



The **EDACENTER**

at the University of Minnesota Crookston

Economic Composition of North Central Minnesota: Industries and Performance

Brigid Tuck

(With Assistance from Merritt Bussiere)



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About The EDA Center

The EDA Center at the University of Minnesota Crookston is one of more than 40 university centers nationwide, supported by the Economic Development Administration, U.S. Department of Commerce. The EDA Center conducts applied research, provides direct technical assistance and delivers educational programs to economic development agencies that support the economy of economically-distressed communities throughout Minnesota.

Our Mission:

Our mission is to engage university faculty, staff and students with local, county tribal and regional economic development agencies in support of our Minnesota economy. Our focus is to utilize the capacity of the University of Minnesota Crookston in partnership with the broader U of M system and economic development agencies to support job creation, capital investment, business recruitment, and job retention.

To learn more about The EDA Center go to: www.edacenter.org.

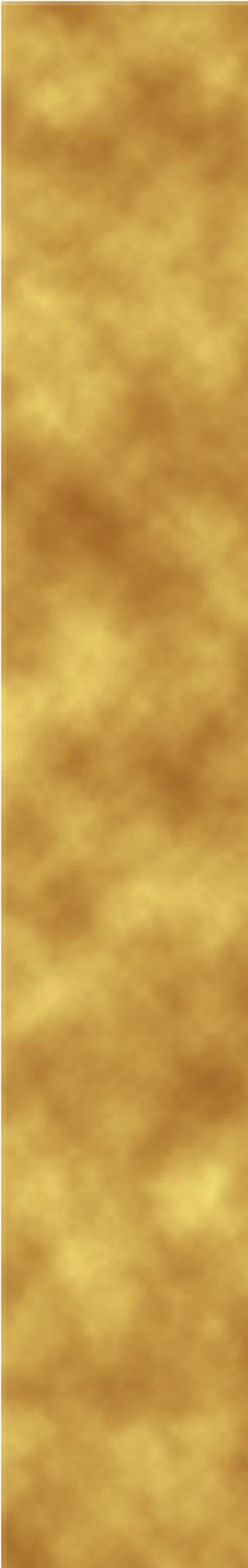
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ECONOMIC COMPOSITION OF NORTH CENTRAL MINNESOTA: KEY FINDINGS

To analyze the economic composition of North Central Minnesota, University of Minnesota Extension conducted an analysis of industry outputs, employment and wages, and interdependencies. Following is a report of key findings. This report is presented in partnership with the EDA Center at the University of Minnesota, Crookston.

The North Central regional economy is relatively diverse. Output is driven by professional and business services and manufacturing. The top three industries account for 55 percent of output. Employment is driven by professional and business services, government, and trade. A closer analysis revealed the following strengths and concerns.

REGIONAL STRENGTHS:

- **Health care and social assistance.** The health care and social services sector added nearly 2,200 jobs between 2003 and 2013. Even with strong growth rates in the health care sector in the United States, job growth was higher than predicted in the region. Strong growth was recorded in the individual and family services sector.
- **Manufacturing.** The manufacturing industry accounts for almost 20 percent of output, but has shed jobs in the last 10 years in the North Central region. The North Central region lost 543 more jobs than it should have given national trends. However, within manufacturing, there were specific sectors, including animal processing and forging and stamping, that performed above industry expectations.
- **Wholesale trade.** The wholesale trade industry in the North Central region grew between 2003 and 2013 and grew at rates higher than predicted given trends at the national and industry level. Wholesale trade wages in the region are nearly \$200 higher than the average weekly wage across all industries, and they increased by 15 percent between 2000 and 2013.

REGIONAL CONCERNS:

The analysis also revealed areas of potential concern for the region from an economic standpoint. These industries are not as competitive in the region and may warrant additional attention and exploration.

- **Slow job growth.** The total number of jobs in the North Central region has been increasing since the Great Recession of 2008-2009, however, the rate of growth has been slow, and while other regions in the state are close to or above the pre-recession number of jobs, the North Central region is still below pre-recession job numbers.
- **Retail trade.** The retail trade sector shed over 1,100 jobs in the North Central region between 2003 and 2013. Nationally, the retail trade sector struggled as a result of the Great Recession. However, analysis reveals

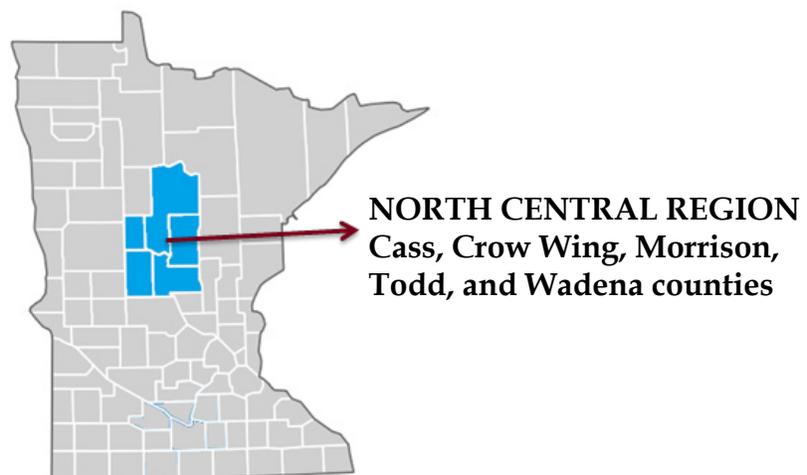
retailers in the North Central region fared worse than predicted given those trends. Retail wages, when adjusted for inflation, dropped by four percent between 2000 and 2013 in the region. Jobs were added in general merchandise stores – or stores that sell a wide range of products. Jobs losses were greatest in grocery stores, automobile dealers, and building supplies and materials. The last two retail categories were also hard hit by the recession nationally.

STUDY BACKGROUND AND OVERVIEW NORTH CENTRAL REGION

Minnesota’s regions differ in size, social and economic characteristics, history, and geography. These differences influence the economy of the regions, as well as economic development decisions and discussions. Therefore, conversations about Minnesota’s economy and its economic future must include discussions of the diverse drivers of economic activity in the state’s regions. University of Minnesota Extension, in responding to a broader conversation about the role of Greater Minnesota in the state’s economy, is producing economic profile reports on 12 Minnesota non-metro regions, as defined by the boundaries of the Regional Development Organizations. This report is provided in partnership with the EDA Center at the University of Minnesota Crookston.

Located in the center of Minnesota, the North Central region, represented by the Region 5 Development Commission, is comprised of five counties, including Cass, Crow Wing, Morrison, Todd, and Wadena. Located in Crow Wing County, the Brainerd/Baxter area is one primary regional economic hub. The region is also home to several sub-regional hubs.

Map 1: Map of North Central Region in Minnesota



The goals of this report are to 1) identify the region’s strengths – both industries that are the current core of the economy and emerging industries –

and 2) identify concerns for the region. Regional concerns focus on industries that may be underperforming or declining.

To ascertain which industries are regional strengths and which are potential regional concerns, this report draws from output, employment, and wage data. The first section looks at industry outputs. Output measures the value of sales by industry. Studying output by industry provides a perspective on which industries are driving the highest sales in the region. The second section details employment. Studying employment by industry identifies industries that employ the highest number of people in the region. The employment section of this report also discusses wages. The third section of this report looks at economic interdependencies. Examining how sectors interact and connect with each other can provide powerful insights into an economy.

INDUSTRY OUTPUT

Output is an important factor to consider when assessing the economic composition of a specific geography. Output provides information about the economic activity of a region and also is directly tied to employment.

In 2012, businesses and industries in the North Central region produced \$10.6 billion in goods and services, according to estimates from the IMPLAN economic model. Output in the North Central region accounts for approximately 2 percent of Minnesota's \$567.8 billion economy and 5 percent of Greater Minnesota's \$218.8 billion economy. In 2012, according to the IMPLAN model, professional and business services created over 25 percent of total output in North Central Minnesota (chart 1). Manufacturing created 19 percent of output. The top three industries account for only 55 percent of all output in the region which illustrates the diversity of region in terms of output. While the professional and business services industry and the manufacturing industry are clearly drivers of the economy - trade; construction; government; health and social services; agriculture, forestry, fishing, and hunting; and leisure and hospitality each contribute more than five percent of output.

Chart 1: Industry Share of Total Output North Central

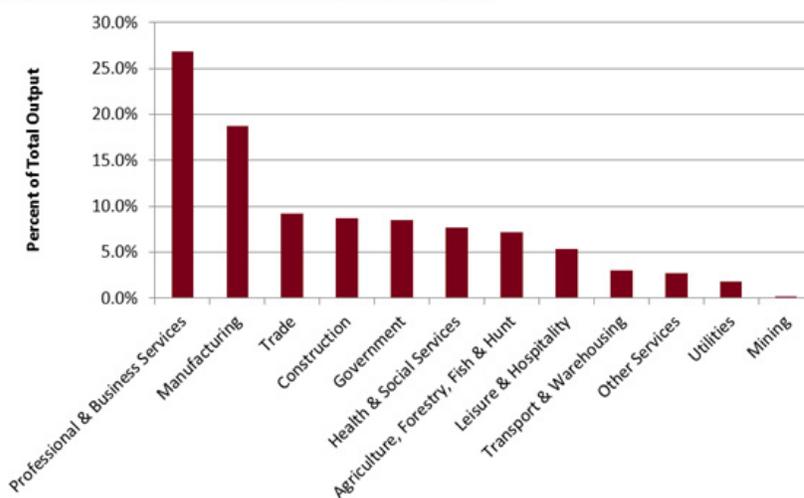


Chart 1 shows output by major industry category, helping to frame discussions about output in the region. However, examining output by sector can be valuable as well. Sectors are a more refined level of analysis. Individual sectors form industries. For example, crop production and animal production are sectors within the industry of agriculture.

Beyond the major industry categories, the top ten sectors in the North Central region produce an estimated \$3.7 billion of output (table 1). The housing market sector is the largest generator of output in the region, producing \$721.7 million of output. This sector measures the value of housing in the region from the perspective of homeowners – in other words, the housing market sector is a proxy to measure if all homeowners were to pay mortgages. It is not a measure of the value of housing stock. While the housing market is an important component of many regional economies, its ranking on this list is fairly unusual. A recent study by University of Minnesota Extension focused on the role of seasonal residents in the region and found nearly one-third of units in the study area were designated for seasonal, occasional, or recreational use.¹ This may contribute to the importance of the housing and real estate markets in the North Central region.

Banks generate \$453.4 million in output, and state and local governments, through their payroll spending, generate \$380.9 million.

For the majority of the sectors in table 1, high output is driven by high productivity (output per worker). Each employee in animal slaughtering and processing manufacturing produces an estimated \$338,000 in output annually. The clear exception in the table is government and government-owned enterprises. Government output is linked primarily to the number of employees. Output is not the best measure for the government sector, because government does not make sales in the traditional sense of other industries. Output per worker is often lower for service or labor intensive industries, as it takes more workers to produce output.

The industries with the lowest output per worker in the region include private household services (households providing services to other households, such as cleaning), and agriculture and forestry support services (including custom planting, harvesting, and fertilizer application). Since the model measures one job as one job, these two industries, which have relatively high seasonal and part-time employment, likely have lower output per worker because a significant share of the workers are working less than year-round and full-time.

1 Pesch, Ryan and Merritt Bussiere (2014). Profile of Second Homeowners in Central and West Central Minnesota. Retrieved from: <http://www.extension.umn.edu/community/research/docs/2014-2nd-Homeowners.pdf>.

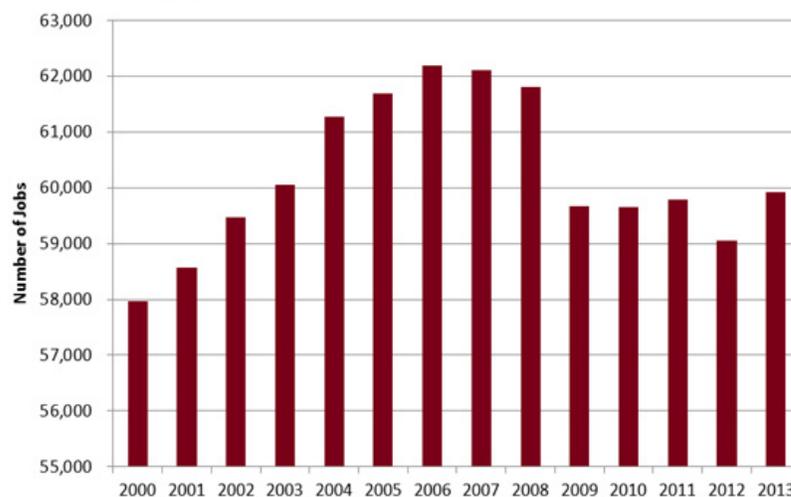
TABLE 1: TOP TEN SECTORS IN NORTH CENTRAL REGION, SORTED BY OUTPUT

Sector	Total Output (millions)	Output per Worker
Housing market	\$721.7	NA
Monetary authorities and depository credit intermediation activities (banks)	\$453.4	\$411,658
State and local government, education (payroll only)	\$380.9	\$55,484
Wholesale trade businesses	\$379.1	\$172,745
Real estate establishments	\$306.2	\$164,422
Construction of other new nonresidential structures	\$304.0	\$139,994
Animal (except poultry) slaughtering, rendering, and processing	\$303.7	\$338,267
Private hospitals	\$295.3	\$131,305
Food services and drinking places	\$269.9	\$50,526
State and local government, non-education (payroll only)	\$258.1	\$49,789
TOP TEN TOTAL	\$3,672.3 (35%)	
TOTAL OUTPUT IN REGION	\$10,598.9	
*Source: IMPLAN		

EMPLOYMENT AND WAGES

The number of jobs in the region rose and fell between 2000 and 2013 (chart 2). The number of jobs in North Central Minnesota grew steadily between 2000 and 2006.² Employment then decreased consistent with the 2008-2009 Great Recession. The number of jobs in the region has been fairly stable since 2009, with a slight increase in 2013. The number of jobs in the North Central region has not recovered to pre-recession levels.

Chart 2: Total Employment 2000-2013 North Central Minnesota



Source: QCEW

² Covered Employment and Wages (QCEW)

The highest employment growth industries in the North Central region between 2003 and 2013 were health care and social assistance (added 2,197 jobs); administrative and support and waste and remediation services (added 378 jobs); and wholesale trade (added 309 jobs).³ The industries suffering the most job losses during the period in the North Central region include manufacturing (1,936 lost jobs); retail trade (1,138 lost jobs); and construction (868 lost jobs). These are shown in table 2.

Shift-share analysis provides an examination of the drivers of growth and decline for a specific industry in a specific region by comparing to industry and national trends. The analysis provides an interesting interpretation of the changes in each industry (table 2⁴). In this analysis, the primary focus is on the competitive effect. A strongly positive competitive effect indicates particular characteristics of the local economy are driving growth in the region. A strongly negative competitive effect can be interpreted as a warning that the local economy may not be faring as well as it should. For more on shift-share analysis and how to fully interpret the results, see page 15.

The health care and social assistance industry added the most jobs between 2000 and 2013 (2,197 jobs). If the health care and social assistance industry in North Central had grown at the same overall rate as the national economy in all industries, it would have added 214 jobs (national growth effect). The health care and social assistance industry at the national level also added jobs during the time period. If North Central's health care and social assistance industry had grown at the same rate as the health care and social assistance industry nationally, then it would have added 1,375 jobs (industry mix effect). Since even more jobs were added in the region, the health care and social assistance industry in North Central Minnesota is considered "competitive." In other words, the health care and social assistance industry in North Central Minnesota outperformed national and industry trends.

All three industries with positive job growth in the North Central region (health care and social assistance; administrative and support and waste management and remediation services; and wholesale trade) also posted positive competitive shares, indicating particular characteristics in this region are conducive to the success of these industries.

TABLE 2: SHIFT-SHARE ANALYSIS FOR GROWTH AND DECLINE INDUSTRIES⁴				
Industry	Change 2003-2013	Industry Mix Effect	National Growth Effect	Competitive Effect
Top 3 Job Adding Industries				
Health care and social assistance	2,197	1,375	214	625
Administrative and support and waste management and remediation services	378	23	32	322
Wholesale trade	309	-25	42	291
*Source: EMSI				

³ EMSI

⁴ For an explanation of shift-share analysis, please see the methodology section.

TABLE 2: SHIFT-SHARE ANALYSIS FOR GROWTH AND DECLINE INDUSTRIES⁴**Top 3 Job Loss Industries**

Manufacturing	-1,936	-1,635	241	-543
Retail trade	-1,138	-322	281	-1,097
Construction	-868	-645	102	-325

*Source: EMSI

The manufacturing industry in North Central Minnesota shed 1,936 jobs during the 2003-2013 time period. Manufacturing at the national level suffered from the effects of the Great Recession. Had the manufacturing industry in North Central Minnesota contracted at the same rate as manufacturing across the United States, North Central Minnesota should have lost 1,635 jobs (industry mix effect). Given the trend of increasing employment across all industries in the United States, North Central would have been expected to add 241 jobs (national growth effect). Therefore, the competitive share for manufacturing in North Central is a negative 543 jobs. In other words, the manufacturing industry in the North Central region was not as competitive as it could have been.

The North Central region had significant manufacturing job losses in ship and boat building (-761); household and institutional furniture and kitchen cabinet manufacturing (-314); veneer, plywood, and engineered wood product manufacturing (-309); and plastics products manufacturing (-284). Offsetting these losses, however, were gains in animal slaughtering and processing (up 154 jobs); forging and stamping (up 148 jobs); and pulp, papers, and paperboard mills (up 121 jobs). The manufacturing sectors that added jobs all had positive competitive shares, indicating the region may have advantages on which to build these sectors.

The other industries with job losses (retail trade and construction) in the North Central region also had negative competitive shares. In the retail industry, the largest number of jobs lost were at grocery stores (-349); automobile dealers (-310); building materials and supplies stores (-253); and book stores and news dealers (-232). Job gains, however, were posted in general merchandise stores (678 added); sporting goods, hobby, and musical stores (60 added); and automobile parts (30 added). In the construction industry, jobs were lost in almost all the sectors, including residential and nonresidential construction. There were 50 jobs added in utility system construction and 12 added in other specialty trade contractors.

Key things for economic developers to consider from this employment data:

- Find ways to support competitive industries. This will likely mean engaging industry leaders to discuss the key drivers of economic advantage in this region, such as health care and wholesale trade. Many other regions in Minnesota are experiencing negative competitive shares in the health care industry. What factors are giving North Central an advantage in this industry? Demographics may partially explain this trend.
- For some non-competitive industries, it's important to learn more about the key drivers. Manufacturing, overall, had a negative competitive share and lost jobs. However, certain sectors within the industry fared well and

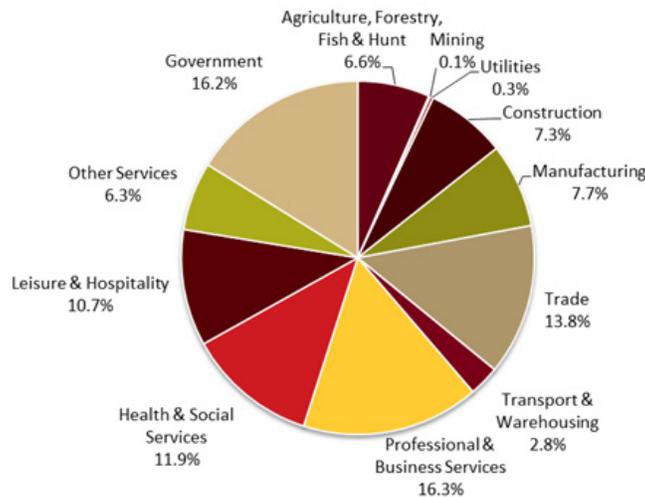
were competitive. There may be factors to be capitalized on in the region to support further growth.

- Job losses in an industry can simply reflect national and industry trends and do not necessarily reflect on the North Central region as a place to do business. In some cases, a major business closure can affect the analysis.

Employment and Wages by Industry

Employment by industry in the North Central region is depicted in chart 3. The industry called professional and business services employs 16.3 percent of all workers in North Central Minnesota. Government and government-owned enterprises employ 16.2 percent of all workers and trade -- both wholesale and retail - employs 13.8 percent.

Chart 3: Employment by Industry: North Central



Professional and Business Services

Within the professional and business services industry, the three largest sectors are finance and insurance (1,876 jobs); professional, scientific, and technical services (1,681 jobs); and administrative and support and waste management and remediation jobs (1,427 jobs). Overall, the industry contracted slightly, shedding 128 jobs between 2003 and 2013. The job losses were mostly due to the industry mix effect -- in other words, the job losses occurred because of changes in the industry that affected all professional and business services companies in the United States.

As mentioned earlier, the administrative and support and waste management and remediation sector grew between 2003 and 2013 and posted a positive competitive share for North Central in the shift-share analysis. The other two major sectors (finance and insurance, and professional, scientific, and technical services) both shed jobs in the time period. The competitive shift-share effect for both those industries was also negative. The professional, scientific, and technical services industry should have added over 300 jobs, but lost 30.

On a more detailed level, the most jobs were added by temporary help services businesses (301), security guards and patrol services businesses (157), and fine arts schools (92). The temporary help services category includes

companies that directly employ individuals, but place them at positions in other businesses. The most jobs were lost in wired telecommunications carriers (-170), commercial banks (-150), and title abstract and settlement offices (-92).

Wages in the professional and business services sector grew only slightly between 2000 and 2013. The average weekly wage increased an inflation-adjusted three percent, up from \$685 (in 2013 dollars) to \$705. Wages in the industry are slightly higher than across all industries in the region. The average weekly wage in all industries is \$620, compared to \$705 in the industry.

Professional and business services are concentrated primarily in Crow Wing County, which hosts nearly 60 percent of the jobs in the sector. The smallest share of these jobs (5 percent) is located in Wadena County.

Government and Government-Owned Enterprises

The second largest industry by employment in the North Central region is government and government-owned enterprises, including tribal government. In the IMPLAN model used for this descriptive analysis, all publicly-owned institutions are categorized as government employment, unlike other sources which categorize government employment by the type of activity. Education is a good example here. In the IMPLAN model, all K-12 public education is included in the government industry, while other data sources would categorize it in the education industry. Government and government-owned enterprises also includes tribal government; government-owned enterprises that are run as independent businesses (such as municipal liquor stores); and public higher education institutions. Tribal casino employment is also included in this category.

In the North Central region, the sector called “state and local government – education” employs 47 percent of all government workers. The sector called “state and local government – non-education” employs 36 percent of all government workers. During the 2003 to 2013 time period, the number of federal and state government jobs declined in the region.

Trade

The third largest employment industry is trade. Retail trade employment accounts for 82 percent of trade employment. Wholesale trade accounts for 18 percent. As mentioned above, the retail trade industry lost over 1,100 jobs between 2003 and 2013. The retail sectors with the largest jobs losses included grocery stores, automobile dealers, building material and supply stores, and book stores. General merchandise stores added a significant number of jobs. The wholesale trade industry, meanwhile, added 309 jobs and posted a positive competitive share. The location quotient (a measure of the concentration of jobs in a particular industry compared, in this case, to the state) was 0.59 for wholesale trade, indicating the region has fewer wholesale trade jobs as compared to the state. The location quotient for retail trade is 1.28. For more on location quotients, see page 14.

Along with a decline in the number of retail trade jobs, average weekly wages have also declined when adjusted for inflation. In 2013, the average weekly wage in the retail trade industry was \$436. In 2000, the average weekly

wage, adjusted to 2013 dollars, was \$455. This represents a four percent decline. The average weekly wage in the retail trade industry varies across the counties in the region. The average weekly wage in Crow Wing County is \$458, in Wadena County it's \$446, in Morrison County it's \$458, in Cass County it's \$409, and in Todd County it's \$338. Over half (54 percent) of retail jobs are in Crow Wing County.

Average weekly wages in the wholesale trade industry increased by 15 percent between 2000 and 2013. The average weekly wage in 2013 in the industry was \$806. The average weekly wage across all industries in the region is \$620, making the wholesale trade wage nearly \$200 higher. Wages were fairly even across the counties in the region.

Health Care and Social Assistance

The health care and social assistance industry employs 12 percent of all workers in the North Central region. As noted, the health care industry is growing in the region, and a significant share of that growth is beyond what would have been predicted given national and industry averages. Crow Wing County hosts 52 percent of the health care and social assistance jobs in the region.

Within the health care and social assistance industry, the largest number of jobs (849) was added in the individual and family services sector. The individual and family services sector includes youth and child services and services for the elderly and disabled persons. The location quotient in this sector increased from 0.4 in 2003 to 1.0 in 2013, which indicates the addition of jobs in this industry may have been a correction towards the average.

Jobs were also added in the continuing care retirement communities and assisted living for the elderly; residential, intellectual, development disability, mental health, and substance abuse clinics; general hospitals; and offices of other health care providers. The North Central region experienced a loss in the number of jobs in the health care sectors of both physicians' offices and home health care providers.

The 2013 average weekly wage in the region for the health care and social assistance industry was \$723. This represents an inflation-adjusted 2 percent increase from 2000. The average weekly wage in the ambulatory health care sector was \$1,106 in 2013. The average weekly wage in the social assistance sector was \$342 in 2013.

LOCAL INTERDEPENDENCIES

Beyond studying basic structure, examining how sectors interact with each other can provide powerful insights into an economy. Input-output models have been developed to estimate how sectors connect within a region. This section of the report will examine two significant industries in the North Central regional economy - professional and business services, and health care - and their connections with other industries. Specifically, the analysis will focus on 1) banking (monetary authorities and depository credit intermediation) and 2) hospitals. These are the two largest sectors within their respective industries as measured by output.

Multipliers include both indirect and induced effects. Indirect effects are

generated when a firm purchases inputs (goods and services) from other business establishments, which in turn purchase the goods and services that those supplier businesses need to produce their output. These are often referred to as supply chain effects. Induced effects are generated through the spending when employees of a local industry spend their wages in the region. The discussion here focuses on indirect effects.

Multipliers are driven by the amount of purchases a sector makes from other sectors. Understanding what inputs are necessary for the production of a good or service, and the extent to which those inputs are produced locally, can provide insights into the potential for economic development from the sector.

Professional and Business Services - Finance

Output multipliers for the financial sectors in the North Central region are estimated to range from 1.3 to 1.8. In other words, for every dollar of output generated by the sector (banking, for example), \$0.30 to \$0.80 cents are generated in other regional sectors that supply that sector.

Table 3 highlights expenditures by banks. For every dollar spent on inputs, banks are estimated to spend 8.6 percent on securities and investments, 5.1 percent on services from other banks, and 1 percent on advertising and related services. Table 3 helps illustrate an important point. Banks, or monetary authorities, purchase locally available goods and services. Of the top ten inputs purchased by banks, all of them are available in adequate supply within the region. This is unusual. Most industries make significant purchases outside of the region since their key supplies are not available locally.

TABLE 3: TOP PURCHASES BY BANKS (MONETARY AUTHORITIES AND DEPOSITORY AUTHORITIES IN THE NORTH CENTRAL MINNESOTA REGION, PERCENT OF TOTAL EXPENDITURES, AND LOCAL AVAILABILITY

Input	Percent of Input Expenditures	More than 50% of Demand Available from Suppliers within the North Central Region
Securities, commodity contracts, investments, and related services	8.6%	Yes
Monetary authorities and depository credit (banks)	5.1%	Yes
Advertising and related services	0.9%	Yes
Nondepository credit intermediation and related	0.9%	Yes
Maintained and repaired nonresidential buildings	0.8%	Yes
Eating and drinking places	0.7%	Yes
Services to building and dwellings	0.4%	Yes
Telecommunications	0.4%	Yes
Professional, scientific, and technical services	0.3%	Yes
Accounting, tax preparation, bookkeeping, and payroll services	0.3%	Yes
Source: IMPLAN		

Health Care and Social Assistance - Hospitals

Multipliers for health care sectors are estimated to range from 1.3 to 1.6. Table 4 shows the top inputs purchased locally by hospitals, the percent of total input expenditures spent on the item, and the local availability of the item. For every dollar spent on inputs by hospitals, 8.5 percent is spent on the purchase of real estate, 3.2 percent on pharmaceuticals, and 2.9 percent at medical and diagnostic labs.

Table 4 also helps illustrate two points. First, hospitals are important sources of local demand for real estate (land); employment services; securities, commodity contracts, investments, and related services; wholesale trade; and electric companies⁵. These industries and sectors with strong connections to hospitals are the top industries capturing the 30 to 60 cents of additional economic activity that flows from every dollar of hospital output mentioned above. Second, there may be opportunities for increased local production of pharmaceuticals and medical and diagnostic lab services, because hospitals are purchasing these outputs from outside the region. Pursuing economic development based on possible opportunities for supply chain development is one economic development approach. However, before moving forward, decision-makers should 1) take a scan of the industry, as it could be that the suppliers are located just outside the region as defined for this study and therefore considered local, and 2) explore the reasons for the current industry location, as location decisions are based on a broad variety of factors including proximity to supplies and transportation routes.

⁵ Local here is the North Central region.

TABLE 4: TOP PURCHASES BY HOSPITALS IN THE NORTH CENTRAL MINNESOTA REGION, PERCENT OF TOTAL EXPENDITURES, AND LOCAL AVAILABILITY

Input	Percent of Input Expenditures	More than 50% of Demand Available from Suppliers within the North Central Region
Real estate	8.5%	Yes
Pharmaceutical preparations	3.2%	No
Medical and diagnostic testing labs	2.9%	No
Management of companies and enterprises	2.4%	No
In-vitro diagnostic substances	2.2%	No
Insurance	2.0%	No
Employment services	1.9%	Yes
Securities, commodity contracts, investments, and related services	1.5%	Yes
Wholesale trade	1.5%	Yes
Electricity and distribution	1.2%	Yes
Source: IMPLAN		

These two examples (finance and health care) demonstrate the importance of economic interdependencies and interactions in the region. In general, industries that purchase from local suppliers tend to have higher economic impacts in the region.

METHODOLOGY, DATA, AND SOURCES

This report presents the economic characteristics of the region and an analysis of industries, income, employment, and local interdependencies. Three data sources were accessed in the preparation of the report. One data source is the IMPLAN database. IMPLAN is an input-output model developed by MIG, Inc. The database compiles a variety of sources to provide data on output, employment, and labor income by county for 440 economic sectors. A second data source is the Quarterly Census of Employment and Wages (QCEW) data provided by the Minnesota Department of Employment and Economic Development. This data is used, when necessary, to compliment or clarify the IMPLAN data. Finally, data from Economic Modeling Specialists International (EMSI) is presented in this report. The EMSI data in this report is derived from QCEW data; however, EMSI provides simple tools for performing calculations, such as shift-share analysis, on the data.

The boundaries of service of the Regional Development Commission were used for this study's definition of North Central Minnesota. The North American Industry Classification System (NAICS) code was used in the study. The NAICS code is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. This was used to enable uniformity and also for easy data accessibility.

Finally, data was analyzed with input from Extension Educators in the region and findings were compiled into the report.

Shift-Share Analysis

The results of shift-share analysis are presented in this report. Shift-share analysis is a powerful tool for understanding the drivers of economic change in an industry. Shift-share analysis parses economic change (here employment changes) into three components: national growth, industrial mix, and competitive share.

- **National Growth:** National growth indicates how many jobs a local economy would have gained (or lost) as a result of the growth (or decline) of employment at the national level. For example, consider a local economy with 100,000 jobs at the beginning of the time period. If during the period under consideration, the number of jobs in the United States grew by a rate of 2 percent, then at the end of the time period under consideration, the local economy would be expected to have 102,000 jobs.
- **Industrial Mix:** Industrial mix indicates how many jobs a particular industry within the local economy would have gained (or lost) if the local industry grew (or declined) at a rate similar to the industry as a whole in the United States. For example, if 1,000 people were employed in the finance industry in the local economy at the beginning of the period, and the finance industry as a whole in the U.S. grew at a rate of 10 percent, then at the end of the time period under consideration, the local finance industry would be expected to have 1,100 jobs.
- **Competitive Share:** Competitive share is the remainder of change in employment for the region examined. From our example, region's employment should have grown by 2,100 jobs, looking at overall national growth and then growth in the finance industry itself. If the local economy actually grew by 3,100 jobs in the finance industry, then 1,000 jobs were added because the local economy grew faster than expected, given national and industry trends. Conversely, if the local economy grew by only 1,000 jobs, then the economy was not as competitive as it should have been, given national and industry trends.
- **Percent Competitive Share:** This is the percent of total jobs that are sourced from competitive share. A competitive share of 80 percent would indicate that 80 percent of the jobs during the time period were derived from the competitive share, rather than from national and industry trends.

Location Quotients

This analysis reports the location quotient for certain industries. Location quotients are used in determining the concentration of a particular industry or sector in a region compared to a larger study area. In this analysis, the location quotient for the region versus the state is reported. If, say, 30 percent of employment in a region is in health care, while at the state only 15% of employment is in health care, then the location quotient would be 2, indicating that the region has twice as much employment in health care than the state as a whole.

OTHER DATA RESOURCES

Source	Link	Description
Harvard Business School and the U.S. Economic Development Administration	http://www.clustermapping.us/	Open data on regional industry clusters and economies, with analysis available for states, economic areas, metropolitan and micropolitan areas, counties, and customized regions based on counties. Data offers insights into performance, business environment and demographics.
Wilder Foundation	www.mncompass.org	Comprehensive data source for Minnesota counties and cities. In collaboration with the Initiative Foundations and others, Minnesota Compass has added data about smaller cities.
MN Demographers Office	http://mn.gov/admin/demography/data-by-topic/population-data/our-estimates/index.jsp	Go here for population estimates by EDR, County, and City/Townships. 2013 Estimates are available.
MN Land Economics	http://www.landeconomics.umn.edu/	Go here for information about land sales, land values, property taxes, soil type, etc. The database can be used to get information at the local, county, and state levels.
Headwaters Economics	http://headwaterseconomics.org/tools/eps-hdt	Generate your own socioeconomic profiles from federal data sources, by using the EPS-HDT Tool. The attached guidebook presents the data and provides a step by step walk-through on how to think about it.
DEED Data Tools	http://mn.gov/deed/data/data-tools/index.jsp	DEED provides access to several data tools such as labor market data, unemployment data, and many others. Most labor market data can be accessed through the labor market portal: https://apps.deed.state.mn.us/lmi/rws/
University of Wisconsin Extension	http://fyi.uwex.edu/downtown-market-analysis/understanding-the-market/demographics-and-lifestyle-analysis/	Learn more about demographic and lifestyle analysis
University of Wisconsin Extension	http://cced.ces.uwex.edu/files/2013/02/Resource-Documents-Total-12.pdf	Discover useful links to sources of information for economic developers
OnTheMap	http://onthemap.ces.census.gov/	Mapping tool from the census. Use this understand where people live vs work
University of Wisconsin-Madison, Michigan Tech University, University of New Hampshire	http://www.netmigration.wisc.edu/	Use this to learn about - and visualize - migration patterns for U.S. counties.



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