



THE ECONOMIC CONTRIBUTION OF MCKENZIE COUNTY HEALTHCARE SYSTEMS

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The Economic Contribution of McKenzie County Healthcare Systems

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Executive Summary

Access to health care is especially important to the well-being of residents in North Dakota, and even more so in rural and frontier communities. In addition to medical care and general well-being, medical providers also serve as an important component of rural economies. Health care providers often represent a large and stable economic presence in rural communities. Economic contribution assessments are used to gauge the relative importance of those providers to their host communities and rural counties. An assessment of economic effects serves to educate and inform a range of stakeholders about the economic size and relative importance of economic sectors and industries.

The main focus of this study is to provide an overview of the current conditions and trends that affect McKenzie County and to measure the economic contribution of its healthcare system, McKenzie County Healthcare Systems. The study objectives are:

- Develop a McKenzie County profile using various demographic and economic indicators to describe current conditions and recent trends in McKenzie County.
- Conduct an assessment of the economic contribution of McKenzie County Healthcare System on the McKenzie County economy.

McKenzie County Profile

- Since 2010, McKenzie County experienced unprecedented population and economic growth as a result of the rapid expansion of the oil and gas industry. The population of McKenzie County increased from 5,737 people in 2000 to 13,819 people in 2021, an increase of 141 percent.
- McKenzie County saw population growth across all age cohorts, especially those of childbearing age (25 to 44 years old). The largest percentage change in population by age from 2010 to 2020 can be seen in individuals under age 5 with an increase of 219 percent (431 people to 1,376 people) and those ages 25 to 44 at 193 percent (1,360 people to 3,987 people). The large increase in childbearing age (25 to 44 years old) residents in McKenzie County likely accounts for the dramatic increase in population for those under age 5 and ages 5 to 19.
- The number of households in McKenzie County nearly doubled from 2010 to 2020, increasing from 2,468 in 2010 to 4,478 in 2020. Households with children ages 0 to 17 nearly doubled as well (**Figure 7**). In 2010 there were 669 households with children compared to 1,247 households in 2020. The average household size also increased in the past 10 years from 2.43 persons per household in 2010 to an average size of 3.03 in 2020.
- From 2010 to 2020 there has been a decrease in owner-occupied housing units (68.4 percent to 57.5 percent of total households) and an increase in renter-occupied housing units (31.6 percent to 42.5 percent of total households).
- The birth rate (total number of live births per 1,000 people) in McKenzie County more than quadrupled from 2010 to 2020 (increase from 8.3 per 1,000 population to 38.8). The number of live births in the county increased from 53 births in 2010 to 247 births in 2020.

-
- Public school enrollment has more than doubled since 2010 in McKenzie County and statewide. Average daily enrollment increased from 984 students in 2010/11 to 2,280 students in 2020/21, a 132 percent increase.
 - McKenzie County saw a 401 percent increase in employment from 2,463 jobs in 2005 to 12,339 jobs in 2019. Despite this tremendous growth from 2005 to 2019, there was a sizable loss in employment from 11,409 jobs in 2014 to just 8,620 jobs in 2016. This loss of nearly 3,000 jobs coincides with a slowdown and contraction in the oil and gas industry. Employment slowly recovered to 12,339 jobs in 2019, and then decreased again due to the effects associated with the COVID-19 pandemic in 2020 (9,897 jobs) and 2021 (9,126 jobs).
 - Median household income nearly doubled in McKenzie County from 2006 to 2015, increasing from \$47,415 in 2006 to \$90,532 in 2015. Rapid expansion in the oil and gas industry was the driving force behind the substantial increase in median household income in this area. Household incomes rose in McKenzie County rose faster than household incomes statewide and nationally, 4 and 5 times faster, respectively over the past decade.
 - In McKenzie County, the total number of uninsured residents under age 65 increased gradually from 2010 to 2020. However, the percent of the total population under age 65 who are without insurance declined from 15.5 percent in 2010 to 11.3 percent in 2020. The total number of uninsured children (ages 0 to 18) in McKenzie County increased from 184 in 2010 to 544 children in 2020.

McKenzie County Healthcare Systems Profile

- McKenzie County Healthcare Systems operates a trauma level V, 24 bed critical access hospital. The system also offers pediatric and family medicine and specialty clinical services. In addition to hospital and clinical services, McKenzie County Healthcare Systems operates Good Shepherd Home, a 39-bed long term care facility; Horizon Assisted Living, an 11-apartment assisted living facility; and the Connie Wold Wellness Center which also houses McKenzie County Healthcare Systems physical and occupational services.
- McKenzie County Healthcare Systems has grown substantially in order to meet the needs of Watford City and the surrounding area. In 2018, the new McKenzie County Hospital was opened for operations. The new facility has enabled the consolidation of the hospital, clinics, assisted living, and long-term care facilities in a single location.
- In addition to the new facilities, McKenzie County Healthcare Systems has expanded its health care services and expertise. General surgical services were added in 2018 and orthopedic services were added in 2019. A pediatrics clinic was added in 2021 offering women and children's health services with two additional OB-GYN health care providers. More recently, in 2022, echocardiography and ear, nose, and throat services were added as well as OB-GYN and maternity services.

-
- McKenzie County Healthcare Systems employs 307 people including 40 physicians, physicians' assistants, and nurse practitioners; 108 CNA's, RN's and LPN's; and 31 health technicians.
 - McKenzie County Healthcare Systems operate in several of the economic sectors that comprise the Health Care and Social Assistance Sector in McKenzie County. Economic output associated with the specific sectors aligned with activities and services provided by McKenzie County Healthcare Systems grew from \$14.7 million in 2016 to \$37.4 million in 2020, a 155 percent increase. McKenzie County Healthcare Systems is responsible for about three-fourths of economic activity from health care services in McKenzie County.
 - The first round of payments for services, labor and other operations inputs represent direct economic effects. Direct economic output, also referred to as direct economic effects, were estimated to be \$52.0 million. Indirect and induced economic effects from operations for 2022 were estimated at \$3.6 and \$2.5 million, respectively for a total of \$6.1 million in secondary effects. Total direct and secondary economic effects from McKenzie County Healthcare System Operations in 2022 were \$58.2 million.
 - Direct economic output (direct economic effects) from operations for 2023 were projected to be \$60.9 million. Indirect and induced economic effects from operations for 2023 were projected at \$3.8 and \$2.9 million, respectively for total secondary effect of \$6.7 million in 2023. Total (direct and secondary) 2023 economic effects were estimated at \$67.7 million in 2023.
 - Direct economic effects from capital expenditures were estimated for 2021 and 2022 and projected for 2023. Direct capital expenditures were \$120,000 in 2021, \$66,000 in 2022 and projected to be \$96,000 in 2023. Total economic effects (direct, indirect and induced) from capital expenditures were \$141,000 in 2021, \$77,000 in 2022 and projected to be \$111,000 in 2023. Total economic output (direct and secondary economic effects) for operations and capital expenditures for 2022 was \$58.3 million and projected to be \$67.8 million in 2023.
 - The combined labor income from operations and capital expenditures was \$29.4 million in 2022 and projected to be \$33.6 million in 2023.
 - Payroll expenditures of \$27.3 million supported direct employment of 297 jobs in 2022. Employment compensation (payroll expenditures) for 2023 is projected to increase to \$31.2 million, with direct employment increasing to 343 jobs.
 - Business activity from McKenzie County Health Care Systems supported secondary employment of 48 jobs and \$2.1 million in labor income for total employment of 345 and total labor income of \$29.4 million in 2022. In 2023, business activity from McKenzie County Health Care Systems is projected to support an additional 53 jobs and \$2.3 million in labor income for total employment of 396 and total labor income of \$33.5 million.

-
- A variety of tax revenues are generated by operations of McKenzie County Healthcare Systems and from secondary business volume. Total government revenues (direct and secondary) for local and state jurisdictions were estimated to be \$594,400 in 2022. Most tax revenues are associated with indirect and induced effects from salaries and wages and sales taxes on taxable purchases of goods and services. Direct taxes in 2022 were \$276,800 and taxes generated from indirect and induced effects were \$317,600. Total direct tax collections for 2023 were projected to be \$314,600 with taxes generated by indirect and induced effects estimated to be \$354,200, for total tax collections of \$668,800.
 - Total disbursements in 2022 for McKenzie County Healthcare Systems for inputs supplied by local firms was estimated at \$2.1 million and \$27.3 million for employment compensation. Projections for 2023 are \$2.9 million for locally-source inputs and \$31.2 million for payroll.

Introduction

Access to health care is important to the well-being of residents of North Dakota, especially in rural and frontier communities. Without locally available health care, rural residents may incur excess travel, postpone visits, or otherwise forego health care. In addition to medical care and general well-being, medical providers also represent an important component of rural economies.

An economic contribution assessment serves to educate and inform a range of stakeholders about the economic size and relative importance of economic sectors and industries. Often businesses and industries find having economic information advantageous when discussing economic development, rural economic stability, job creation and retention, regional economic importance, and support of governmental revenues.

Health care providers are among the largest employers in rural communities and wage rates for medical professionals are often higher compared to other occupations in those rural economies. Health care providers often represent a stable economic presence these communities. Economic contribution assessments are used to gauge the relative importance of those providers to their host counties and communities.

Study Objectives

The main focus of this study is to provide an overview of the current conditions and trends that affect McKenzie County and to measure the economic contribution of its healthcare system, McKenzie County Healthcare Systems. Study objectives are:

1. Develop a McKenzie County profile using various demographic and economic indicators to describe current conditions and recent trends in McKenzie County.
2. Conduct an assessment of the McKenzie County Healthcare Systems' effect on the McKenzie County economy.

A previous study was completed in 2013. However, that study was limited to effects related to employment and labor compensation. Economic effects from medical providers also result in 'business-to-business' transactions, and those effects were not presented in the previous report. Also, several measures of economic output that are traditionally part of a contribution assessment were not included in the previous study. In addition of employment and labor compensation, this assessment includes McKenzie County Healthcare Systems contribution to the county's overall business volume (economic output) and county gross product.

Data Collections and Approach

Economic contribution assessments measure the economic output from a project, program, policy, or activity. Those outputs typically include jobs or employment, labor and proprietor income, and the sales and purchases of inputs. Economic output is categorized into direct and secondary effects. Direct effects are those changes in output, employment, or income that represent the initial or first-round effects as a result of payments for services, labor and other inputs. Secondary effects are measured by the turnover and flow of dollars originating from a direct effect. Secondary effects are composed of *indirect* effects which represent business-to-business transactions, and *induced* effects which represent households-to-business transactions.

Labor income, employment, business volume, value-added, and fiscal revenues are common economic measures used frequently to show *magnitude*, or overall size of an economic effect. The terms *direct*, *indirect*, and *induced* describe the *causality* of an economic effect (see illustration below). Economy metrics are often presented both in total and by economic units. Economic units often represent an economic sector (i.e., businesses that produce/sell similar goods and services), groups of sectors that constitute industries (e.g., healthcare, oil and gas extraction, etc.), or an entire economy.

For any particular business, economic sector, or industry, what is considered the direct effect will vary depending upon which economic value or metric is being measured. When describing business volume, gross revenue is often called direct economic output, and is one part of the measurement of overall business volume or output. The mechanism by which that direct economic output affects business volume in the economy includes the expenditures for inputs (goods and services) consumed during one year's operations and payments for labor. For labor, jobs employed at the business, in the economic sector, or in an industry represent direct employment. When examining labor income specifically, the same principal applies as the direct labor income is the compensation to wage and salary and sole proprietor jobs that represent direct employment.

McKenzie County Healthcare Systems

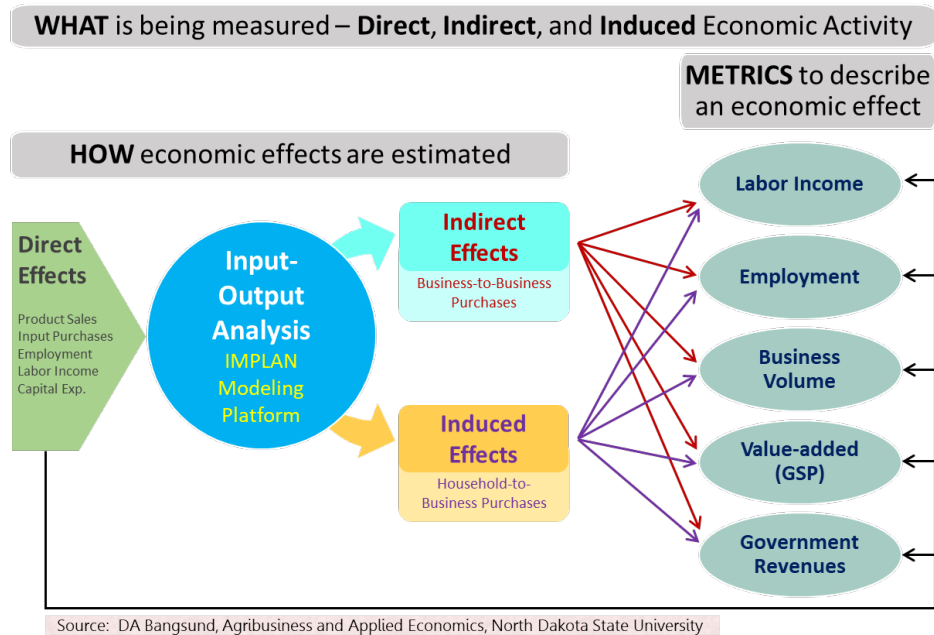
Expenditure data was collected from McKenzie County Healthcare Systems. Expenditures represent outlays for operations such as wages and benefits, materials and supplies, maintenance, professional services, and other general operations expenses. Expenditure data for capital outlays were also collected for McKenzie County Healthcare Systems. Expenditures for operations and capital expenditures are used to estimate direct economic effects and as inputs to model secondary effects. Using actual expenditures rather than estimates or other secondary data results in a robust estimate of economic effects with a high degree of confidence.

Input-Output Modeling

One of the most commonly accepted methods for measuring the magnitude and causality of economic effects is Input-Output (I-O) Analysis. I-O models are mathematical representations of both consuming and producing components of an economy, and trace the flow of dollars originating from transactions involving businesses, households, and governments. The IMPLAN I-O model was used to estimate economic effects of the McKenzie County Healthcare System on McKenzie County economy.

IMPLAN is widely accepted and used for these types of assessments. IMPLAN divides an economy into 546 distinct economic sectors, and also includes a social accounts matrix that incorporates non-market transfers among households, businesses, and governments within an economy (e.g., social security payments). This study used the 2020 IMPLAN matrix for McKenzie County (IMPLAN Group LLC., 2021). See the illustration below (**Figure 1**) for a visualization of the I-O Analysis.

Figure 1. Input-Output (I-O) Analysis Visualization



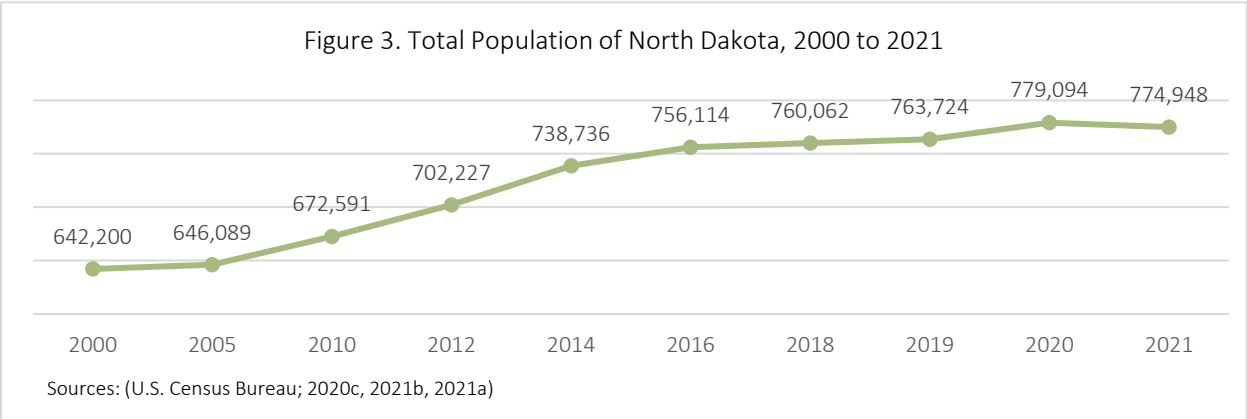
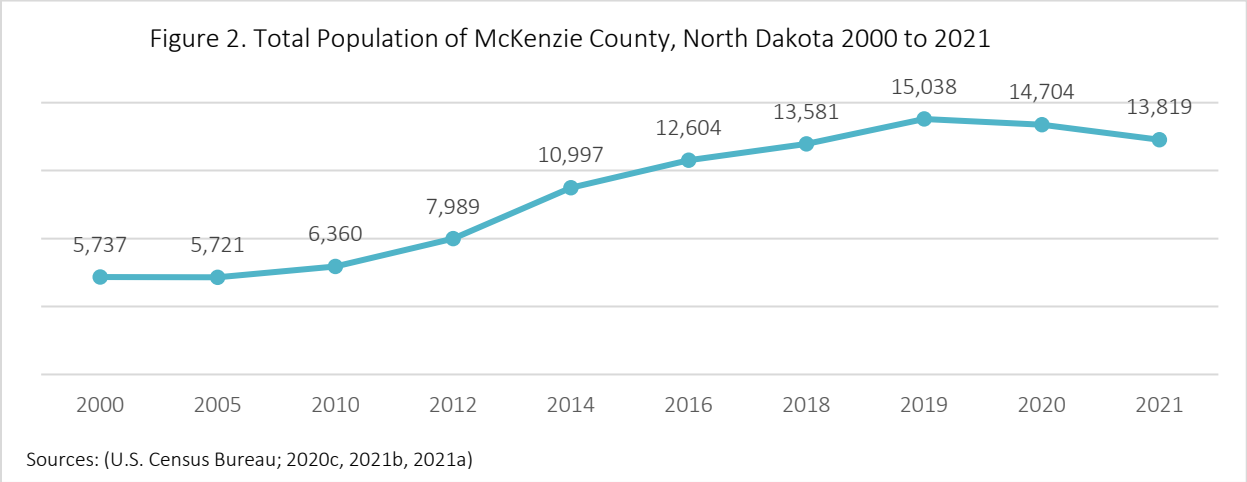
McKenzie County Profile

Since 2010, McKenzie County, North Dakota has experienced an unprecedented expansion of the oil and gas industry. As a result, the county has witnessed dramatic changes in population and rapid economic growth.

Population Characteristics

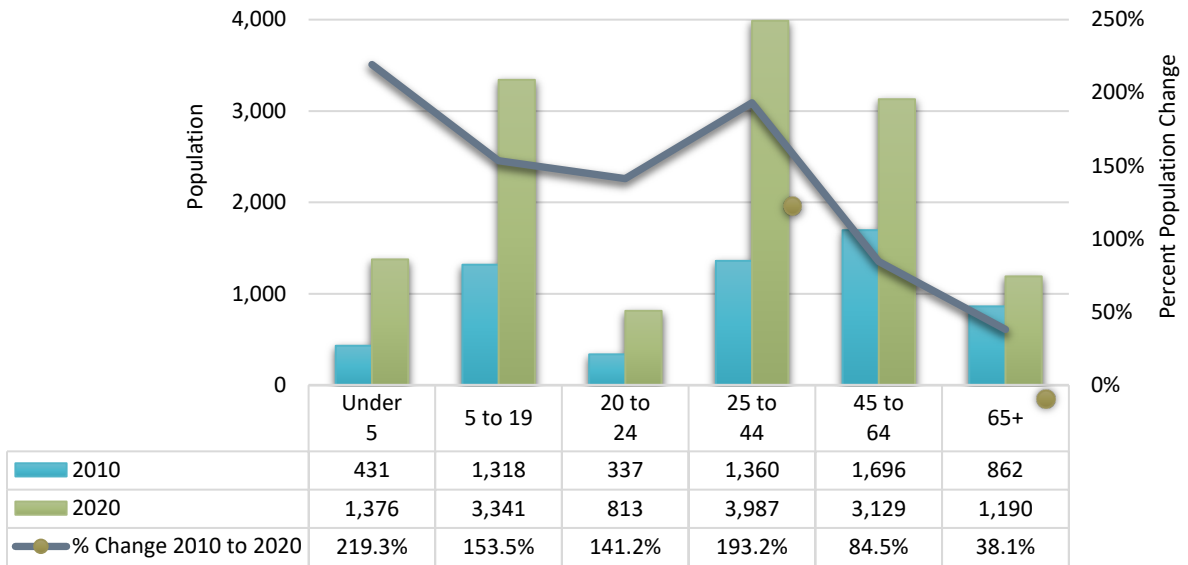
McKenzie County data presented in the following tables and graphs illustrate recent population trends as well as the change in size, composition, and demographic characteristics of the county's population.

The population of McKenzie County increased from 5,737 people in 2000 to 13,819 people in 2021, an increase of 141 percent. Population peaked in McKenzie County in 2019 with a total population of 15,038 (**Figure 2**). McKenzie County had the largest percentage increase in population in the state from 2010 to 2020, increasing by 131 percent. North Dakota also experienced rapid and unprecedented growth, increasing from 642,200 residents in 2000 to 774,948 residents in 2021, an increase of 21 percent (**Figure 3**). Total population peaked for the state of North Dakota in 2020 with a population of 779,094 residents.



McKenzie County experienced population growth across all age cohorts (**Figure 4**), especially in prime working age groups and young children. The largest percentage change in population by age from 2010 to 2020 was in individuals under age 5 with an increase of 219 percent (431 people to 1,376 people) and those ages 25 to 44 at 193 percent (1,360 people to 3,987 people). The large increase in residents of childbearing age (25 to 44 years old) in McKenzie County likely accounts for the dramatic increase in population for those under age 5 and ages 5 to 19. The smallest percentage change was in residents ages 65 and older with a total population increase of 38 percent from 862 people in 2010 to 1,190 people in 2020. While the change in population for those ages 65 and older was the smallest percentage change, a 38 percent change in 10 years is also substantial growth. The population growth and the dramatic shift in age demographics over the course of the past decade in McKenzie County is unprecedented.

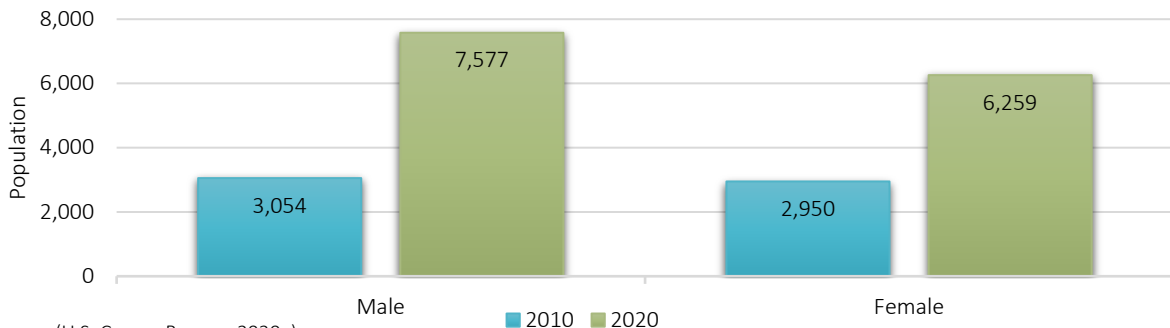
Figure 4. Population and Percent Change by Age, McKenzie County, 2010 to 2020



Source: (U.S. Census Bureau, 2020a)

In 2010, the population of McKenzie County was split nearly equally between males and females (50.9 percent male and 49.1 percent female) (**Figure 5**). However, from 2010 to 2020 the percentage of males in McKenzie County increased by 148 percent compared to 112 percent for females. The population of males increased from 3,054 men in 2010 to 7,577 men in 2020. As of 2020, 54.8 percent of McKenzie County residents were male compared to only 45.2 percent who were female. The substantial growth in men in this region of North Dakota is due to the creation of high paying jobs as a result of the expansion of the oil and gas industry, and the general predominance of males in that field of work.

Figure 5. Population by Gender, McKenzie County, 2010 to 2020



Source: (U.S. Census Bureau, 2020a)

McKenzie County has become more racially diverse in the past 10 years. There were substantial increases in population across all racial and ethnic groups. The greatest numeric increase was in the Hispanic population (of any race or ethnicity) in McKenzie County, which increased from 139 people in 2010 to 1,532 in 2020, an increase of 1,393 people (**Appendix Table A1**). The largest percentage increase by race was for the Black population at 2,625 percent, increasing from 8 people in 2010 to 218 in 2020. American Indian and Alaska Native populations were the largest minority group in McKenzie County in 2010. Despite having the smallest percentage change in population from 1,412 residents in 2010 to 1,894 in 2020 (34 percent increase) (**Figure 7**), American Indian and Alaska Natives remain the largest minority group in the county. While the county has become more racially diverse, the population of McKenzie County is still predominately white (72.3 percent of the total population in 2020) (**Figure 6**).

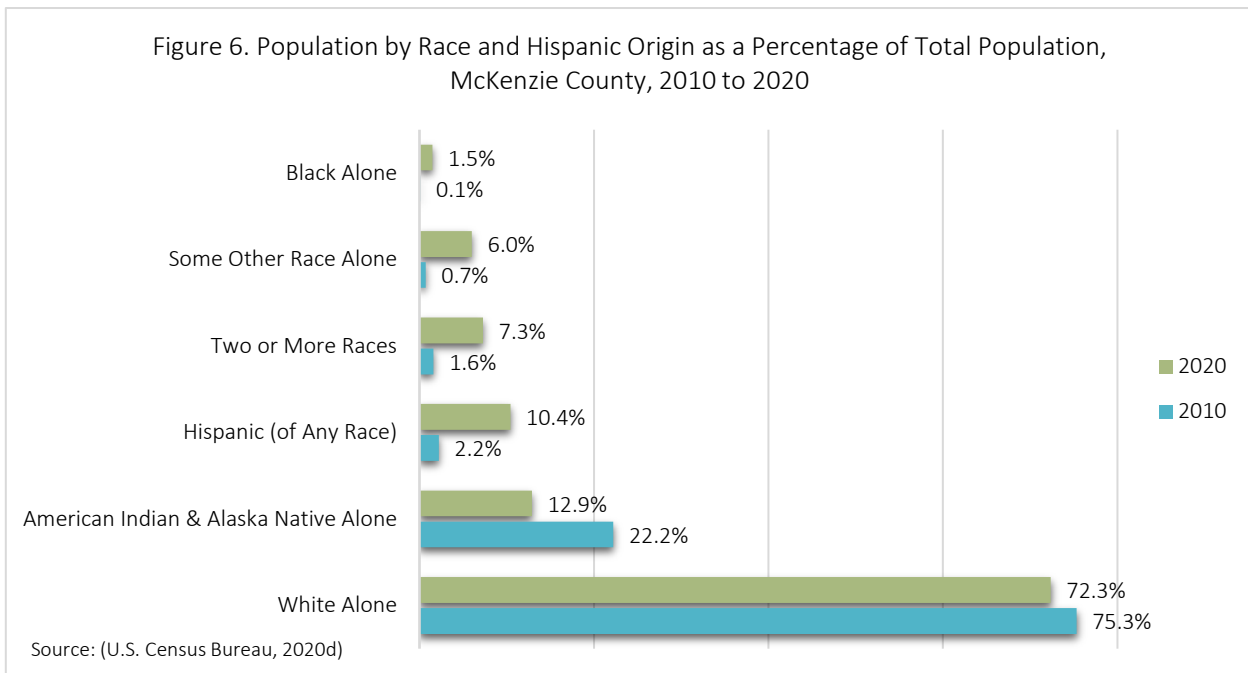
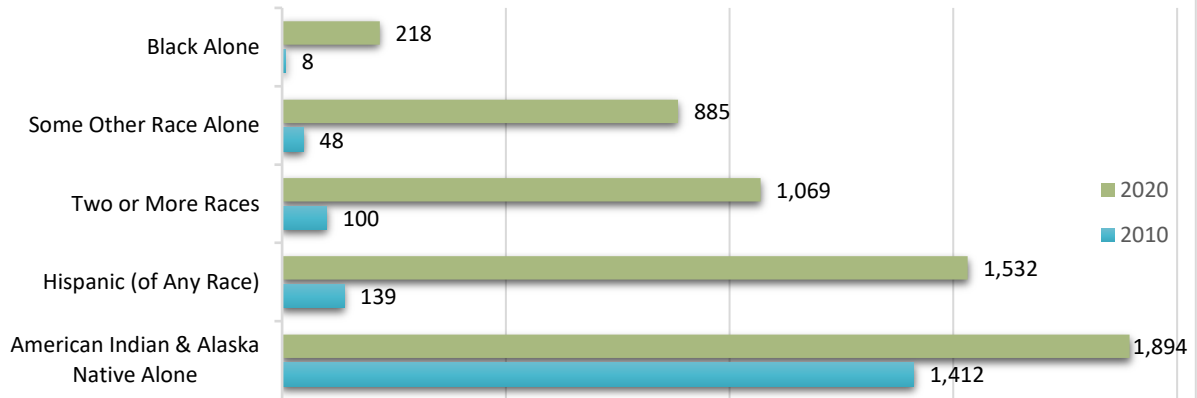


Figure 7. Population by Race and Hispanic Origin, McKenzie County, 2010 to 2020

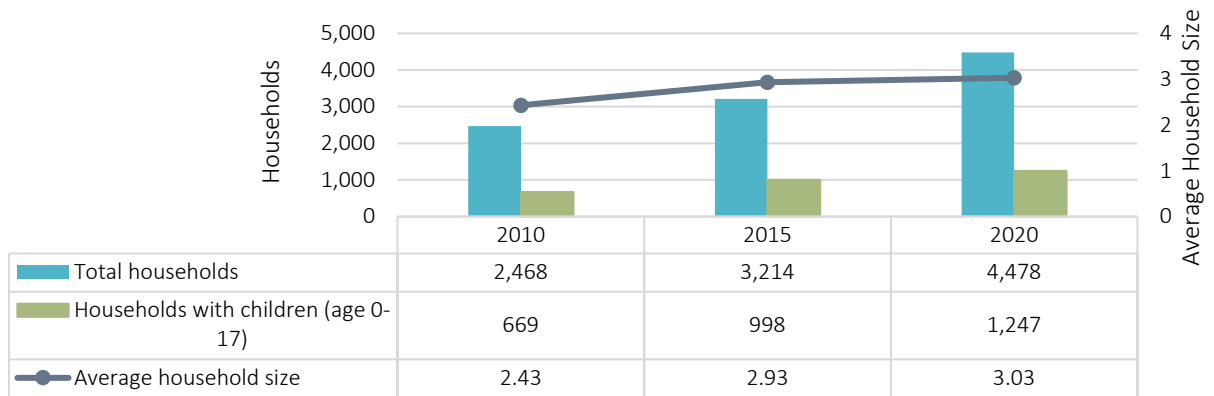


Source: (U.S. Census Bureau, 2020d)

Household Characteristics

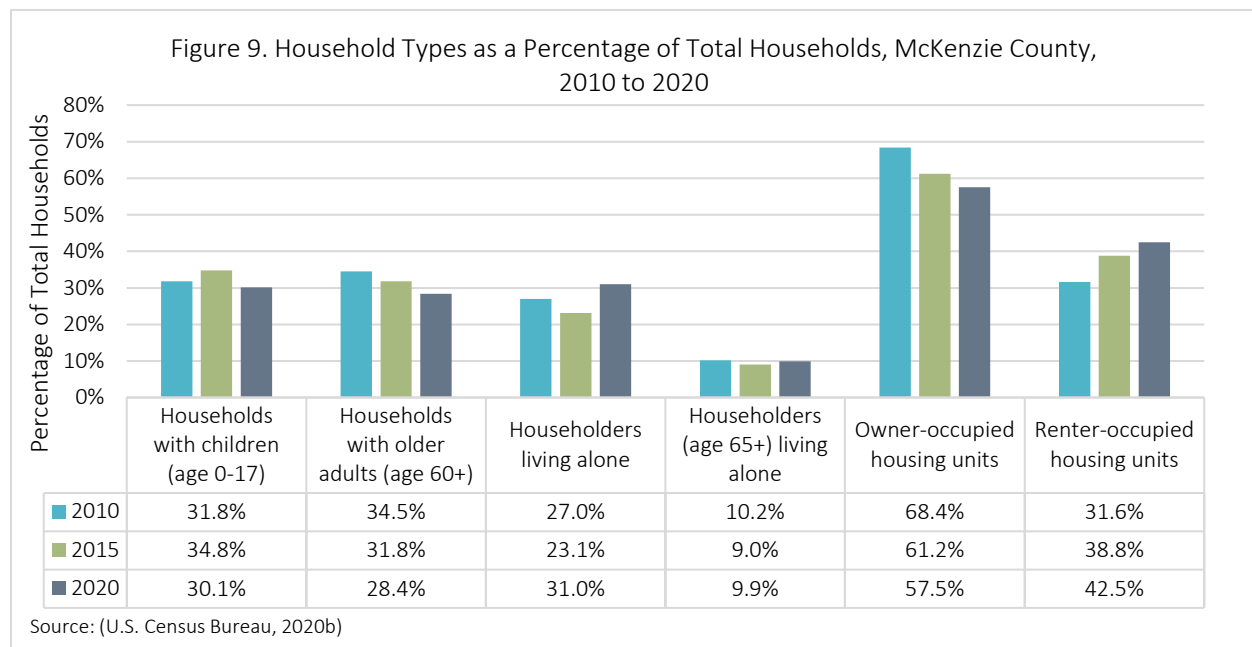
The number of households in McKenzie County nearly doubled from 2010 to 2020, increasing from 2,468 in 2010 to 4,478 in 2020. Households with children ages 0 to 17 nearly doubled (**Figure 8**). In 2010 there were 669 households with children compared to 1,247 households in 2020. The average household size also increased in the past 10 years from 2.43 persons per household in 2010 to an average size of 3.03 in 2020. Not only are there more homes in McKenzie County, the number of homes with young children and the average household size also increased over the past decade.

Figure 8. Household Characteristics, McKenzie County, 2010 to 2020



Source: (U.S. Census Bureau, 2020b)

In addition to a change in the number of households, there has also been a shift in the characteristics of households in McKenzie County over the past 10 years. From 2010 to 2020 there has been a decrease in owner-occupied housing units from 68.4 percent in 2010 to 57.5 percent of total households in 2020; and an increase in renter-occupied housing units from 31.6 percent in 2010 to 42.5 percent of total households in 2020. Householders living alone increased slightly from 27.0 percent in 2010 to 31.0 percent of total households in 2020, while the number of householders aged 65 plus living alone remained relatively unchanged over the past decade (**Figure 9**). The percentage of McKenzie County households with children increased slightly in 2015 (31.8 percent in 2010 to 34.8 percent in 2015) but decreased to 30.1 percent of total households in 2020. The percentage of total households with older adults decreased from 34.5 percent in 2010 to 28.4 percent of total households in 2020.



Youth Characteristics

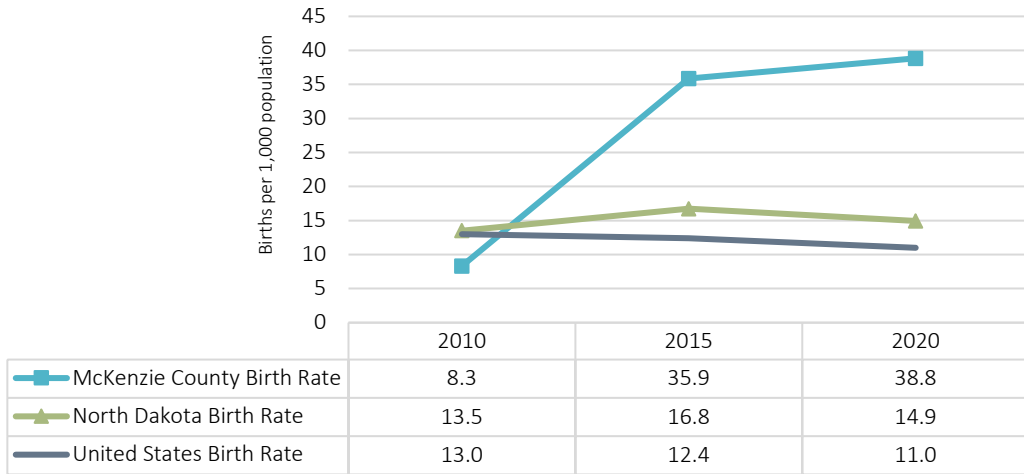
The birth rate (total number of live births per 1,000 population) in McKenzie County more than quadrupled from 2010 to 2020, increasing from 8.3 to 38.8 per 1,000 population. The number of live births in the county increased from 53 births in 2010 to 247 births in 2020 (**Table 1**). The birth rate statewide also increased slightly (13.5 in 2010 to 14.9 in 2020). Nationally however, the birth rate has been declining (13.0 per 1,000 population in 2010 to 11.0 in 2020). North Dakota, and especially McKenzie County, experienced a dramatic increase in births from 2010 to 2015, coinciding with the rapid expansion of the oil and gas industry in western North Dakota. In McKenzie County, the birth rate continued to grow in the second part of the decade, but at a much more moderate rate (**Figure 10**).

Year	Number of Births
2005	60
2010	53
2015	228
2020	247

Source: (ND Department of Health, 2020)



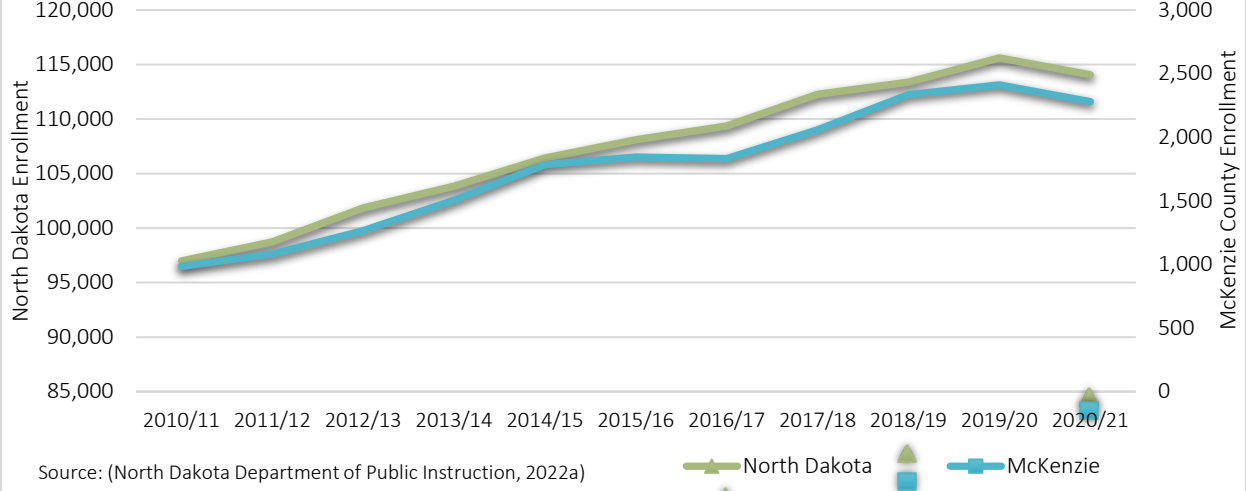
Figure 10. Birth Rates for McKenzie County, North Dakota, and United States, 2010 to 2020



Source: (North Dakota Department of Health, 2020; National Vital Statistics Report, 2022)

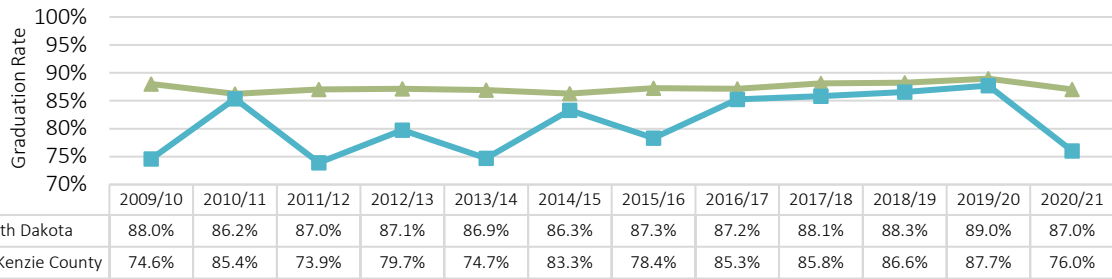
Public school enrollment has more than doubled since 2010 in McKenzie County and statewide. The average number of students enrolled per day in McKenzie County public schools dropped slightly in 2016, coinciding with a substantial contraction in the oil and gas industry. In the same timeframe, enrollment dropped statewide, but the drop was more pronounced in McKenzie County. Since then, enrollments have again increased with a slight decline in the most recent school year from 2019/20 to 2020/21. Average daily enrollment has increased by 131.8 percent countywide and 17.6 percent statewide from 2010/11 to 2020/21 (Figure 11).

Figure 11. Average Daily Enrollment for Public Schools in McKenzie County and North Dakota, 2010/11 to 2020/21



Source: (North Dakota Department of Public Instruction, 2022a)

Figure 12. Graduation Rates for McKenzie County and North Dakota, 2009/10 to 2020/21



Source: (North Dakota Department of Public Instruction, 2022b)

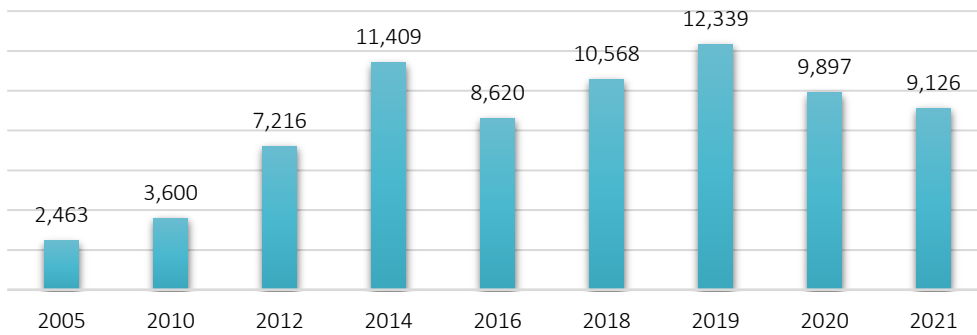
The high school graduation rate in McKenzie County fluctuated from year to year from 2009 to 2017 ranging from a low of 73.9 percent (2011/12) to a high of 85.4 percent in the 2010/11 school year (**Figure 12**). This fluctuation, along with a deviation from the statewide graduation rate coincides with the rapid expansion in the oil and gas industry and corresponding population growth. Since 2016, the graduation rate has more closely aligned with the statewide average. There was a consistent and steady increase from 2017 to 2020 followed by a substantial drop in graduation rates from 2020 to 2021. While North Dakota’s high school graduation rate remained relatively consistent from 2010 to 2020 (88.0 to 89.0 percent), the rate declined both statewide and in McKenzie County from 2019/20 to 2020/21. However, the decline in McKenzie County was greater than the decline statewide. The high school graduation rate dropped by 2 percentage points statewide compared to 11 points in McKenzie County. This recent change in the high school graduation rate was likely impacted by the COVID-19 pandemic.

Economic Characteristics

Total employment for McKenzie County grew substantially from 2005 to 2021 (**Figure 13**). Employment data for this report were obtained from the Quarterly Census of Employment and Wages (QCEW) program administered by Job Service North Dakota – and reflects the total number of jobs averaged over a year. QCEW does not include sole proprietors and self-employed, railroad workers, family farm workers, full-time students working for their school, elected government officials, and a few other minor employment types. While the list of excluded jobs in the QCEW may seem rather lengthy, QCEW represents 90 percent or more of wage and salary jobs in most geographies.

The oil and gas industry has created numerous employment opportunities in western North Dakota. McKenzie County saw a 401 percent increase in employment from 2,463 jobs in 2005 to 12,339 jobs in 2019. Despite this tremendous growth from 2005 to 2019, there was a sizable loss in employment from 2014 to 2016. This loss of nearly 3,000 jobs coincides with a slowdown and contraction in the oil and gas industry. Employment slowly recovered from 2016 to 2019, and then decreased again due to the impact of the COVID-19 pandemic. As a result, McKenzie County has experienced a 26 percent decrease in employment from 2019 to 2021.

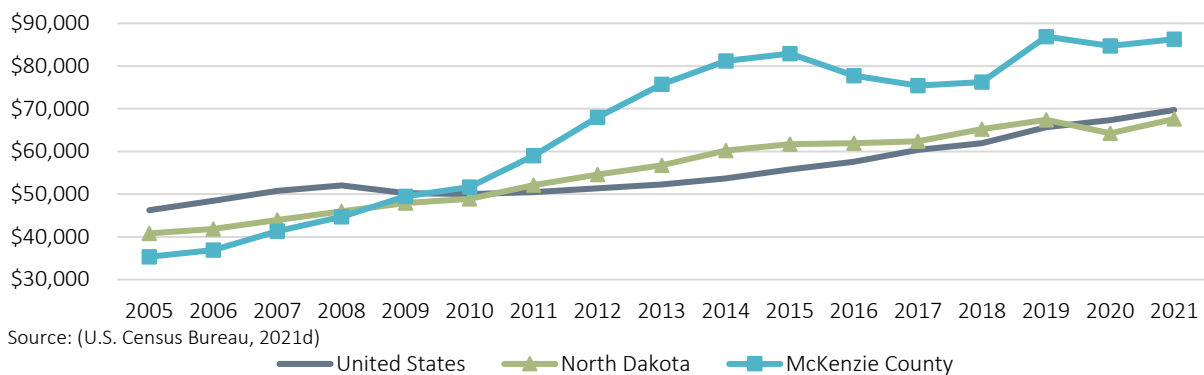
Figure 13. Average Number of Jobs, McKenzie County, 2005 to 2021



Source: (North Dakota Job Service Labor Market Information, 2022)

Median household income nearly doubled in McKenzie County from 2005 to 2015 (**Figure 14**) increasing from \$35,348 in 2005 to \$82,906 in 2015. Rapid expansion in the oil and gas industry was the driving force behind the rapid increase in median household income in this area. As a result, household incomes rose 4 and 5 times faster in McKenzie County compared to North Dakota and the United States, respectively over the past decade. Household income includes the income of the householder and all other individuals ages 15 and older in the household, whether they are related to the householder or not. There was a slight decline in median household income from 2015 to 2018. Median household incomes were not adjusted for inflation.

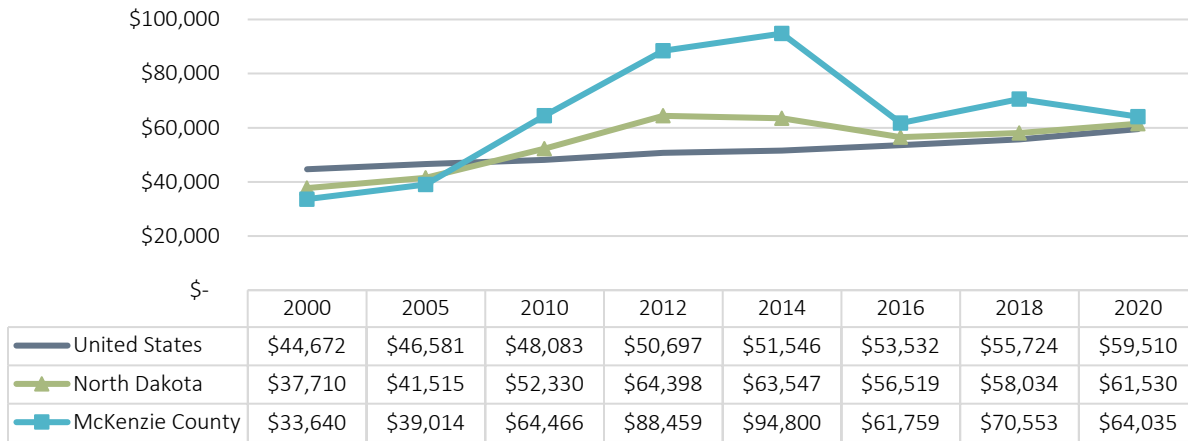
Figure 14. Median Household Income, McKenzie County, North Dakota, and United States, 2005 to 2021



Source: (U.S. Census Bureau, 2021d)

McKenzie County, when compared to North Dakota and the United States, saw a dramatic increase in per capita personal income from \$39,014 in 2005 to \$94,800 in 2014, a 143 percent increase in nine years (Figure 15). The United States saw a slow and steady increase in per capita personal income from \$46,672 in 2005 to \$51,546 in 2014. North Dakota saw an increase from \$41,515 to \$63,547 during the same timeframe, before slowly dropping back down in 2016 following closer to the national levels. The drop in per capita personal income for both McKenzie County and North Dakota in 2016 coincides with declines in the oil and gas industry. In 2020, per capita personal income in both McKenzie County (\$64,035) and North Dakota (\$61,530) was higher than the national average (\$59,510), but trending closer than in previous years.

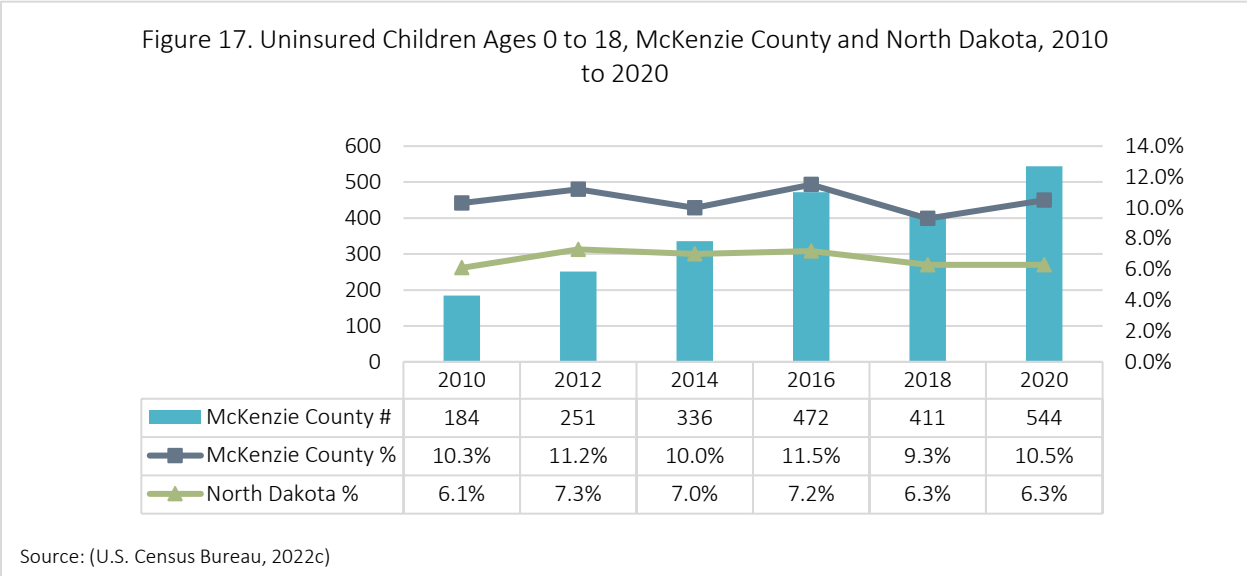
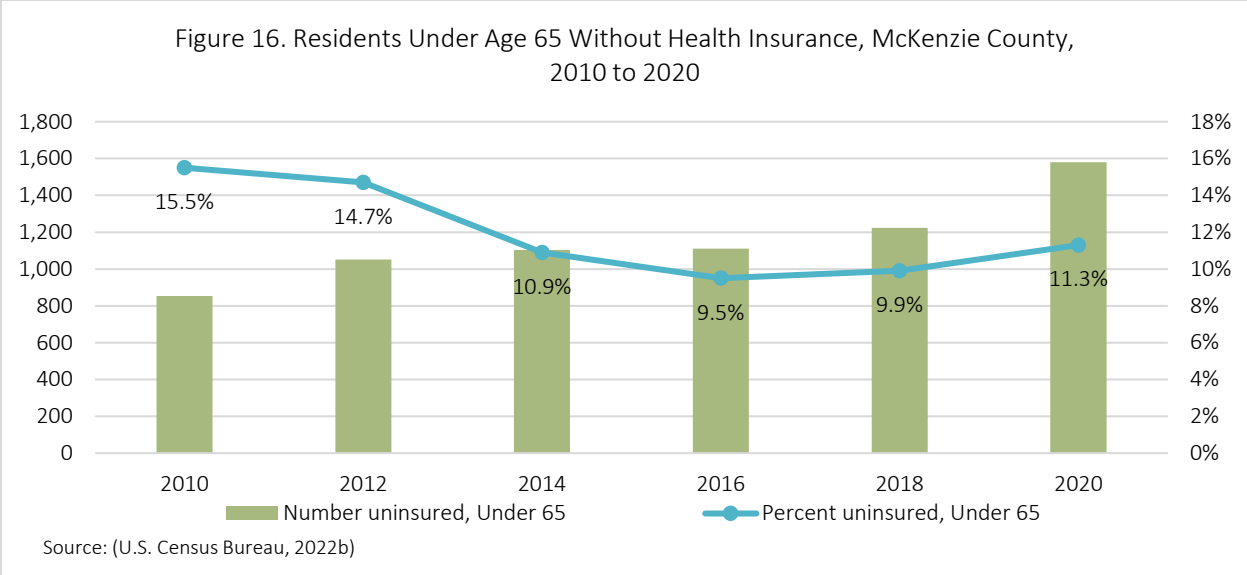
Figure 15. Per Capita Personal Income in 2020 Dollars, McKenzie County, North Dakota, and United States, 2000 to 2020



Source: (Bureau of Economic Analysis, 2021)

Insurance Characteristics

Health insurance is critical to ensuring access to health care, and the lack of health care coverage affects everyone in a community. Uninsured individuals are less likely to receive care and are therefore at risk of more serious health conditions. In McKenzie County, the number of uninsured residents under age 65 increased gradually from 2010 to 2020 (Figure 16). However, the percent of the total population under age 65 who are without insurance declined from 15.5 percent in 2010 to 11.3 percent in 2020. The total number of uninsured children (ages 0 to 18) in McKenzie County increased from 184 in 2010 to 544 children in 2020. Although the overall percentage of uninsured children in McKenzie County has remained relatively unchanged over the past decade (10.3 percent in 2010 to 10.5 percent in 2020), the percentage of uninsured children trends higher than the statewide average of 6 percent in 2010 and 2020.



McKenzie County Healthcare Systems Profile

McKenzie County Healthcare Systems is a nonprofit independent health system that was formed in 2004 from the merger of the Good Shepherd Home Corporation and the McKenzie County Memorial Hospital Corporation. The merger consolidated health care in McKenzie County. In addition to Watford City, McKenzie County Healthcare Systems also serves the communities of Arnegard, Alexander, Grassy Butte, Alexandra, and Keen, all in McKenzie County, North Dakota.

McKenzie County Healthcare Systems operates a trauma level V, 24 bed critical access hospital. The system also offers pediatric and family medicine and specialty clinical services. In addition to hospital and clinical services, McKenzie County Healthcare Systems operates Good Shepherd Home, a 48-bed long

term care facility; Horizon Assisted Living, a 15-apartment assisted living facility; and the Connie Wold Wellness Center which also houses McKenzie County Healthcare System’s physical and occupational services.

Like every other industry and service sector in western North Dakota, McKenzie County Healthcare Systems has grown substantially in order to meet the needs of Watford City and the surrounding area. In 2018, the new McKenzie County Hospital was opened for operations. The new facility has enabled the consolidation of the hospital, clinics, assisted living, and long-term care facilities in a single location.

In addition to the new facilities, McKenzie County Healthcare Systems has expanded its health care services and expertise. General surgical services were added in 2018 and orthopedic services were added in 2019. A pediatrics clinic was added in 2021 offering women and children’s health services with two additional OB-GYN health care providers. More recently, in 2022, echocardiography and ear, nose, and throat services were added as well as OB-GYN and maternity services. Plans are currently underway to offer a women and children’s health services clinic with two additional OB-GYN health care providers. This expansion of health care services and expertise in McKenzie County has decreased hospital transfers by 70 percent.

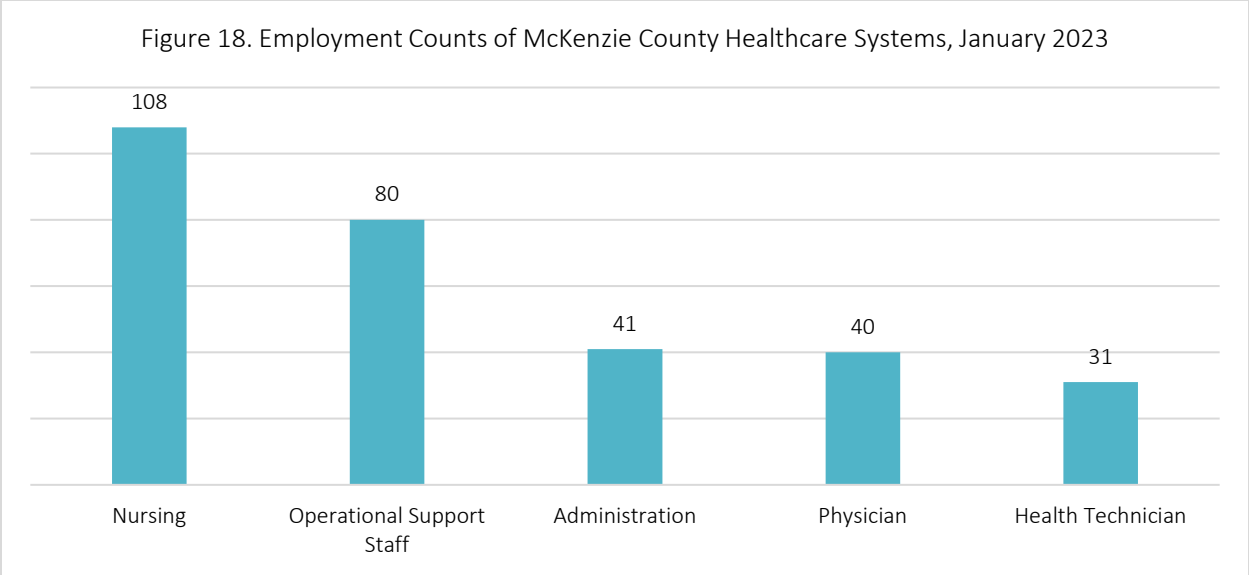
McKenzie County Healthcare Systems provides the following services:

- Assisted Living
- Pediatric Care
- Cardiac Rehab
- Physical Therapy
- Echocardiography
- Pulmonary Rehab
- Emergency Services
- Radiology
 - MRI
 - CT
 - X-Ray
 - US
 - Dexa
 - Mammography
- Hospitalist Services
- Birthing Unit
 - C-sections
- Respiratory Therapy
- Inpatient Pharmacy
- Respite Care
- Infusion Therapy
- Laboratory Services
- Rural Health Clinic
- Nursing
- Nutrition Services
- Surgery Department
- Occupational Therapy
- Swing Bed Program
- Orthopedic Surgery
- Urology
- Pain Management
- Wellness Center
- Speech Therapy (through contract or agreement)
- Specialty Clinics:
 - Orthopedics (general and total joints)
 - General Surgery
 - Urology
 - Sports Medicine

McKenzie County Healthcare Systems is the third largest employer in McKenzie County (North Dakota Job Service, 2021). The McKenzie County Healthcare Systems employs 307 people (**Figure 18**) including 40 physicians, physicians’ assistants, and nurse practitioners; 108 CNA’s, RN’s and LPN’s; and 31 health technicians (including positions such as radiology technologist, pharmacy tech, physical therapist and surgical technician).

Table 2. Employment Counts of McKenzie County Healthcare Systems, January 2023

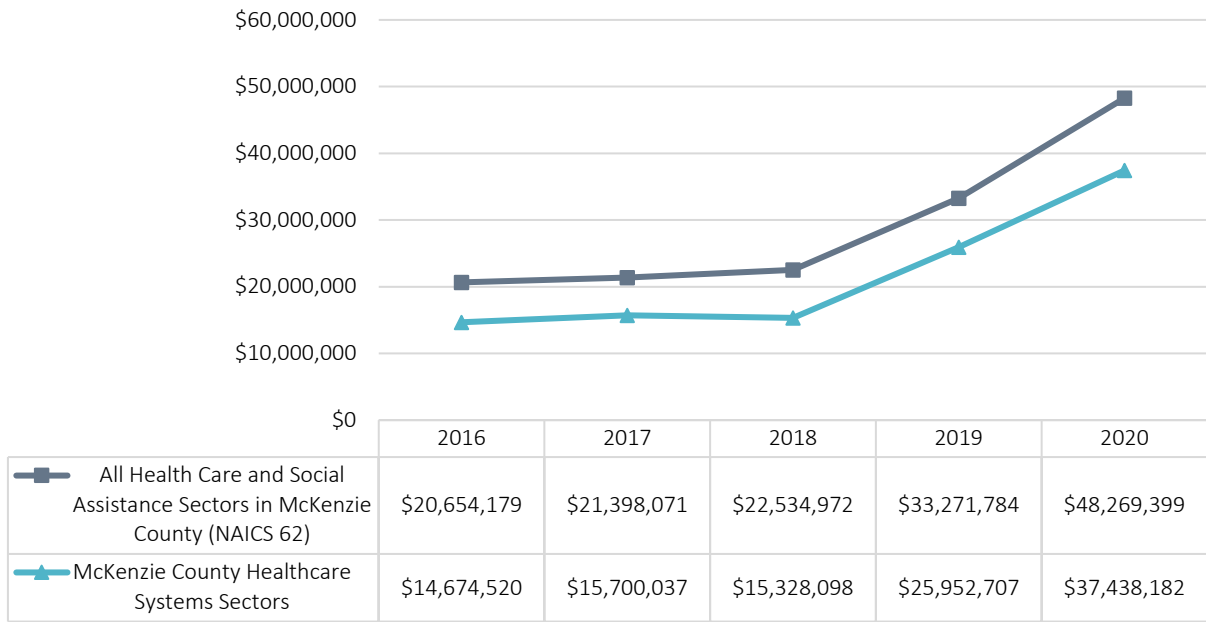
Employment Type	Number of Employees
Contracted	58
Full Time	192
Part Time	21
PRN	36



McKenzie County Health Care Sector

Gross revenues (output) for the Health Care and Social Assistance Sector in McKenzie County have increased substantially in the past five years. Gross revenues represent output, that is economic activity and is a measure of total business volume. Revenues (economic activity) in the Health Care and Social Assistance Sector in McKenzie County increased from \$20.7 million in 2016 to \$48.3 million in 2020. Sector revenues grew dramatically starting in 2018, increasing from \$22.5 million to \$48.2 million in 2020, an increase of 114 percent in just three years (IMPLAN Group LLC., 2021).

Figure 19. Total Output of all Health Care and Social Assistance Sectors and McKenzie County Healthcare System's Sectors, 2016 to 2020

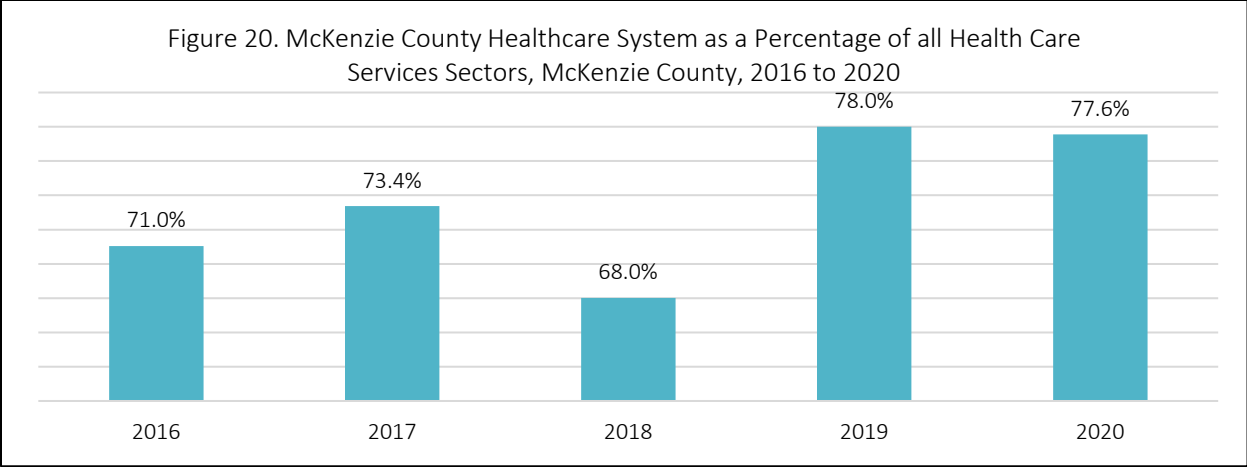


NAICS: North American Industry Classification System (<https://www.census.gov/naics/>)
 Source: IMPLAN Group LLC., 2021

IMPLAN baseline data from 2016 to 2020 can be used to estimate the direct output (economic activity) of the overall Healthcare and Social Services Sector in McKenzie County. Health care services overall are comprised of 13 individual economic sectors. Summing the output from those 13 sectors provides an estimate of total Healthcare and Social Services output. Total output in the Healthcare and Social Services Sector has more than doubled since 2016 increasing from \$20.6 million in 2016 to \$48.2 million in 2020 (Figure 19).

McKenzie County Healthcare Systems operates in several of the economic sectors that comprise the Health Care and Social Assistance Sector in McKenzie County. Growth of health care sectors associated with McKenzie County Healthcare Systems also increased substantially in the past five years. Economic output associated with specific sectors aligned with activities and services provided by McKenzie County Healthcare Systems grew from \$14.7 million in 2016 to \$37.4 million in 2020, a 155 percent increase (Figure 19).

McKenzie County Healthcare Systems is responsible for about three-fourths of all health care services output in McKenzie County. Economic output from McKenzie County Healthcare Systems as a percentage of all health care service sectors increased from 71% in 2016 to 78% in 2020 (IMPLAN Group LLC., 2021) (Figure 20). McKenzie County's percentage of all health care services declined in 2018 before increasing substantially in 2019. The 2018 decline and the subsequent increase in 2019 coincide with the construction and opening of the new hospital in 2018.



Economic output associated with hospitals makes up the largest portion of revenues associated with the Health Care and Related Services Sector. Total output for hospitals in McKenzie County was \$26.1 million, over half of all output in the Health Care and Related Services Sector in McKenzie County (Table 3). Offices of physicians, and nursing and community care facilities made up 12.5 and 9.3 percent of economic output, respectively. Economic output from all sectors increased substantially from 2016 to 2020. Hospital revenue increased by 300 percent and offices of other health care practitioners and other ambulatory health care services increased by 129 and 107 percent respectively. Compared to increases in the other industry sectors, nursing and community care facilities had relatively modest growth of 10 percent. However, under more typical economic growth patterns, a 10 percent increase in just four years would be considered robust.

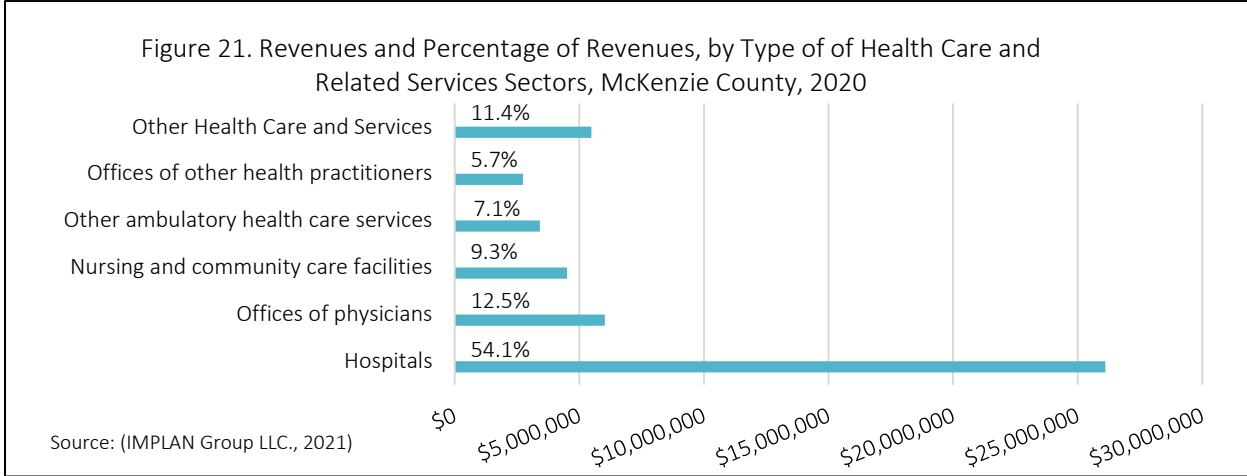


Table 3. Total Revenues, Health Care and Related Services Sectors, McKenzie County, 2016 to 2020

	2016	2017	2018	2019	2020	Change 2016- 2020	Sector as Percentage of 2020 Total
	-----000s \$-----					-----%-----	
Hospitals	\$6,523	\$6,806	\$6,496	\$15,221	\$26,110	300.3%	54.1%
Office of Physicians	\$3,797	\$4,558	\$4,438	\$5,250	\$6,025	58.7%	12.5%
Nursing and Community Care Facilities	\$4,095	\$4,083	\$3,989	\$2,962	\$4,502	9.9%	9.3%
Other Ambulatory Health Care Services	\$1,648	\$1,813	\$2,288	\$2,094	\$3,411	107.0%	7.1%
Office of Other Health Care Practitioners	\$1,194	\$1,167	\$1,322	\$1,571	\$2,739	129.4%	5.7%
Other Health Care and Services ¹	\$3,398	\$2,972	\$4,002	\$6,173	\$5,482	61.3%	11.4%

¹ Individual and family services; child day care services; offices of dentists; community food, housing, and other relief services, including rehabilitation services; home health care services; residential facilities for intellectual disabilities, mental health, substance abuse, and other services; and outpatient care centers
Source: (IMPLAN Group LLC., 2021)

Federal government transfer payments to individuals for medical benefits comprise a substantial portion of all government transfer payments in McKenzie County. Medical Benefits from Medicare and Medicaid make up the majority of transfer payment in McKenzie County. From 2010 to 2019, transfer payments for medical benefits comprised 39 to 45 percent of all transfers payments to individuals in McKenzie County (**Figure 22**). Transfer payments for medical benefits as a percentage of total transfer payments dropped to 24 percent in 2020 (Bureau of Economic Analysis, 2021b) (**Table 4**). The amount of transfer payments for medical benefits increased slightly from 2019 to 2020, from \$25.4 to \$26.5 million (IMPLAN Group LLC., 2021) (**Figure 22**). The decline in payments for medical benefits as a percentage of total transfer payments was due to the extraordinary increase in unemployment compensation benefits as a result of job losses associated with the COVID-19 pandemic.

Table 4. Transfer Payments, McKenzie County and North Dakota, 2020

	McKenzie County		North Dakota	
	-----000s \$---	-----%-----	-----000s \$---	-----%-----
Retirement and Disability	\$22,617	20.4%	\$2,500,415	31.3%
Medical Benefits	\$26,469	23.9%	\$2,875,198	36.0%
Medicare	\$13,408		\$1,568,506	
Medicaid	\$12,825		\$1,257,524	
Military Medical Insurance Benefits	\$236		\$49,168	
Income Maintenance Benefits	\$5,018	4.5%	\$430,716	5.4%
Unemployment Insurance Compensation ¹	\$39,012	35.3%	\$881,487	11.0%
Other Transfer Receipts ²	\$17,433	15.7%	\$811,542	9.4%
Total Transfer Receipts³	\$110,549	100.0%	\$7,996,456	100.0%

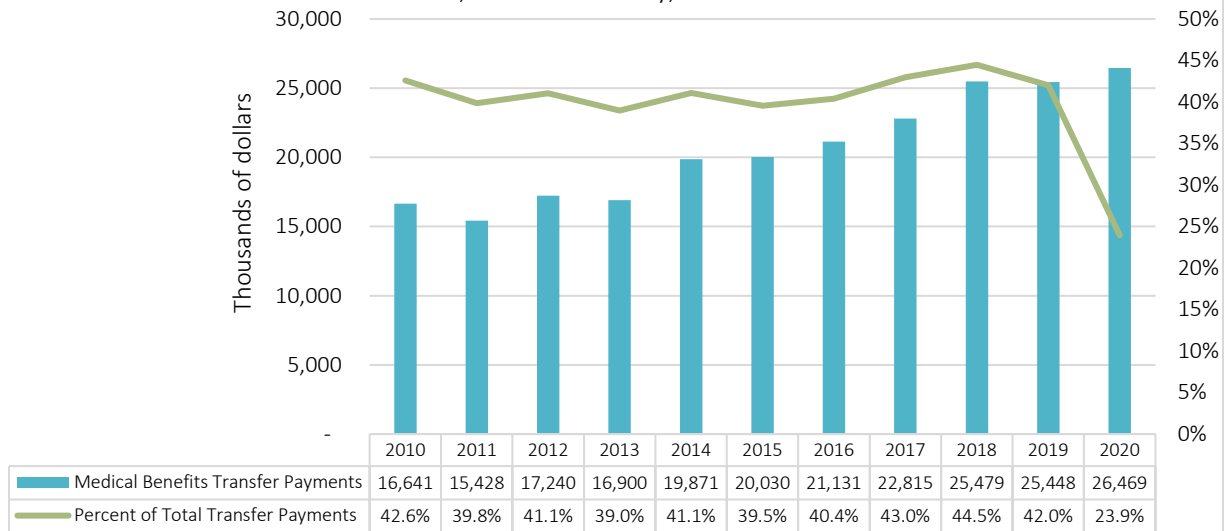
¹Unemployment benefits as a percentage of total payments increased dramatically in 2020 as a result of unemployment due to COVID-19.

²Veterans benefits, Education and training assistance, other transfer payments

³Transfer receipts of individuals only. Does not include transfer receipts of nonprofit institutes or individuals from businesses

Source: (Bureau of Economic Analysis, 2021b)

Figure 22. Transfer Payments and Percentage of Total Transfer Payments for Medical Benefits, McKenzie County, 2010 to 2020



Source: (Bureau of Economic Analysis, 2021b)

Direct Economic Effects

McKenzie County Healthcare Systems provided financial information to create a custom economic profile (industry balance sheet) within the IMPLAN modeling system for the McKenzie County economy. The economic sector profile represents the direct effects used to estimate indirect and induced economic effects.

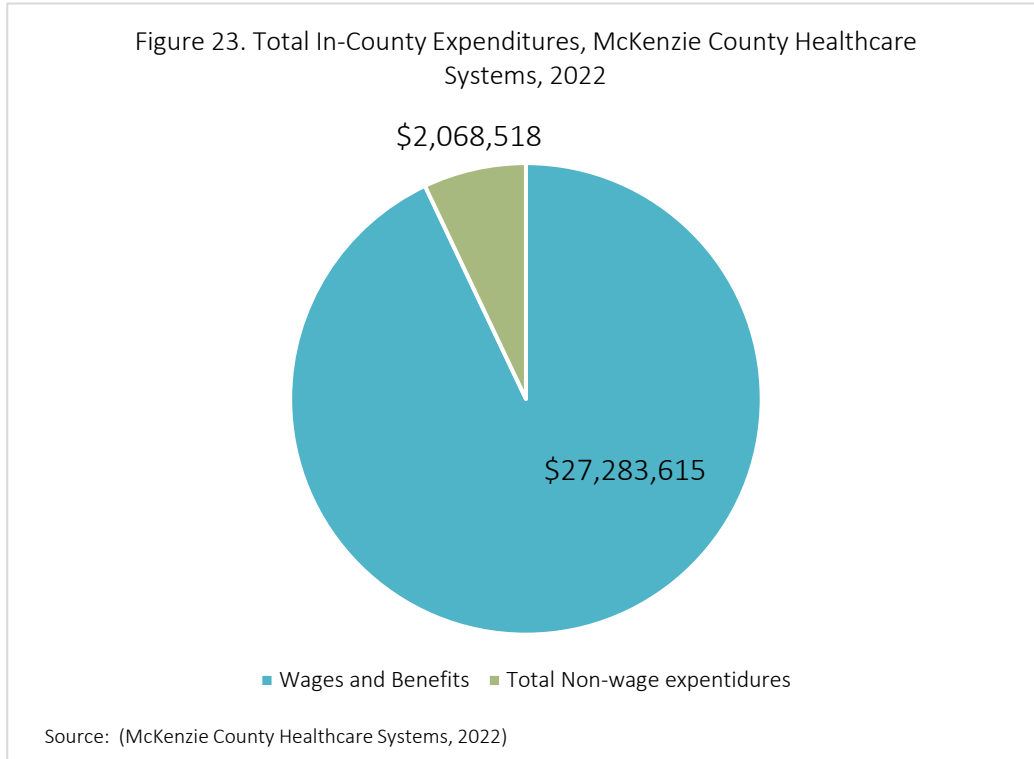
McKenzie County Healthcare Systems had direct economic output (gross revenue) of \$52.0 million in 2022 (Table 5). Economic output is equal to revenues and is a measure of economic activity that describes direct economic effects. Direct economic effects are first round payments for services, labor and other inputs to operations.

Of the \$52 million in output, \$27 million was for payroll, \$12 million for intermediate inputs, and the remainder represented taxes and other property type income. Economic output is projected to increase to \$60.9 million in 2023.

Employment compensation for 2021 was \$27.3 million and supported 297 jobs in 2022. Employment compensation is projected to increase to \$31.2 million, with direct employment increasing to 343 jobs in 2022. McKenzie County Healthcare Systems direct contribution to gross state product referred to as valued added effects was estimated to be \$39.6 million in 2022 and projected to be \$47.7 million in 2023 (Table 5).

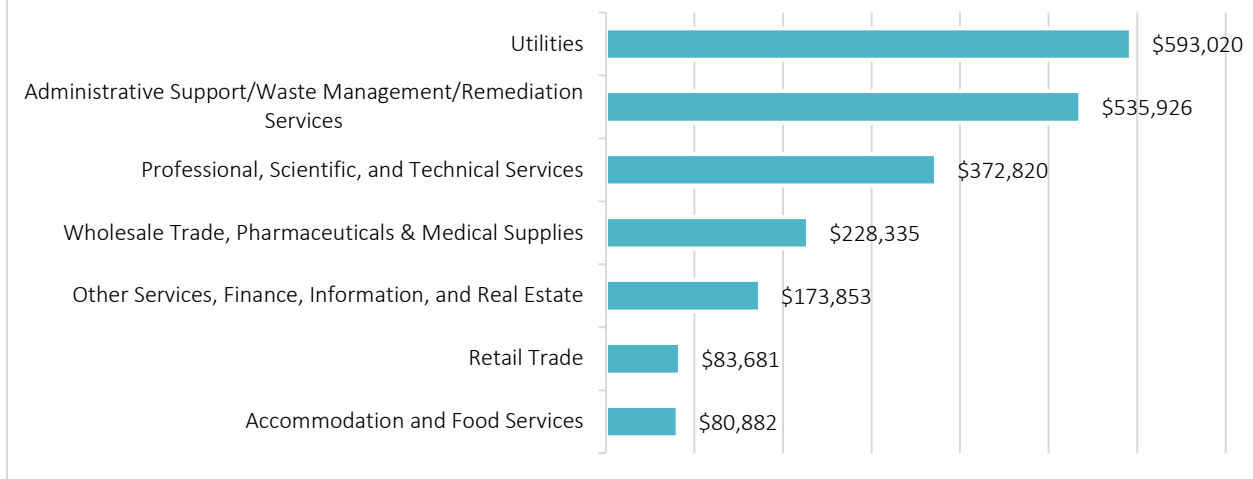
Table 5. McKenzie County Healthcare Systems Profile, North Dakota, 2022 and 2023 (projected)		
	2022	2023 (projected)
	----- 000s \$ -----	
Economic Output (Revenues)	\$52,061.6	\$60,910.8
Employment^{1,2}	297	343
Employment Compensation (Wages, Salaries and Benefits)	\$27,283.6	\$31,187.1
Tax on Production and Imports (TOPI)	\$0.2	\$0.2
Other property type income (OPTI)	\$12,307.1	\$13,223.8
Intermediate Inputs (Operation Expenses)³	\$12,449.3	\$13,223.9
Value-added (sum of labor income, OPTI, and TOPI)	\$39,612.3	\$47,686.9
¹ Full- and part-time jobs ² Full time jobs used in the economic assessment do not match employment as reported in the McKenzie County Healthcare System Profile. The differences in employment numbers are due to fluctuations in employment over time. Employment data for the economic assessment and the system profile were collected at different times. ³ Represents gross expenditures for inputs and services purchased by McKenzie County Healthcare Systems		

Total disbursements in 2022 for McKenzie County Healthcare Systems for inputs supplied by local firms was estimated at \$2.1 million and \$27.3 million for employment compensation (**Figure 23**). Projections for 2023 were \$2.9 million for locally-source inputs and \$31.2 million for payroll. Non-wage expenditures (intermediate inputs) represent outlays for operations, such as medical supplies, business services, utilities, and equipment, and only purchases from McKenzie County sources were used in the analysis.



The greatest non-wage intermediate expenditures were for 'Utilities' and 'Administrative Support/Waste Management/Remediation Services', \$593,020 and \$535,926, respectively (**Figure 24**). Other non-wage intermediate expenditures ranged from \$80,882 to \$372,820. Non-wage intermediate inputs for 2023 were estimated to increase to \$2.8 million (data not shown).

Figure 24. Total Non-wage, In-County Expenditures, McKenzie County, 2022



Secondary Economic Effects

Indirect and induced economic effects for 2022 were estimated at \$3.6 and \$2.5 million, respectively for total secondary economic effects of \$6.1 million (**Table 6**). Secondary effects were estimated to support an additional 48 jobs and \$2.1 million in labor income for total employment of 345 and total labor income of \$29.4 million in 2022. Indirect and induced value-added (gross state product) effects were estimated at \$3.6 million.

Indirect and induced economic effects for 2023 were projected at \$3.8 and \$2.9 million, respectively for total secondary economic effects of \$6.7 million. Secondary effects were projected to support an additional 53 jobs and \$2.3 million in labor income for total employment of 396 and total labor income of \$33.5 million in 2023. Indirect and induced value-added (gross state product) were estimated at \$4.0 million.

Table 6. Direct, Indirect and Induced Economic Effects, Operations, Key Economic Measures, McKenzie County Healthcare Systems, 2022 and 2023 (projected)

Type of Economic Effect	Employment ¹	Labor Income	Value-Added	Economic Output
		----- 000s \$ -----		
2022				
Direct	297	\$27,283.6	\$39,612.3	\$52,061.6
Indirect	32	\$1,465.8	\$2,011.8	\$3,598.7
Induced	16	\$633.5	\$1,591.5	\$2,540.6
Total	345	\$29,382.9	\$43,215.6	\$58,200.9
2023 (Projected)				
Direct	343	\$31,187.1	\$47,686.9	\$60,9102.8
Indirect	35	\$1,575.2	\$2,154.5	\$3,846.2
Induced	18	\$735.2	\$1,847.0	\$2,948.5
Total	396	\$33,497.5	\$51,688.4	\$67,705.4

¹Total full- and part-time jobs and does not represent FTEs.

Capital Expenditures

McKenzie County Healthcare Systems also provided financial information on capital expenditures. Capital expenditures represent payments for new construction, machinery, diagnostic equipment, furniture, and any other physical assets used by the MCHS that are not consumed in a single use. Economic effects from capital expenditures are not measured using the economic sector profile, and must be modeled as a stand-alone activity separate from operations. Only capital expenditures that represent a business transaction with a firm in McKenzie County were considered in this assessment of economic effects from capital expenditures.

Direct economic effects from capital expenditures were estimated for 2021 and 2022 and projected for 2023. Direct capital expenditures were \$120,000 in 2021, \$66,000 in 2022 and projected to be \$96,000 in 2023 (**Table 7**). Total economic effects (direct, indirect and induced) from capital expenditures in 2021 were \$141,000 in 2021, \$77,000 in 2022 and projected to be \$111,000 in 2023. Capital expenditures generated a total of \$55,000 in labor income in 2021, \$33,000 in 2022 and were projected to be \$53,000 in 2023.

Table 7. Total (Direct, Indirect and Induced) Economic Effects, Capital Expenditures, McKenzie County Healthcare Systems, 2021, 2022 and 2023 (projected)			
Type of Economic Effect	Economic Output	Labor Income	Value-Added (GCP)
2021			
Direct (Capital Expenditures)	\$120,000	\$48,000	\$70,000
Indirect	\$14,000	\$5,000	\$9,000
Induced	\$7,000	\$2,000	\$5,000
Total	\$141,000	\$55,000	\$84,000
2022			
Direct (Capital Expenditures)	\$66,000	\$30,000	\$41,000
Indirect	\$7,000	\$2,000	\$4,000
Induced	\$4,000	\$1,000	\$3,000
Total	\$77,000	\$33,000	\$48,000
2023 (Projected)			
Direct (Capital Expenditures)	\$96,000	\$48,000	\$65,000
Indirect	\$8,000	\$3,000	\$5,000
Induced	\$7,000	\$2,000	\$4,000
Total	\$111,000	\$53,000	\$74,000

Total Economic Effects

Total economic effects (direct, indirect and induced) for operations and capital expenditures for 2022 was \$58.3 million and projected to be \$67.8 million in 2023 (**Table 8**). The combined labor income from operations and capital expenditures was \$29.4 million in 2022 and is projected to remain stable in 2023 at \$33.6 million. Total value-added to gross state product from operations and capital expenditures was \$43.3 million in 2022 and is projected to increase to \$51.8 million in 2023.

Table 8. Total (Direct, Indirect and Induced) Economic Effects, Capital Expenditures, Key Economic Measures, McKenzie County Healthcare Systems, 2021, 2022 and 2023 (projected)

Expenditure Type	Type of Economic Metric		
	Economic Output	Labor Income	Value-Added (GCP)
	-----000s \$-----		
	2022		
Operations Expenditures	\$58,200.9	\$29,382.9	\$43,215.6
Capital Expenditures	\$76.6	\$33.0	\$47.9
Total Operations and Capital Expenditures	\$58,277.5	\$29,415.9	\$43,263.5
	2023 (Projected)		
Operations Expenditures	\$67,705.4	\$33,497.5	\$51,688.4
Capital Expenditures	\$110.1	\$52.8	\$73.7
Total Operations and Capital Expenditures	\$67,815.5	\$33,550.3	\$51,762.1

Government Revenues

A variety of tax revenues are generated by operations of McKenzie County Healthcare Systems and from secondary business volume. Total government revenues (direct and secondary) for local and state jurisdictions were estimated to be \$594,400 in 2022. Most tax revenues are associated with indirect and induced effects from salaries and wages and sales taxes on taxable purchases of goods and services. Direct taxes in 2022 were \$276,800 and taxes generated from indirect and induced effects were \$317,600 (**Table 9**). Total direct tax collections for 2023 were projected to be \$314,600 with taxes generated by indirect and induced effects estimated to be \$354,200 for total tax collections of \$668,800.

Table 9. State and Local Government Tax Revenues, McKenzie County Healthcare Systems' Operations, 2022 and 2023 (projected)

Revenue Type	Taxes paid by McKenzie County Healthcare Services	Taxes Generated by Indirect and Induced Effects	Total Tax Collections
	----- 000s \$ -----		
	2022		
Property Tax	\$12.4	\$162.7	\$175.1
Social Insurance Tax	\$103.4	\$8.0	\$111.4
Sales Tax	\$9.2	\$92.4	\$101.5
Personal Income Tax	\$90.6	\$9.4	\$100.0
Other Personal Tax	\$61.3	\$38.1	\$99.4
Corporate Income Tax	\$0.0	\$7.1	\$7.1
Total Taxes	\$276.8	\$317.6	\$594.4
	2023 (Projected)		
Property Tax	\$12.0	\$181.7	\$193.7
Social Insurance Tax	\$118.1	\$8.8	\$126.9
Sales Tax	\$11.0	\$103.1	\$114.1
Personal Income Tax	\$103.6	\$10.3	\$113.9
Other Personal Tax	\$69.9	\$42.5	\$112.4
Corporate Income Tax	\$0.0	\$7.9	\$7.9
Total Taxes	\$314.6	\$354.2	\$668.8

Summary and Conclusions

McKenzie County has experienced unprecedented socio-economic and demographic changes over the course of the past decade. McKenzie County's population increased dramatically, becoming more racially diverse. McKenzie County also experienced an increased birth rate, twice that of statewide and national averages — and an increase in households with children. Strong economic conditions drove increases in per capita personal income. Rapid expansion of the oil and gas industry was the impetus for the unprecedented expansion in McKenzie County.

With that growth came an increased need for expanded health care services to meet the needs of a growing and changing community. McKenzie County Healthcare Systems has responded to the needs of the community by building a new hospital and expanding services. General surgical services were added in 2018 and orthopedic services were added in 2019. More recently in 2022, echocardiography and ear, nose, and throat services were added as well as OB-GYN and maternity services. Plans are currently underway to offer a women and children's health services clinic with two additional OB-GYN health care providers. As the third largest employer in McKenzie County, McKenzie County Healthcare Systems employees 307 people including 40 physicians, physicians' assistants, and nurse practitioners; 108 CNA's, RN's and LPN's; and 31 health technicians.

In addition to providing health care services, the McKenzie County Healthcare Systems makes a substantial contribution to the local economy. McKenzie County Healthcare Systems is responsible for about three-fourths of all Health Care Services output in McKenzie County. Total economic output (direct, indirect, and induced) in 2022 was \$58.2 million and is projected to increase to \$67.8 million in 2023. Labor compensation represented just over half of all economic output, \$29.4 million in 2022 and \$33.5 million in 2023 (projected). Economic activities associated with McKenzie County Healthcare Systems generated \$594,400 in state and local tax revenues in 2022 and is projected to generate \$668,800 in state and local tax revenues in 2023.

Changing socio-economic conditions in the past decade have resulted in the need for expanded health care services in McKenzie County. The McKenzie County Healthcare Systems has responded to those needs by constructing a new hospital and expanding services. In addition to responding to McKenzie County's need for health care services, McKenzie County Healthcare Systems is also making a substantial contribution to the local economy.

References

- Bureau of Economic Analysis. (2021a, November). *Personal Income Summary: Personal Income, Population, Per Capita Personal Income*. Retrieved from Bureau of Economic Analysis: <https://www.bea.gov/>
- Bureau of Economic Analysis. (2021b, November). *Personal Current Transfer Receipts*. Retrieved from Bureau of Economic Analysis: <https://www.bea.gov/>
- Bureau of Economic Analysis. (2021c, November). *Personal Income by Major Component and Earnings by NAICS Industry*. Retrieved from Bureau of Economic Analysis: <https://www.bea.gov/>
- Bureau of Economic Analysis. (2021d, November). *Total Full-Time and Part-Time Employment by NAICS Industry*. Retrieved from Bureau of Economic Analysis: <https://www.bea.gov/>
- IMPLAN Group LLC. (2021). Retrieved from IMPLAN System Software and Data: www.IMPLAN.com
- National Vital Statistics Reports. (2022). *Births: Final Data for 2020*. Retrieved from <https://www.cdc.gov/nchs/data/nvsr/nvsr70/nvsr70-17.pdf>
- North Dakota Department of Health. (2020). *North Dakota Resident Vital Event Summary Data 2005-2020*. Division of Vital Records. Retrieved from <https://www.health.nd.gov/sites/www/files/documents/Files/Vital/2020VES.pdf>
- North Dakota Department of Public Instruction. (2022a). *Average Daily Membership of Public Schools in North Dakota*. Retrieved from Kids Count Data Center: <https://datacenter.kidscount.org/data/tables/2419-average-daily-membership-of-public-schools?loc=36&loct=5#detailed/5/5125-5177/false/2029,1965,1750,1686,1654,1601,1526,1445,1250,1069/any/5042>
- North Dakota Department of Public Instruction. (2022b). *Average Expenditures Per Student in Public Schools in North Dakota*. Retrieved from Kids Count Data Center: <https://datacenter.kidscount.org/data/tables/2418-average-expenditures-per-student-in-public-schools?loc=36&loct=5#detailed/5/5125-5177/false/2029,1965,1750,1686,1654,1601,1526,1445,1250,1069/any/10761>
- North Dakota Department of Public Instruction. (2022c). *Four-Year High School Cohort Graduation Rate in North Dakota*. Retrieved from Kids Count Data Center: <https://datacenter.kidscount.org/data/tables/9009-four-year-high-school-cohort-graduation-rate?loc=36&loct=5#detailed/5/5125-5177/false/2029,1965,1750,1686,1654,1601,1526,1445,1250,1069/any/17974>
- North Dakota Job Service. (2021). *North Dakota Largest Employers*. Retrieved from North Dakota Labor Market Information: <https://www.ndlmi.com/vosnet/gsipub/documentView.aspx?enc=1cNw1PnL0ext2Wy4Z56Riw==>
- North Dakota Job Service Labor Market Information. (2022). *Quarterly Census of Employment and Wages*. Retrieved from <https://www.ndlmi.com>

-
- U.S. Census Bureau. (2020a). *Age and Sex: American Community Survey 5-Year Estimates Subject Tables*. Retrieved from United States Census Bureau: <https://data.census.gov/cedsci/table?text=sex&t=Age%20and%20Sex&g=0500000US38053&tid=ACSST5Y2010.S0101>
- U.S. Census Bureau. (2020b). *American Community Survey: Households and Families*. Retrieved from United States Census Bureau: <https://data.census.gov/cedsci/table?q=mckenzie%20county%20ND%20household&tid=ACSST5Y2020.S1101>
- U.S. Census Bureau. (2020c). *Decennial Census of Population and Housing*. Retrieved from United States Census Bureau: <http://www.census.gov/prod/www/decennial.html>
- U.S. Census Bureau. (2020d). *Hispanic or Latino, and not Hispanic or Latino by Race*. Retrieved from United States Census Bureau: https://data.census.gov/cedsci/table?g=0400000US38_0500000US38053&d=DEC%20Redistricting%20Data%20%28PL%2094-171%29&tid=DECENNIALPL2010.P2
- U.S. Census Bureau. (2021a). *Population and Housing Estimates*. Retrieved from United States Census Bureau: <https://www.census.gov/programs-surveys/popest.html>
- U.S. Census Bureau. (2021b). *Population and Housing Unit Intercensal Estimates*. Retrieved from United States Census Bureau: <https://www.census.gov/programs-surveys/popest.html>
- U.S. Census Bureau. (2021c). *Small Area Income and Poverty Estimates (SAIPE) Program*. Retrieved from United States Census Bureau: <https://www.census.gov/programs-surveys/saipe.html>
- U.S. Census Bureau. (2021d). *Small Area Income and Poverty Estimates (SAIPE)*. Retrieved from https://www.census.gov/data-tools/demo/saipe/#/?s_measures=mhi&s_state=38&s_county=38053&s_district=&s_geography=county&x_tableYears=
- U.S. Census Bureau. (2022a). *Median Household Income, North Dakota and U.S. 1999-2021*. Retrieved from North Dakota Compass: <https://ndcompass.org/economy/key-measures.php?km=medianincome#0-7757-d>
- U.S. Census Bureau. (2022b). *Small Area Health Insurance Estimates (SAHIE)*. Retrieved from <https://www.census.gov/data-tools/demo/sahie/#/>
- U.S. Census Bureau. (2022c). *Uninsured Children Ages 0 to 18 (Annual Estimates) in North Dakota*. Retrieved from Kids Count Data Center: <https://datacenter.kidscount.org/data/line/5690-uninsured-children-ages-0-to-18-annual-estimates?loc=36&loct=2#5/5151/true/574,37,870,869,868,133/asc/any/12295>

Appendix A

Appendix Table A1. Transfer Receipts for McKenzie County and North Dakota, 2020

Transfer Receipt Categories	McKenzie County		North Dakota	
	Payments (000s \$)	Percentage of Total	Payments (000s \$)	Percentage of Total
Personal transfer receipts total	\$124,757	100.0%	\$8,596,600	100.0%
Receipts of individuals from governments	\$110,549	88.8%	\$7,996,456	93.0%
Retirement & disability insurance benefits	\$22,617	18.1%	\$2,500,415	29.1%
Social security benefits	\$19,796	15.9%	\$2,283,598	26.6%
Medical benefits	\$26,469	21.2%	\$2,875,198	33.4%
Medicare benefits	\$13,408	10.7%	\$1,568,506	18.2%
Public assist medical care benefits ¹	\$12,825	10.3%	\$1,257,524	14.6%
Military medical insurance benefits ²	\$236	0.2%	\$49,168	0.6%
Income maintenance benefits	\$5,018	4.0%	\$430,716	5.0%
Supplemental security income (SSI) benefits	\$334	0.3%	\$55,568	0.6%
Earned income tax credit (EITC)	\$1,273	1.0%	\$98,412	1.1%
Supplemental nutrition assistance program (SNAP)	\$845	0.7%	\$92,952	1.1%
Other income maintenance benefits ³	\$2,566	2.1%	\$183,784	2.1%
Unemployment insurance compensation	\$39,012	31.3%	\$881,487	10.3%
State unemployment insurance compensation	\$39,004	31.3%	\$877,430	10.2%
Veterans' benefits	\$3,169	2.5%	\$386,636	4.5%
Education and training assistance ⁴	\$1,297	1.0%	\$110,462	1.3%
Other receipts of individuals from governments ⁵	\$12,967	10.4%	\$811,542	9.4%
Receipts of nonprofit institutions	\$12,563	10.1%	\$519,406	6.0%
Receipts of individuals from businesses ⁶	\$1,645	1.3%	\$80,738	0.9%
Refundable tax credits ⁷	\$12,514	10.0%	\$898,696	10.5%

1/ Consists of Medicaid and other medical vendor payments.

2/ Consists of payments made under the TRICARE Program for the medical care of dependents of active-duty military personnel and of retired military personnel and their dependents at nonmilitary medical facilities.

3/ Consists largely of general assistance; family assistance; expenditures for food under the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); Other Needs Assistance; refugee assistance; foster home care and adoption assistance; Additional Child Tax Credit; and energy assistance.

4/ Consists largely of federal fellowship payments (National Science Foundation fellowships and traineeships, subsistence payments to state maritime academy cadets, and other federal fellowships), interest subsidy on higher education loans, Pell Grants, Job Corps payments, education exchange payments, and state education assistance payments.

5/ Consists largely of other refundable tax credits; Bureau of Indian Affairs payments; Alaska Permanent Fund dividend payments; compensation of survivors of public safety officers; compensation of victims of crime; disaster relief payments; supplemental payments to UMW health benefits; compensation for Japanese internment; the American Recovery and Reinvestment Act of 2009 funded Federal Additional Compensation for unemployment, COBRA premium reduction; Economic Recovery lump sum payment; ACA cost sharing reductions; Lost Wages Assistance; and other special payments to individuals.

6/ Consists of personal injury payments to individuals other than employees and other business transfer payments.

7/ Included in CAINC35 line 2700. Other refundable tax credits consist of American Opportunity Tax Credit (2010-2020), Economic Stimulus Act Rebate (2008-2010), Making Work Pay Tax Credit (2009-2013), Government Retiree Tax Credit (2010), Adoption Tax Credit (2011-2015), Health Coverage Tax Credit (2003-2020), Health Insurance Premium Assistance Tax Credit (2014-2020), Alternative Minimum Tax Credit (2008-2020), and Economic Impact Payments (2020). Values shown in parenthesis following the credit name indicate years in which the refundable tax credit contributes to series total.

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., Last updated: November 16, 2021-- new statistics for 2020; revised statistics for 2013-2019.

Source: (Bureau of Economic Analysis, 2021b)

Appendix Table A2. Population by Race and Hispanic Origin for McKenzie County, 2010 and 2020

Race and Hispanic Origin	2010		2020		Percent Change: 2010 to 2020
	Population	Percentage of Total	Population	Percentage of Total	
White alone	4,792	75.3%	10,638	72.3%	122.0%
Black alone	8	0.1%	218	1.5%	2,625.0%
American Indian and Alaska Native alone	1,412	22.2%	1,894	12.9%	34.1%
Asian alone	19	0.3%	171	1.2%	80.0%
Native Hawaiian/Pacific Islander alone	2	0.0%	5	0.0%	150.0%
Some Other Race alone	27	0.4%	709	4.8%	2,526.0%
Two or More Races	100	1.6%	1,069	7.3%	969.0%
Totals	6,360	100.0%	14,704	100.0%	131.2%
Hispanic Origin (of any Race)	139	2.2%	1,532	10.4%	1,002.0%

Source: (U.S. Census Bureau, 2020d)

Appendix B Survey Instrument

**Economic Contribution
of McKenzie County
Healthcare Systems,
Inc.**

**Data Request
July 7, 2022**

Confidentiality

This is a confidential request -- only the immediate research team has access to this information, and the information is never shared with any interests during or after the study. A confidentiality agreement can be provided upon request.

Guidelines and Instructions

Please use the following guidelines.

1. Please provide information for your most recent fiscal year and forthcoming fiscal year.
2. If information is not readily available, please estimate.
3. Please complete the survey by **August 4, 2022**.
Please email the questionnaire to Dean Bangsund at the address below.

Study Contacts

Dean Bangsund (701-231-7471)
d.bangsund@ndsu.edu

Dr. Nancy Hodur (701-231-8621)
nancy.hodur@ndsu.edu

Contribution of McKenzie County Healthcare Systems, Inc Data Request

Contact Person: _____

Email: _____ Phone: _____

Gross Revenues in North Dakota for your Organization (please round to thousands)

Gross revenues would include revenues from all sources, such as inpatient services, outpatient services, ancillary services, satellite clinics and services, etc.

Fiscal Year	Revenue from All Sources
FY 2022	\$
FY2023 (anticipated)	\$

Employment

Employment is measured by place of work, so please include all individuals that work in McKenzie County for your organization regardless of their home residence.

Employment (Include all individuals working in McKenzie County regardless of their home residence)	In McKenzie County
FY 2022	
Number of full-time employees	
Number of part-time employees	
FY 2023 (anticipated)	
Number of full-time employees	
Number of part-time employees	

Expenditures for FY 2022 in ND and McKenzie County (financial values can represent your best estimate and can be rounded to thousands)

These expenses are expected to be incurred annually. Do not include any capital expenses as they are tracked in another table. If a major expense does not fit the listings, please write in the type of expense.

Categories	Total Expense in FY 2022	Percentage to Entities in McKenzie County
Example: repairs	\$21,000	70%
Employment Compensation		
Wages, salaries, bonuses	\$	%
Employee Benefits (insurance, retirement, FICA, unemployment and WSI fees)	\$	%
Operating Expenditures		
General Office (e.g., computers, software, office furniture, printer cartridges, paper, pens, custodial supplies)	\$	%
Communications (e.g., internet, satellite, cell phone, land line)	\$	%
Equipment Leases (e.g., vehicles)	\$	%
Insurance (e.g., property and liability insurance for buildings, facilities, vehicles)	\$	%
Loan Interest and Banking/Brokerage Fees	\$	%
Business Services (e.g., advertising and promotion, computer services, security services, tax and auditing preparation, automotive repairs, janitorial services, landscaping and grounds keeping, catering and event hosting)	\$	%
Business Travel (e.g., lodging, meals, entertainment, mileage, conferences, airfare)	\$	%
Utilities (e.g., natural gas, electricity, water and sewer)	\$	%
Garbage and Medical Waste Disposal	\$	%
Medical Supplies (e.g., gloves, needles, masks, anesthesia, oxygen, bed linens, etc.)		
Food and Meal Serving		
Pharmaceuticals		
Others (please specify)		
Others (please specify)		

Facility Maintenance and Upkeep (only annual expenses)		Total Expense in FY 2022	Percentage to Entities in McKenzie County
	Manufacturing related to annual upkeep (e.g., on-site or contracted fabrication)	\$	%
	Contract Construction related to annual upkeep	\$	%
	Engineering and Technical Services (annual)	\$	%
	Contracted Repairs (annual)	\$	%
	Others (please specify)	\$	%
Miscellaneous Expenses			
	Memberships and Dues	\$	%
	Employee Training	\$	%
	Charitable Contributions	\$	%
	Others (please specify)	\$	%

Estimated Expenditures for **FY 2023** in ND and McKenzie County

These would be your best estimate for the upcoming fiscal year.

Categories	Estimated Expense in FY 2023	Percentage to Entities in McKenzie County
Example: repairs	\$21,000	70%
Employment Compensation		
Wages, salaries, bonuses	\$	%
Employee Benefits (insurance, retirement, FICA, unemployment and WSI fees)	\$	%
Operating Expenditures		
General Office (e.g., computers, software, office furniture, printer cartridges, paper, janitorial supplies)	\$	%
Communications (e.g., internet, satellite, cell phone, land line)	\$	%
Equipment Leases (e.g., vehicles)	\$	%
Insurance (e.g., property and liability insurance for buildings, facilities, vehicles)	\$	%
Loan Interest and Banking/Brokerage Fees	\$	%
Business Services (e.g., advertising and promotion, computer services, security services, tax and auditing preparation, automotive repairs, janitorial services (contracted), landscaping and grounds keeping, catering and event hosting)	\$	%
Business Travel (e.g., lodging, meals, entertainment, mileage, conferences, airfare)	\$	%
Utilities (e.g., natural gas, electricity, water and sewer)	\$	%
Garbage and Medical Waste Disposal	\$	%
Medical Supplies (e.g., gloves, needles, masks, anesthesia, oxygen, bed linens, etc.)		
Food and Meal Serving		
Pharmaceuticals		
Others (please specify)		
Others (please specify)		

Facility Maintenance and Upkeep (anticipated)		Estimated Expense in FY 2023	Percentage to Entities in McKenzie County
	Manufacturing related to annual upkeep (e.g., on-site or contracted fabrication)	\$	%
	Contract Construction related to annual upkeep	\$	%
	Engineering and Technical Services	\$	%
	Contracted Repairs	\$	%
	Others (please specify)	\$	%
		\$	%
Miscellaneous Expenses			
	Memberships and Dues	\$	%
	Employee Training	\$	%
	Charitable Contributions	\$	%
	Others (please specify)	\$	%
		\$	%
		\$	%
		\$	%

Capital Expenditures in ND and McKenzie County

Fiscal year 2021 was included, but if you do not wish to include outlays from that period, please leave blank.

If the cost of a facility is primarily tracked as a single value, please estimate a share for the construction/building of the facility and a share for the furnishings/equipment/medical apparatus/etc. Please exclude any parcel/lot or land purchases.

Capital expenditures need to be on an annual basis. If a new building required two years to build, please estimate a share for each year.

Capital Expenditures (infrequent expenditures that do not represent an annual expense)		Total Capital Outlays	Percentage to Entities in McKenzie County
		FY 2021	
Facility expansion and building new facilities (Note: these expenditures would most closely align with construction labor and material costs. Do not include land purchases or medical equipment)	\$		%
Medical equipment (e.g., lab instruments, imaging and scanning, surgical equipment, other patient testing and monitoring systems)	\$		%
Other (please specify)	\$		%
		FY 2022	
Facility expansion and building new facilities (Note: these expenditures would most closely align with construction labor and material costs. Do not include land purchases or medical equipment)	\$		%
Medical equipment (e.g., lab instruments, imaging and scanning, surgical equipment, other patient testing and monitoring systems)	\$		%
Other (please specify)	\$		%
		FY 2023 (anticipated)	
Facility expansion and building new facilities (Note: these expenditures would most closely align with construction labor and material costs. Do not include land purchases or medical equipment)	\$		%
Medical equipment (e.g., lab instruments, imaging and scanning, surgical equipment, other patient testing and monitoring systems)	\$		%
Other (please specify)	\$		%

Taxes Paid in FY 2022 to North Dakota Jurisdictions (please exclude payroll taxes)			Percentage in North Dakota
Property Tax	\$		100%
Sales and Use	\$		100%
Corporate Income	\$		100%
Others (please specify)	\$		100%
			%
Taxes Estimated for FY 2023 (please exclude payroll taxes)			Percentage in North Dakota
Property Tax	\$		100%
Sales and Use	\$		100%
Corporate Income	\$		100%
Others (please specify)	\$		%

