, the majority of the cities still show a

Table 3
Population and Percent Change for Walsh County and the State of North Dakota

	2000 Population	2010 Population	2017 Estimate	% Change '00 to '10	% Change '10-'17
Adams	203	127	175	-37.4%	37.8%
Ardoch	61	67	87	9.8%	29.9%
Conway	23	23	15	0.0%	-34.8%
Edinburg	252	196	177	-22.2%	-9.7%
Fairdale	51	38	46	-25.5%	21.1%
Fordville	266	212	202	-20.3%	-4.7%
Forest River	154	125	106	-18.8%	-15.2%
Grafton	4,516	4,284	4,243	-5.1%	-1.0%
Hoople	292	242	295	-17.1%	21.9%
Lankin	131	98	110	-25.2%	12.2%
Minto	657	604	697	-8.1%	15.4%
Park River	1,535	1,403	1,452	-8.6%	3.5%
Pisek	96	106	109	10.4%	2.8%
Rural Area	4,152	3,594	3,206	-13.4%	-10.8%
Walsh County	12,389	11,119	10,920	-10.3%	-1.8%
North Dakota	642,200	672,591	745,475	4.7%	10.8%

SOURCE: U.S. Census Bureau (www.census.gov [March 2019]).

loss, as well as the rural area and the county. However, the county has a much lower loss during this most recent time period. North Dakota is increasing in population. The two largest cities in the county (Grafton and Park River) show decreased population from 2000 to 2010 and Grafton had a small decrease from 2010 to 2017, while Park River had a 3.5 percent population increase.

The 2010 Census populations and population projections for the county and state are illustrated in **Table 4**. The 2010 populations are from the U. S. Census Bureau and the projections from the "North Dakota Census Office Population Projections of the State, Regions, and Counties 2016," published by the North Dakota Department of Commerce – Census Office, January 19, 2016. The populations are projected to continue to decrease for the county and are projected to increase for the state from 2010 through 2040.

Table 4
2010 Census Population and Population Projections for Walsh County and the State of North Dakota

	2010 Census	2020 Projection	2030 Projection	2040 Projection	% Change '10-'20	% Change '10-'30	% Change '10-'40
Walsh County	11,119	10,803	10,749	10,769	-2.8%	-3.3%	-3.3%
North Dakota	672,591	824,344	931,506	991,522	22.6%	38.5%	47.4%

SOURCE: U.S. Census Bureau (www.census.gov [March 2019]); North Dakota Census Office Population Projections of the State, Regions, and Counties 2016, North Dakota Department of Commerce - Census Office, January 19, 2016 (www.commerce.nd.gov/census/ [March 2019]).

Table 5 shows the populations for selected cities, the rural area of the county, the county and state by age group and gender for the 2000 and 2010 Census years and the 2017 estimate year. For the years shown, the county and the state have very similar trends in the percent of total populations in each age group. The percent change from 2000 to 2010 and from 2010 to 2017 are provided in the bottom of the table. For population change from 2000 to 2010, the age group

Table 5
U.S. Census Population by Age Groups and Gender for Grafton and Park River Cities in Walsh County, Walsh County, and the State of North Dakota, 2000, 2010, 2017

	Age Groups							Gender	
	0-14	15-19	20-24	25-44	45-64	65+	Totals	Male	Female
2000 Census									
Grafton	885	315	227	1,186	1,044	859	4,516	2,167	2,349
Park River	265	115	57	321	340	437	1,535	716	819
Rural Area	834	383	137	1,055	1,114	629	4,152	2,237	1,915
Walsh Co.	2,444	957	497	3,100	3,001	2,390	12,389	6,196	6,193
% of Total	19.7%	7.7%	4.0%	25.0%	24.2%	19.3%	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									
Grafton	839	268	246	920	1,187	824	4,284	2,073	2,211
Park River	249	64	43	268	393	386	1,403	687	716
Rural Area	642	220	115	685	1,276	656	3,594	1,907	1,687
Walsh Co.	2,032	674	486	2,246	3,444	2,237	11,119	5,608	5,511
% of Total	18.3%	6.1%	4.4%	20.2%	31.0%	20.1%	100.0%	50.4%	49.6%
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%
2017 Estimate									
Grafton	873	250	144	923	1,190	863	4,243	2,027	2,216
Park River	303	58	51	308	322	410	1,452	699	753
Rural Area	506	243	122	540	1,142	653	3,206	1,827	1,468
Walsh Co.	2,086	639	513	2,275	3,159	2,248	10,920	5,606	5,314
% of Total	19.1%	5.9%	4.7%	20.8%	28.9%	20.6%	100.0%	51.3%	48.7%
North Dakota	144,647	47,905	67,433	195,870	182,424	107,196	745,475	382,121	363,354
% of Total	19.4%	6.4%	9.0%	26.3%	24.5%	14.4%	100.0%	51.3%	48.7%
% Change '00 to '10									
Grafton	-5.2%	14.9%	8.4%	-22.4%	13.7%	-4.1%	-5.1%	-4.3%	-5.9%
Park River	-6.0%	44.3%	24.6%	-16.5%	15.6%	-11.7%	-8.6%	-4.1%	-12.6%
Rural Area	-23.0%	42.6%	16.1%	-35.1%	14.5%	4.3%	-13.4%	-14.8%	-11.9%
Walsh Co.	-16.9%	29.6%	-2.2%	-27.5%	14.8%	-6.4%	-10.3%	-9.5%	-11.0%
North Dakota	-4.1%	11.5%	16.7%	-5.2%	28.5%	3.2%	4.7%	6.0%	3.4%
% Change '10 to '17									
Grafton	2.0%	-6.7%	41.5%	0.3%	0.3%	4.7%	-1.0%	-2.2%	0.2%
Park River	21.7%	-9.4%	18.6%	14.9%	-18.1%	6.2%	3.5%	1.7%	5.2%
Rural Area	-21.2%	10.5%	6.1%	-21.2%	-10.5%	-0.5%	-10.8%	-4.2%	-13.0%
Walsh Co.	2.7%	-5.2%	5.6%	1.3%	-8.3%	0.5%	-1.8%	0.0%	-3.6%
North Dakota	16.2%	0.9%	14.4%	18.2%	2.2%	10.0%	10.8%	12.4%	9.2%

SOURCE: 2000 and 2010 Census population and 2017 population estimates by age groups, American FactFinder, U.S. Census Bureau (www.census.gov [March 2019]).

15-19 had the largest gain in population for the county and the age group 45-64 had2 the largest gain for the state. For the changes from 2010 to 2017, the age group 45-64 had the largest loss for the county, while the age group 15-19 had the smallest gain for the state. On the largest growth, the county had the largest growth in the age 20-24 age group and the state had the largest growth in the 25-44 age group.

Table 6 provides the populations of selected cities, the rural area, Walsh County and North Dakota by race groups and Hispanic origin. For all three years of data, 2000 and 2010 Census and 2017 estimate, the county and the state have the largest population in the white race group. For persons of Hispanic origin, the county and the state both had an increased percent each of the three years; however, the state was increasing at a much lower level than the county. From 2000 to 2010, the county has the largest growth in population for Native Americans, while the state has the largest growth in population in the black race group. From 2010 to 2017, the county had the largest growth in population for the black race group with the Native American group the second largest growth; the state had the largest growth in the black race group.

Data from County Business Patterns and Bureau of Economic Analysis show trends in the health services employment and payroll (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 payroll for the county and the state. The data show that the county health services employment decreased 4.6 percent from 2006 to 2016 while the total county employment decreased by 9.0 percent. County health services employment as a percent of total county employment was 18.7

Table 6
U.S. Census Population by Race and Hispanic Origin for Grafton and Park River Cities in Walsh County, Walsh County, and the State of North Dakota, 2000, 2010, 2017

	White	Black	Native American	Other	Two or More Races	Totals	Hispanic Origin
2000 Census							
Grafton	4140	26	61	229	60	4516	432
Park River	1467	1	25	25	17	1535	40
Rural Area	4,054	12	19	48	19	4,152	111
Walsh Co.	11,752	41	126	337	133	12,389	700
% of Total	94.9%	0.3%	1.0%	2.7%	1.1%	100.0%	5.7%
N. Dakota	593,181	3,916	31,329	6,376	7,398	642,200	7,786
% of Total	92.4%	0.6%	4.9%	1.0%	1.2%	100.0%	1.2%
2010 Census							
Grafton	3822	15	121	255	71	4284	602
Park River	1361	0	18	8	16	1403	33
Rural Area	3,462	8	20	60	44	3,594	129
Walsh Co.	10,391	25	168	385	150	11,119	969
% of Total	93.5%	0.2%	1.5%	3.5%	1.3%	100.0%	8.7%
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%	104.7%	2.0%
2017 Estimate							
Grafton	3804	8	221	169	41	4243	617
Park River	1374	25	6	44	3	1452	74
Rural Area	3,067	0	19	96	24	3,206	161
Walsh Co.	10,060	39	258	450	113	10,920	1,217
% of Total	92.1%	0.4%	2.4%	4.1%	1.0%	100.0%	11.1%
N. Dakota	654,024	17,365	39,507	17,138	17,441	745,475	24,744
% of Total	87.7%	2.3%	5.3%	2.3%	2.3%	100.0%	3.3%
% Change '00 to '10							
Grafton	-7.7%	-42.3%	98.4%	11.4%	18.3%	-5.1%	39.4%
Park River	-7.2%	-100.0%	-28.0%	-68.0%	-5.9%	-8.6%	-17.5%
Rural Area	-14.6%	-33.3%	5.3%	25.0%	131.6%	-13.4%	16.2%
Walsh Co.	-11.6%	-39.0%	33.3%	14.2%	12.8%	-10.3%	38.4%
N. Dakota	2.1%	103.3%	16.8%	68.4%	60.2%	4.7%	73.0%
% Change '10 to '17							
Grafton	-0.5%	-46.7%	82.6%	-33.7%	-42.3%	-1.0%	2.5%
Park River	1.0%	0.0%	-66.7%	450.0%	-81.3%	3.5%	124.2%
Rural Area	-11.4%	-100.0%	-5.0%	60.0%	-45.5%	-10.8%	24.8%
Walsh Co.	-3.2%	56.0%	53.6%	16.9%	-24.7%	-1.8%	25.6%
N. Dakota	8.0%	118.2%	8.0%	59.6%	47.1%	10.8%	83.7%

SOURCE: 2000 and 2010 Census populations and 2017 population estimates by race and ethnic origin, American FactFinder, U.S. Census Bureau (www.census.gov [March 2019]).

Table 7
Employment and Payroll for Health Services
in Walsh County and North Dakota

	Employment			
	County Health Services	Total County Services	Health Services as a % of Total Co. Employment	Health Services as a % of Total State Employment
2006	680	3,640	18.7%	18.4%
2007	690	3,699	18.7%	17.5%
2008	702	3,642	19.3%	17.0%
2009	704	3,560	19.8%	18.0%
2010	701	3,540	19.8%	18.6%
2011	681	3,426	19.9%	18.4%
2012	678	3,525	19.2%	17.4%
2013	708	3,609	19.6%	17.3%
2014	686	3,548	19.3%	16.5%
2015	681	3,533	19.3%	16.2%
2016	649	3,311	19.6%	17.7%
% Chg '06-'16	-4.6%	-9.0%		
	Payroll ($1000s)			
	Health Services	Total MSA	Health Services as a % of Total MSA Payroll	Health Services as a % of Total State Payroll
2006	15,291	83,769	18.3%	19.9%
2007	16,825	89,331	18.8%	18.6%
2008	17,436	93,779	18.6%	18.4%
2009	18,514	89,666	20.6%	19.5%
2010	19,256	96,550	19.9%	19.5%
2011	19,800	103,443	19.1%	18.7%
2012	21,108	116,329	18.1%	17.0%
2013	21,841	122,789	17.8%	16.6%
2014	22,689	121,178	18.7%	15.7%
2015	23,520	123,010	19.1%	16.6%
2016	23,913	120,112	19.9%	17.8%
% Chg '06-'16	56.4%	43.4%		

SOURCE: U.S. Census Bureau, County Business Patterns; 2006-2016 based on NAICS (www.census.gov March 2019]).

percent in 2006 and increased to 19.6 percent in 2016; the state health services employment was 18.4 percent of total state employment in 2006 and decreased to 17.7 percent in 2016.

County health services payroll increased 56.4 percent from 2006 to 2016, while total county payroll increased 43.4 percent from 2006 to 2016. County health services payroll as a percent of total county payroll was 18.3 percent in 2006 and increased to 19.9 percent in 2016. This compares to the state health services payroll as a percent of total state payroll of 19.9 percent in 2006 and decreasing to 17.8 percent in 2016.

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 employment by type and by industry. Total county employment decreased 0.4 percent from 2016 to 2017, while the state decreased 0.2 percent. The health care and social assistance sector showed county employment of 711 in 2016 and 700 in 2017, a 1.5 percent decrease from 2016 to 2017. The state health care and social assistance sector showed a 0.9 percent increase during the same time. The largest industry for the county was health care and social assistance for 2016 and 2017. Data were not available for all industries, so estimates were calculated based on state and county trends. Estimated data are in the shaded areas of the table.

Table 9 shows personal income by source and by industry. Total county income increased 0.8 percent from 2016 to 2017, while the state decreased 0.7 percent. Health care and social assistance made up 14.9 and 15.0 percent of all private income in years 2016 and 2017, respectively. The largest industry was health and social assistance for the county for both years. Data were not available for all industries, so estimates were calculated based on state and county trends. Estimated data are in the shaded areas of the table.

Table 8
Full- & Part-Time Employment by NAICS[1] Industry
for Walsh County and North Dakota, 2016 and 2017

	2016			2017			'16-'17	'16-'17
	Walsh Co.		ND	Walsh Co.		ND	% Change	% Change
	No. of Jobs	% of Total	% of Total	No. of Jobs	% of Total	% of Total	Walsh County	North Dakota
Total Empl (no. of jobs)	7,503	100.0%	100.0%	7,472	100.0%	100.0%	-0.4%	-0.2%
Wage & Salary	5,162	68.8%	77.8%	5,102	68.3%	77.4%	-1.2%	-0.7%
Proprietors'	2,341	31.2%	22.2%	2,370	31.7%	22.6%	1.2%	1.6%
Farm proprietors'	823	35.2%	20.4%	823	34.7%	20.1%	0.0%	0.3%
Nonfarm proprietors'[2]	1,518	64.8%	79.6%	1,547	65.3%	79.9%	1.9%	2.0%
By Industry:								
Farm employment	1,105	14.7%	5.4%	1,128	15.1%	5.4%	2.1%	1.5%
Nonfarm employment	6,398	85.3%	94.6%	6,344	84.9%	94.6%	-0.8%	-0.2%
Private employment	5,164	68.8%	83.8%	5,144	68.8%	83.8%	-0.4%	-0.2%
For, fshng, & related	275	5.3%	1.0%	278	5.4%	1.0%	1.1%	-2.4%
Mining	71	1.4%	5.0%	73	1.4%	5.7%	2.8%	12.8%
Utilities	28	0.5%	0.9%	31	0.6%	0.9%	10.7%	1.3%
Construction	318	6.2%	9.0%	316	6.1%	8.0%	-0.6%	-10.4%
Manufacturing	602	11.7%	5.7%	581	11.3%	5.8%	-3.5%	1.0%
Wholesale trade	413	8.0%	5.6%	421	8.2%	5.5%	1.9%	-2.2%
Retail trade	602	11.7%	13.1%	604	11.7%	12.9%	0.3%	-2.4%
Transp & wrhsng	471	9.1%	5.0%	469	9.1%	5.0%	-0.4%	1.1%
Information	114	2.2%	1.6%	113	2.2%	1.6%	-0.9%	-1.8%
Finance & Ins	377	7.3%	6.0%	385	7.5%	6.0%	2.1%	1.3%
RE/rental/leasing	190	3.7%	5.2%	194	3.8%	5.3%	2.1%	2.7%
Prof, sci, & techn svcs	158	3.1%	5.0%	162	3.1%	5.0%	2.5%	-1.5%
Mgmt of cos & enterpr	0	0.0%	1.3%	0	0.0%	1.3%	0.0%	1.4%
Admin/waste svcs	142	2.7%	3.9%	142	2.8%	3.9%	0.0%	0.9%
Educ services	71	1.4%	1.4%	72	1.4%	1.4%	1.4%	1.4%
Hlth care & soc assist	711	13.8%	14.4%	700	13.6%	14.6%	-1.5%	0.9%
Arts/entrtnmnt/rec	79	1.5%	1.8%	75	1.5%	1.8%	-5.1%	1.7%
Accommod/food svcs	234	4.5%	8.2%	218	4.2%	8.2%	-6.8%	0.0%
Other except pub adm	308	6.0%	5.9%	310	6.0%	6.0%	0.6%	1.4%
Gov't & Gov't entrprse	1,234	23.9%	16.2%	1,200	23.3%	16.2%	-2.8%	-0.5%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2019]).

[1] The estimates of employment for 2016 are based on the 2012 North American Industry Classification System (NAICS) and the estimates for 2017 are based on the 2017 NAICS.

[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 NAICS[1]

for Walsh County and North Dakota, 2016 and 2017

	2016			2017			'16-'17	'16-'17
	Walsh County		ND	Walsh County		ND	% Change	% Change
	Income ($1000s)	% Total	% Total	Income ($1000s)	% Total	% Total	Walsh County	North Dakota
Total Personal Income	485,431	100.0%	100.0%	489,492	100.0%	100.0%	0.8%	-0.7%
Earnings by Place of Work	294,057	60.6%	78.4%	292,819	59.8%	77.7%	-0.4%	-1.6%
Wage & Salary Dsbrsmnts	198,171	67.4%	69.5%	201,376	68.8%	72.2%	1.6%	2.2%
Proprietors' income[2]	41,585	14.1%	13.6%	35,382	12.1%	9.8%	-14.9%	-29.1%
All other earnings	54,301	18.5%	17.0%	56,061	19.1%	18.0%	3.2%	4.4%
Total by Industry:								
Farm earnings	18,015	6.1%	2.6%	17,248	5.9%	0.2%	-4.3%	-91.5%
Nonfarm earnings	276,042	93.9%	97.4%	275,571	94.1%	99.8%	-0.2%	0.8%
Private nonfarm earnings	211,482	76.6%	81.9%	210,878	76.5%	81.7%	-0.3%	0.5%
For, fshng, & related	1,590	0.8%	0.8%	1,530	0.7%	0.8%	-3.8%	5.0%
Mining	16,000	7.6%	7.6%	16,000	7.6%	8.9%	0.0%	18.7%
Utilities	4,100	1.9%	2.1%	4,100	1.9%	2.1%	0.0%	-0.9%
Construction	16,932	8.0%	12.7%	16,796	8.0%	11.0%	-0.8%	-13.0%
Manufacturing	28,383	13.4%	6.9%	27,187	12.9%	6.8%	-4.2%	-0.6%
Wholesale trade	26,520	12.5%	8.1%	26,642	12.6%	8.0%	0.5%	-0.1%
Retail trade	15,457	7.3%	8.0%	14,542	6.9%	7.7%	-5.9%	-3.0%
Transp & wrhsng	17,576	8.3%	7.4%	17,576	8.3%	7.4%	0.0%	1.4%
Information	7,247	3.4%	2.2%	7,274	3.4%	2.3%	0.4%	1.9%
Finance & Ins	13,271	6.3%	5.9%	14,389	6.8%	6.2%	8.4%	4.7%
RE/rental/leasing	5,141	2.4%	4.2%	4,895	2.3%	3.8%	-4.8%	-9.1%
Prof, sci, & techn svcs	5,842	2.8%	6.0%	6,262	3.0%	6.0%	7.2%	0.6%
Mgmt of cos & enterpr	0	0.0%	2.0%	0	0.0%	2.1%	0.0%	7.0%
Admin/waste svcs	3,900	1.8%	2.8%	3,875	1.8%	2.9%	-0.6%	5.5%
Educ services	4,005	1.9%	0.6%	4,005	1.9%	0.6%	0.0%	-2.0%
Hlth care & soc assist	31,600	14.9%	15.0%	31,600	15.0%	15.5%	0.0%	4.0%
Arts/entrtnmnt/rec	601	0.3%	0.5%	583	0.3%	0.5%	-3.0%	1.6%
Accommod/food svcs	3,052	1.4%	3.2%	2,688	1.3%	3.2%	-11.9%	-1.0%
Other except pub admin	10,265	4.9%	4.1%	10,191	4.8%	4.2%	-0.7%	2.3%
Govt & govt enterpr	64,560	23.4%	18.1%	64,693	23.5%	18.3%	0.2%	2.0%

SOURCE: U.S. Department of Commerce, Regional Economic Information System, Bureau of Economic Analysis (www.bea.gov [March 2019]).

[1]The estimates are based on the North American Industry Classification System (NAICS). The estimates for 2016 are based on the 2012 NAICS and the estimates for 2017 are based on the 2017 NAICS.

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

Note-- All dollar estimates are in thousands of current dollars (not adjusted for inflation). Statistics presented in thousands of dollars do not indicate more precision than statistics presented in millions of dollars.

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.

Basic economic indicators for Walsh County, North Dakota, and the United States are illustrated in **Table 10**. BEA data for 2017 show per capita income in Walsh County at $45,094 with the state ($52,269) and the nation ($51,640) higher. The employment and labor force data are from the U.S. Department of Labor, Bureau of Labor Statistics. For 2018, the annual unemployment rate was 2.8 percent for Walsh County, compared to 2.6 percent for the state and 3.9 percent for the U.S. For the preliminary year-to-date January 2019 employment and labor force data, the unemployment rate for Walsh County was 3.6 percent; this compared to 3.0 percent for the state and 4.4 percent for the U.S.

Based on 2017 U. S. Census poverty data, Walsh County had 13.4 percent of the population under age 18 below poverty level; this compared to 11.4 percent for the state and 18.4 percent for the U.S. From BEA 2017 data, transfer receipts as a percentage for total personal income for Walsh County (21.6 percent) were much higher than the state (13.8 percent) and the nation (16.5 percent). This indicator shows the entity's percent of total personal income that comes from federal and state funds.

Transfer receipts for Medicare were 26.2 percent of total transfer receipts for the county; the state was 13.8 percent and the U.S. 16.5 percent. Transfer receipts for Medicaid were 20.9 percent of total transfer receipts for the county; the state was 20.9 percent and the U.S. 21.2 percent.

Table 10
Economic Indicators for Walsh County,
North Dakota and the United States

Indicator	Walsh County	North Dakota	United States
Total Personal Income (2017)	$489,492,000	$39,483,572,000	$16,820,250,000,000
Per Capita Income (2017)	$45,094	$52,269	$51,640
Employment (2018)	5,052	393,755	155,761,000
Unemployment (2018)	144	10,544	6,314,000
Unemployment Rate (2018)	2.8%	2.6%	3.9%
Employment (January 2019)	4,917	387,498	154,964,000
Unemployment (January 2019)	182	12,006	7,140,000
Unemployment Rate (January 2019)	3.6%	3.0%	4.4%
% of People in Poverty (2017)	10.3%	10.0%	13.4%
% Under 18 in Poverty (2017)	13.4%	11.4%	18.4%
Transfer Receipts (2017)	$105,815,000	$5,461,984,000	$2,781,115,000,000
Transfer Receipts as a % of Total Personal Income	21.6%	13.8%	16.5%
Transfer Receipts -- Subcategories			
Medicare (2017)	$27,721,000	$1,206,518,000	$695,265,000,000
% of Total	26.2%	22.1%	25.0%
Medicaid (2017)	$22,142,000	$986,220,000	$589,004,000,000
% of Total	20.9%	18.1%	21.2%

SOURCE: Employment and unemployment data, U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [March 2019]); 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 2019]); Poverty data, U.S. Census Bureau (www.census.gov [March 2019]).

Direct Economic Activities of First Care Health Center Hospital and Rural Health Clinic

First Care Health Center hospital and rural health clinic provides services critical to Walsh County. Services at First Care Health Center in Park River, ND include the following:

- General Medical Care
- Rural Health Clinic
- 24-hour Emergency Room
- Surgery - inpatient & outpatient (general surgery, laparoscopic; colonoscopy and endoscopy procedures; ophthalmology and podiatry procedures)
- Endoscopy
- Laparoscopic
- Swing Bed & Respite Care
- 24-hour Laboratory & Radiology Services
- CT Scan, Bone Density, Ultrasound
- Mobile Imaging services including digital mammography, MRI, Echocardiology, nuclear medicine
- Telemedicine with Sanford Medical Center providers
- Telemedicine with Altru Health System providers
- Cardiac Rehab
- Chemotherapy
- Nutritional Services/Diabetes Center
- Physical Therapy
- Respiratory Care & Sleep Studies
- Home Health/Hospice provided through Altru Home Services/Hospice at First Care Health Center
- Occupational Therapy and Speech Therapy provided for patients at First Care Health Center by Altru Health System
- Drug Testing
- Home Oxygen Services through contract services with Altru Health System
- EKG
- Care Coordination
- Consultants: Cardiology, Gastroenterology, Oncology, Ophthalmology, Pathology, Podiatry, Radiology, and Surgery

The direct economic activities of First Care Health Center include the employees and their wages, salaries, and benefits to provide the health care services at the hospital and at the rural health clinic. From **Table 11**, the total direct employment of First Care Health Center includes 111 employees and the total direct labor income is $6.1 million. The hospital and rural health clinic are shown separately in the table. The direct economic activities for two years for

Table 11
Direct Economic Activities of First Care Health Center
and First Care Rural Health Clinic
in Park River, Walsh County, North Dakota, 2018

DIRECT ACTIVITIES FROM OPERATIONS		
Categories	Number of Employees	Labor Income (Wages, Salaries, and Benefits)
Operations		
First Care Health Center (Hospital)	95.0	$4,063,400
First Care RHC (Rural Health Clinic)	16.0	$2,011,289
Total Operations	111.0	$6,074,689

DIRECT ACTIVITIES FROM CONSTRUCTION			
	Estimated Construction	Number of Employees	Labor Income (Wages, Salaries, Benefits, and Proprietor Income)
2018 Capital Expenditures	$1,291,403	8.3	$460,368
2019 Capital Expenditures	$1,058,597	6.8	$377,376
Average annual capital expenditures	$1,175,000	7.5	$418,872

SOURCE: Local data from First Care Health Center, 2018 data; Construction ratios and average construction compensation from IMPLAN [www.implan.com (March 2019)].

construction activities were also provided in **Table 11**. First Care Health Center had construction in 2018 and estimated construction for 2019. The average of these two years was used to illustrate average construction of $1.2 million, construction employment of 7.5 and average construction labor income of $418,872. IMPLAN data were utilized to estimate the number of construction employees directly working on the construction activities and their resulting labor income. These are the direct economic activities (or direct impacts) of operations and construction of First Care Health Center on the Walsh County economy.

The Impact of First Care Health Center Hospital and Rural Health Clinic

The direct impacts of First Care Health Center hospital and RHC, measured by employment and labor income, are only a portion of the total impact. There are additional economic impacts created as the organization 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 A**). 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. The businesses which sell some or all of their goods and services to buyers outside of the county are the foundation of a county's economy. Such a business is a basic industry. The flow of products out of, and dollars into, a county 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 county, the basic industry purchases inputs from outside of the county (upper left portion of **Figure 2**), labor from the residents or "households" of the county (left side of **Figure 2**), and inputs from service industries located within the county (right side of **Figure 2**). The flow of labor, goods, and services in the county is completed by households using their earnings to purchase goods and services from the county'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 county's economy will have reverberations throughout the entire economic system of the county.

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

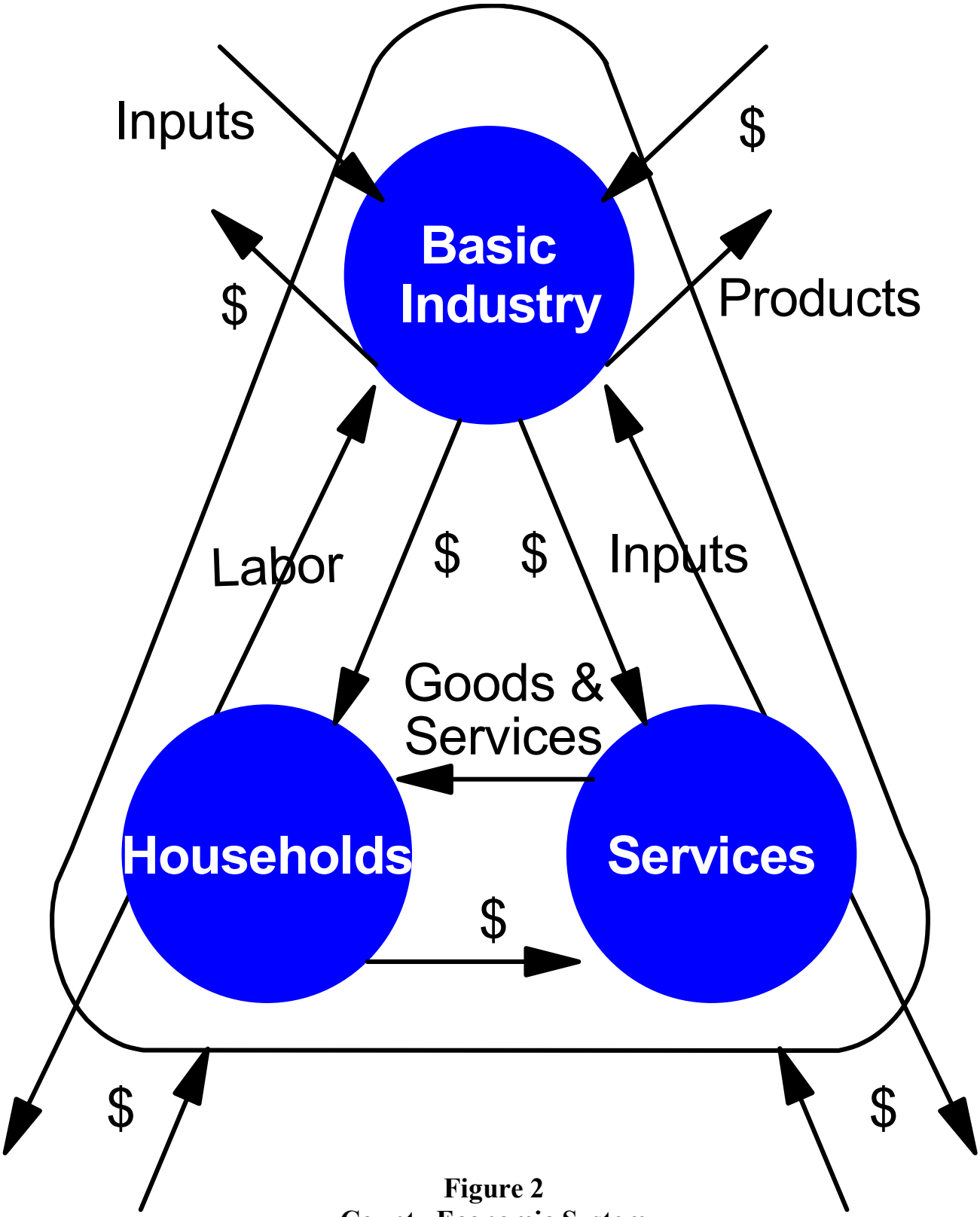


Figure 2
County Economic System

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 county's households. The households alter their consumption accordingly. The effect of this change in household consumption upon businesses in a county 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

The employment and labor income impacts of the First Care Health Center hospital and RHC from operating activities are presented in **Table 12**. Direct employment and labor income

from operating activities were obtained from First Care Health Center for the fiscal year ending in 2018. The multipliers specific to Walsh County, ND, are derived from IMPLAN data.

Table 12
Economic Impacts of Operations
of First Care Health Center Hospital and Rural Health Clinic, 2018

EMPLOYMENT IMPACT FROM OPERATIONS

Categories	Direct Employment	Employment Multiplier	Secondary Employment Impact	Total Employment Impact
Hospital	95	1.41	39	134
Rural Health Clinic	16	1.43	7	23
Operations Total	111		46	157

LABOR INCOME IMPACT FROM OPERATIONS

Categories	Direct Labor Income	Labor Income Multiplier	Secondary Labor Income Impact	Total Labor Income Impact
Hospital	$4,063,400	1.30	$1,219,020	$5,282,420
Rural Health Clinic	$2,011,289	1.21	$422,371	$2,433,660
Operations Total	$6,074,689		$1,641,391	$7,716,080

SOURCE: Direct employment and labor income data provided by First Care Health Center, 2018 data; multipliers from IMPLAN [www.implan.com (March 2019)].

The hospital employs 95 employees. The hospital employment multiplier is 1.41; this means for every job in the hospital sector, another 0.41 job is created in other sectors (businesses) in Walsh County. The secondary employment generated in Walsh County from the hospital sector is estimated to be 39 jobs, resulting in a total impact of 134 jobs on the local economy of Walsh County.

The direct labor income for the hospital is $4.1 million. Using the hospital labor income multiplier of 1.30 derived from IMPLAN, the hospital generates secondary labor income impact of $1.2 million and total labor income impact of $5.3 million. Applying the same methodology to the RHC, the RHC has direct employment impact of 16, with secondary employment impact of seven and total employment impact of 23. The combined total for the hospital and RHC results in direct employment impact of 111, secondary employment impact of 46, and total employment impact of 157.

The labor income impacts are derived through the same methodology. The direct labor income impact from operations is $6.1 million, the secondary labor income impact is $1.6 million, for a total labor income impact from operations of $7.7 million.

The Impact from Construction Activities

The construction activities will also have an impact on the economy of Walsh County. This impact is often overlooked. An average construction for 2018 and 2019 of $1.2 million results in average employment of 7.5 and average labor income of $418,872. The construction impacts only occur during the period of construction. The impact data for average construction are shown in **Table 13**. The current IMPLAN multipliers were used to estimate the impacts of construction.

With a construction employment multiplier of 1.35, construction was estimated to generate direct employment impact of 7.5 jobs, secondary employment impact of 2.6 jobs, and total employment impact of 10.1 jobs. With a construction labor income multiplier of 1.27, the average construction was estimated to generate direct labor income impact of $418,872, secondary labor income impact of $113,095, and total labor income impact of $531,967.

Table 13
Economic Impact of First Care Health Center Construction Activities, Average Construction

EMPLOYMENT IMPACT FROM CONSTRUCTION				
	Direct Employment	Employment Multiplier	Secondary Employment Impact	Total Employment Impact
Construction	7.5	1.35	2.6	10.1
LABOR INCOME IMPACT FROM CONSTRUCTION				
	Direct Labor Income	Labor Income Multiplier	Secondary Labor Income Impact	Total Labor Income Impact
Construction	$418,872	1.27	$113,095	$531,967

SOURCE: Construction costs provided by First Care Health Center, 2018 data; Construction direct employment and income derived from IMPLAN data; Multipliers from IMPLAN [www.implan.com (March 2019)].

Additional State and Local Tax Impacts and Federal Tax Impacts

IMPLAN derives impacts from state and local taxes and from federal taxes. **Tables 15** and **16** provide the estimated impacts for the hospital and RHC operations only. These impacts occur each and every year that First Health Care Center hospital and RHC remain in operation. Since construction impacts only occur during the year of construction and vary in the amount of capital expenditure, separate tables will present the operations combined with average construction amounts.

Table 15 shows the state and local tax impacts that occur each and every year that the First Care Health Center hospital and RHC remain in operation. The total of the state and local taxes is $571,284. This total includes the employee compensation taxes of $65,854, the taxes on production and imports of $408,690, the tax from households of $88,375, and the tax from corporations of $4,303. These state and local tax impacts are a result of First Care Health Center existing and operating in Park River, Walsh County, North Dakota.

Table 16 shows the federal tax impacts that occur each and every year that the First Care Health Center hospital and RHC remain in operation. The total of the federal taxes is $1.6 million. This total includes the federal employee compensation taxes of $0.9 million, proprietor income taxes of $35,366, the taxes on production and imports of $40,302, the tax from households (personal income tax) of $0.5 million, and the tax from corporations of $62,239.

Tables 17 and **18** provide the estimated impacts for the hospital and RHC operations and average construction combined. Since construction impacts only occur during the year of construction and vary in the amount of capital expenditure, the construction impacts may not occur in a given year or could vary tremendously depending on new construction projects. These

Table 15 State and Local Tax Impact for First Care Health Center Hospital and RHC Operations

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Totals
Dividends					$4,062	$4,062
Social Ins Tax- Employee Contribution	$21,946					$21,946
Social Ins Tax- Employer Contribution	$43,908					$43,908
TOPI: Sales Tax			$113,611			$113,611
TOPI: Property Tax			$114,652			$114,652
TOPI: Motor Vehicle Lic			$4,630			$4,630
TOPI: Severance Tax			$150,647			$150,647
TOPI: Other Taxes			$12,126			$12,126
TOPI: S/L NonTaxes			$13,024			$13,024
Corporate Profits Tax					$4,303	$4,303
Personal Tax: Income Tax				$47,640		$47,640
Personal Tax: NonTaxes (Fines-Fees				$16,574		$16,574
Personal Tax: Motor Vehicle License				$11,823		$11,823
Personal Tax: Property Taxes				$2,932		$2,932
Personal Tax: Other Tax (Fish/Hunt)				$9,406		$9,406
Total State and Local Tax	$65,854	$0	$408,690	$88,375	$4,303	$571,284

SOURCE: IMPLAN [www.implan.com (March 2019)].
TOPI - Tax on Production and Imports

Table 16 Federal Tax Impacts for First Care Health Center Hospital and RHC Operations

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Totals
Social Ins Tax- Employee Contribution	487,256.00	35,366.00				$522,622
Social Ins Tax- Employer Contribution	462,243.00					$462,243
						$0
TOPI: Excise Taxes			$27,238			$27,238
TOPI: Custom Duty			$11,296			$11,296
TOPI: Fed NonTaxes			$1,768			$1,768
						$0
Corporate Profits Tax					$62,239	$62,239
Personal Tax: Income Tax				$522,391		$522,391
Total Federal Tax	$949,499	$35,366	$40,302	$522,391	$62,239	$1,609,797

SOURCE: IMPLAN [www.implan.com (March 2019)].

TOPI - Tax on Production and Imports

Table 17 State and Local Tax Impact for First Care Health Center Hospital and RHC Operations and Average Construction Combined

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Totals
Dividends					$4,447	$4,447
Social Ins Tax- Employee Contribution	$23,492					$23,492
Social Ins Tax- Employer Contribution	$47,000					$47,000
						$0
TOPI: Sales Tax			$125,499			$125,499
TOPI: Property Tax			$126,649			$126,649
TOPI: Motor Vehicle Lic			$5,114			$5,114
TOPI: Severance Tax			$166,410			$166,410
TOPI: Other Taxes			$13,395			$13,395
TOPI: S/L NonTaxes			$14,387			$14,387
Corporate Profits Tax					$4,710	$4,710
Personal Tax: Income Tax				$52,124		$52,124
Personal Tax: NonTaxes (Fines- Fees				$18,134		$18,134
Personal Tax: Motor Vehicle License				$12,936		$12,936
Personal Tax: Property Taxes				$3,208		$3,208
Personal Tax: Other Tax (Fish/Hunt)				$10,292		$10,292
						$0
Total State & Local Tax	$70,492	$0	$451,454	$96,694	$9,157	$627,797

SOURCE: IMPLAN [www.implan.com (March 2019)].
TOPI - Tax on Production and Imports

Table 18 Federal Tax Impacts for First Care Health Center Hospital and RHC Operations and Average Construction Combined

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Totals
Social Ins Tax- Employee Contribution	$521,571	$44,980				$566,551
Social Ins Tax- Employer Contribution	$494,796					$494,796
						$0
TOPI: Excise Taxes			$30,088			$30,088
TOPI: Custom Duty			$12,478			$12,478
TOPI: Fed NonTaxes			$1,953			$1,953
						$0
Corporate Profits Tax					$68,128	$68,128
Personal Tax: Income Tax				$571,560		$571,560
Total Federal Tax	$1,016,367	$44,980	$44,519	$571,560	$68,128	$1,745,554

SOURCE: IMPLAN [www.implan.com (March 2019)].

TOPI - Tax on Production and Imports

two tables illustrate the operations combined with the average construction data provided by First Care Health Center.

Table 17 shows the state and local tax impacts that occur from the First Care Health Center hospital and RHC operations combined with an average construction year. The total of the state and local taxes is $627,797. This total includes the employee compensation taxes of $70,492, the taxes on production and imports of $451,454, the tax from households of $96,694, and the tax from corporations of $9,157. These state and local tax impacts are a result of First Care Health Center hospital and RHC operations combined with an average construction year in Park River, Walsh County, North Dakota.

Table 18 shows the federal tax impacts that occur from the First Care Health Center hospital and RHC operations combined with an average construction year. The total of the federal taxes is $1.7 million. This total includes the federal employee compensation taxes of $1.0 million, proprietor income taxes of $44,980, the taxes on production and imports of $44,519, the tax from households (personal income tax) of $0.6 million, and the tax from corporations of $68,128. These federal tax impacts are a result of First Care Health Center hospital and RHC operations combined with an average construction year in Park River, Walsh County, North Dakota.

Summary

Both the operating activities and construction activities of First Care Health Center hospital and rural health clinic impact the economy of Walsh County, North Dakota. Often overlooked can be the economic impact created from construction activities. This report measures the impact that the First Care Health Center hospital and rural health clinic have on the economy due to its normal operating activities and measures the impact from an average construction year of $1.2 million. The operating impact occurs every year; whereas, the construction impact will only occur during the construction year.

In 2018, First Care Health Center hospital and rural health clinic employed 111 full-time and part-time employees and generated $6.1 million in labor income (wages, salaries, and benefits). When the secondary impacts are included, the total employment impact is 157 jobs and the total labor income impact is $7.7 million. The employment and labor income impacts from operating activities are annual and will continue each and every year that First Care Health Center hospital and rural health clinic operate in the future; these are long term economic benefits of the First Care Health Center hospital and rural health clinic.

Construction impacts can have a major impact during a year of large construction projects. An average construction year was derived utilizing two years of data from First Care Health Center. The average construction was $1.2 million, generating total average employment impact of 10.1 jobs and total average labor income impact of $531,967. Combining the operation impact and the average construction impact results in total employment impact of 167.1 jobs and total labor income impact of $8.2 million.

Additional impacts occur from state and local taxes and from federal taxes. For the operations of First Care Health Center hospital and rural health clinic, the state and local tax

impact is $0.5 million and the federal tax impact is $1.6 million. These impacts will occur each and every year in the future that First Care Health Center remains in operation.

For illustration, the state and local taxes and federal taxes are provided based on the combined operations of the First Care Health Center hospital and rural health clinic and the average construction activities. The state and local tax impact is $0.6 million and the federal tax impact is $1.7 million. These impacts are for illustration only since construction activity will vary each and every year.

The impacts generated by First Care Health Center hospital and rural health clinic contribute to the local economy of Walsh County. The hospital employs local residents. The hospital and its employees spend money in Walsh County and generate a secondary impact. If the hospital increases or decreases in size, the medical health of Walsh County as well as the economic health of Walsh County 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 contribute to the overall economic health of Walsh County, as well as the overall medical health of the Walsh County residents. Given this, not only does First Care Health Center hospital and rural health clinic contribute to the health and wellness of the local residents but First Care Health Center hospital and rural health clinic also contribute to the overall economic strength of Walsh County.

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. Stoney 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

IMPLAN Software and Data from IMPLAN:

Model and Data Used to Derive Multipliers

APPENDIX A
IMPLAN Software and Data from IMPLAN: Model and Data Used to Derive Multipliers and State and Local Tax Impacts and Federal Tax Impacts

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 and relocated. The name has since changed to IMPLAN and the company is located at:

IMPLAN
16905 Northcross Drive, Suite 120
Huntersville, NC 28078
Phone: 800-507-9426

Additional information is available on the website: implan.com.

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 and the new IMPLAN appliance are included in the cost of the data. There are no additional fees to upgrade to IMPLAN Version 3.0. Data files are licensed to an individual user. 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 Multipliers

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 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.

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.

Miernyk, W.H. The Element of Input-Output Analysis. New York, NY; Random House. 1965.

Minnesota IMPLAN Group, Inc. MIG Inc Version 3.0 User's Guide. March 2010.