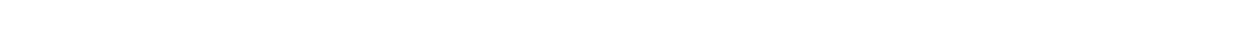
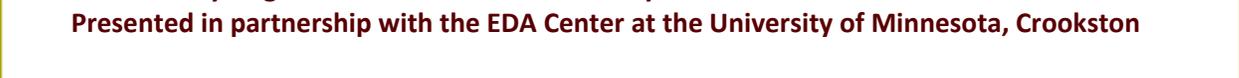




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Economic Composition of the West Central Region of Minnesota: Industries and Performance



Authored by Brigid Tuck with assistance from Ryan Pesch

Presented in partnership with the EDA Center at the University of Minnesota, Crookston

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Authored by:

Brigid Tuck, Senior Economic Impact Analyst

Assistance from:

Ryan Pesch, Extension Educator in West Central Minnesota

Editors:

Joyce Hoelting, Assistant Director, University of Minnesota Extension Center for Community Vitality
Matt Kane, Program Leader, University of Minnesota Extension Center for Community Vitality

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ECONOMIC COMPOSITION OF WEST CENTRAL REGION OF MINNESOTA: KEY FINDINGS

To analyze the economic composition of the West Central region of 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.

Manufacturing and professional and business services are the top two drivers of the West Central regional economy in terms of output. Manufacturers create 26 percent of all output. Professional and business services create 20 percent of output. Other key industries include agriculture, forestry, fishing and hunting; health and social services; and trade. A closer analysis revealed the following strengths and concerns in the region.

REGIONAL STRENGTHS:

- **Jobs.** The West Central region added jobs at a steady pace during the early 2000's. While the region, like the state, was hit by the Great Recession of 2008-2009, job recovery has been consistent since 2008. The number of jobs in the region now exceeds the previous peak in 2008.
- **Manufacturing.** Despite the struggles of the manufacturing industry at the national level, the West Central region **added** manufacturing jobs between 2003 and 2013. West Central weekly wages in the industry are strong, at rates nearly \$200 above the overall average wage for the region. Manufacturing wages in West Central increased by an inflation-adjusted 9 percent between 2000 and 2013.
- **Crop and animal production.** The agricultural, forestry, fishing, and hunting industry is the third largest contributor to output in the West Central region. Crop and animal production added jobs at a competitive rate between 2003 and 2013. The region has a high employment location quotient in the industry, indicating a higher concentration of jobs than the nation.

REGIONAL CONCERNS:

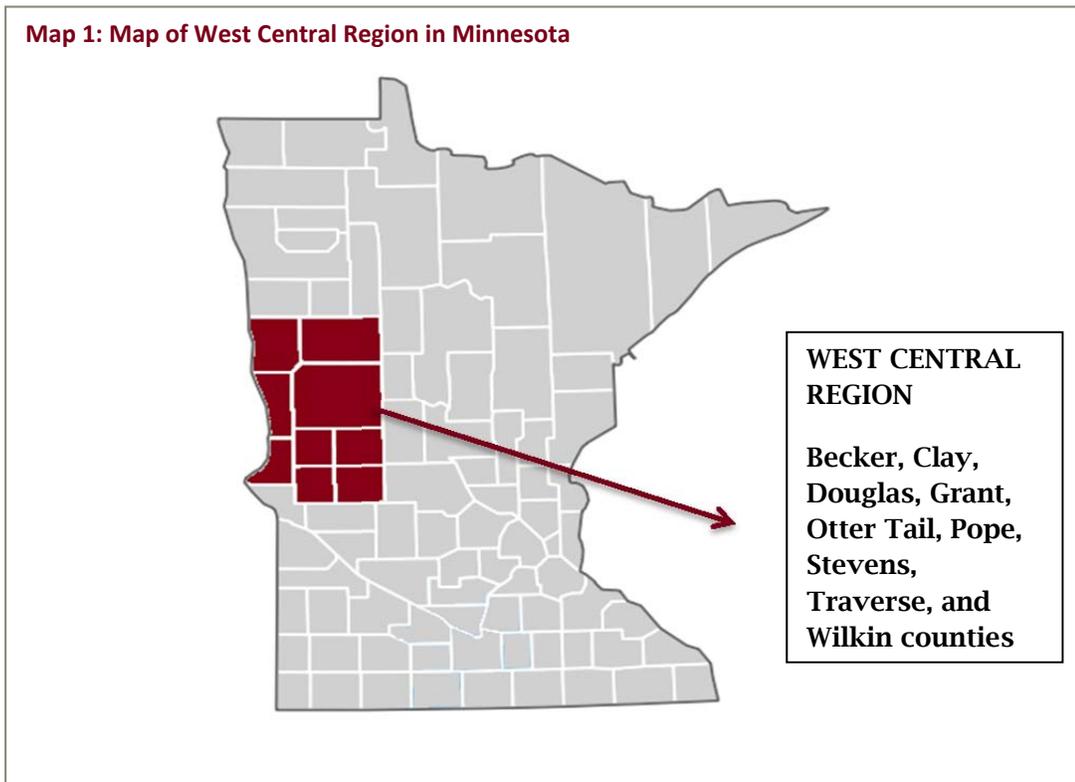
The analysis also revealed areas of potential concern for the region from an economic standpoint. These industries are not as competitive in the region and may warrant additional attention and exploration.

- **Retail trade.** The retail trade industry lost jobs in the West Central region between 2003 and 2013. The jobs lost exceeded expectations given national and industry trends. Sectors with the greatest job losses include food and beverage stores; miscellaneous store retailers; and furniture and home furnishing stores. Retail trade wages grew modestly between 2000 and 2013, but remain over \$200 lower per week than the average wages in the region.
- **Health and social services.** While the health and social services industry was one of the fastest growing industries in terms of job growth, shift-share analysis indicates the industry could have added more jobs. In particular, the nursing and residential care sector lost 122 jobs despite national trends for increased demand for nursing care. Despite those losses, the West Central region still has more than twice as many jobs in the sector, as compared to the nation.

STUDY BACKGROUND AND OVERVIEW WEST 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, 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.

The West Central region, represented by the West Central Initiative Foundation, is comprised of nine counties, including Becker, Clay, Douglas, Grant, Otter Tail, Pope, Stevens, Traverse, and Wilkin. This region includes the regional economic centers of Moorhead, Detroit Lakes, Fergus Falls, Alexandria, and Morris.



The goals of the report are 1) to identify the region's strengths - both industries that are the current core of the economy and emerging industries - and 2) to 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 largest number of people in the region. The employment section of this report also discusses wages. The third section of this report looks at economic

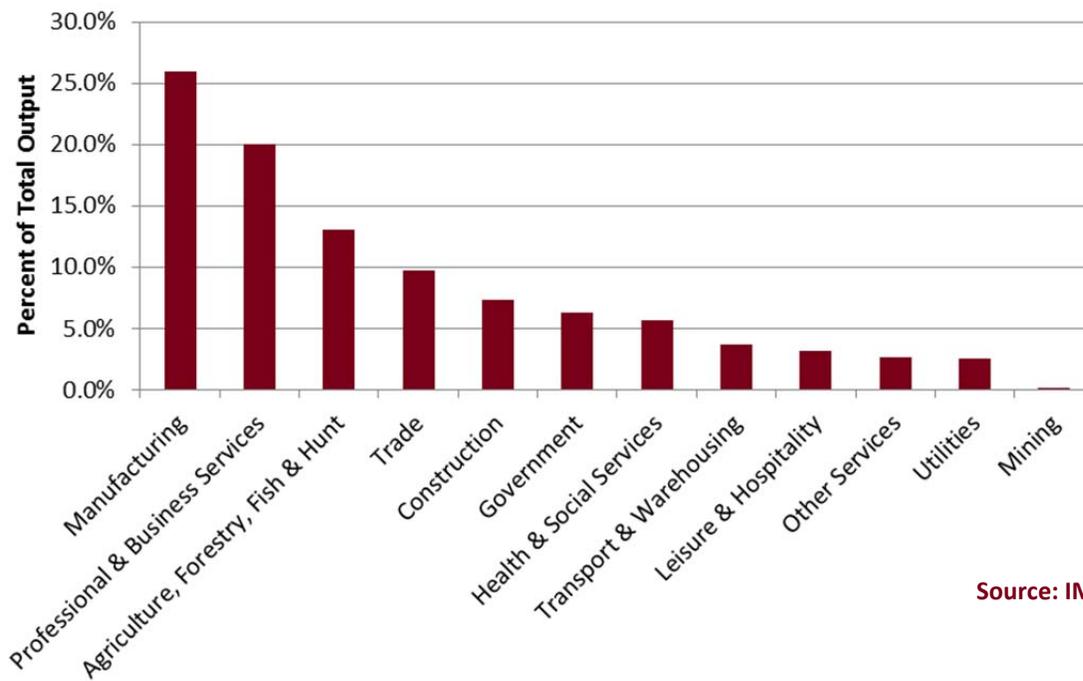
interdependencies. Examining how sectors interact and connect with each other can provide powerful insights into an economy.

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 West Central region produced \$18.7 billion in goods and services, according to estimates from the IMPLAN economic model. Output in the West Central region accounts for approximately 3 percent of Minnesota’s \$567.8 billion economy and 9 percent of Greater Minnesota’s \$218.8 billion economy. In 2012, according to the IMPLAN model, manufacturing created over 25 percent of total output in the West Central region of Minnesota. Professional and business services created 20 percent. Agriculture, forestry, fishing, and hunting accounted for 13 percent of output. In total, these top three industries account for 59 percent of the West Central region’s output.

Chart 1: Industry Share of Total Output West Central



Source: IMPLAN

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 West Central region produce an estimated \$6.3 billion of output (table 1). The housing market sector produces just over \$1.0 billion in output. *The*

housing market sector here largely reflects mortgage payments for housing.¹ The housing market sector exists in the IMPLAN database used for this analysis because IMPLAN is an input-output model which traces the flow of goods and services in an economy. Households are actors in the local economy and housing is one of a household's largest expenses. Therefore, there needs to be a system for accounting for those expenditures. Household expenditures for rental units are included in another sector. While the housing market is an important component of many regional economies, its ranking first on this list is notable. 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.² This may contribute to the importance of the housing and real estate markets in the West Central region.

Manufacturing produced over 25 percent of output. Within the manufacturing industry, the largest sectors are snack food manufacturing (\$452.4 million), material handling equipment manufacturing (\$331.1 million), and poultry processing (\$320.8 million).

Professional and business services created 20 percent of output. Within the professional and business services industry, the largest sectors are monetary authorities and depository credit intermediation activities (\$613.7 million) and telecommunications (\$372.4 million).

Table 1: Top Ten Sectors in West Central Region, Sorted by Output

Sector	Total Output (millions)	Output per Worker
Housing market	\$1,006.8	N/A
Wholesale trade businesses	\$919.0	\$186,192
Grain farming	\$854.4	\$144,153
State & local government - education	\$641.1	\$59,200
Monetary authorities and depository credit intermediation activities (banks)	\$613.7	\$410,260
Oilseed farming	\$553.3	\$234,220
Snack food manufacturing	\$452.4	\$690,685
Construction of other new nonresidential structures	\$452.1	\$143,754
Electric power generation, transmission, and distribution	\$433.7	\$682,214
Telecommunications	\$372.4	\$531,857
Top ten total	\$6,298.9 (34%)	
Total output in region	\$18,659.6	Source: IMPLAN

¹ For most households, expenditures for housing are based on the value of mortgage payments. However, IMPLAN also makes estimates for households that own their house outright. To be clear, the housing market is not a measure of the value of the physical housing stock.

² 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>.

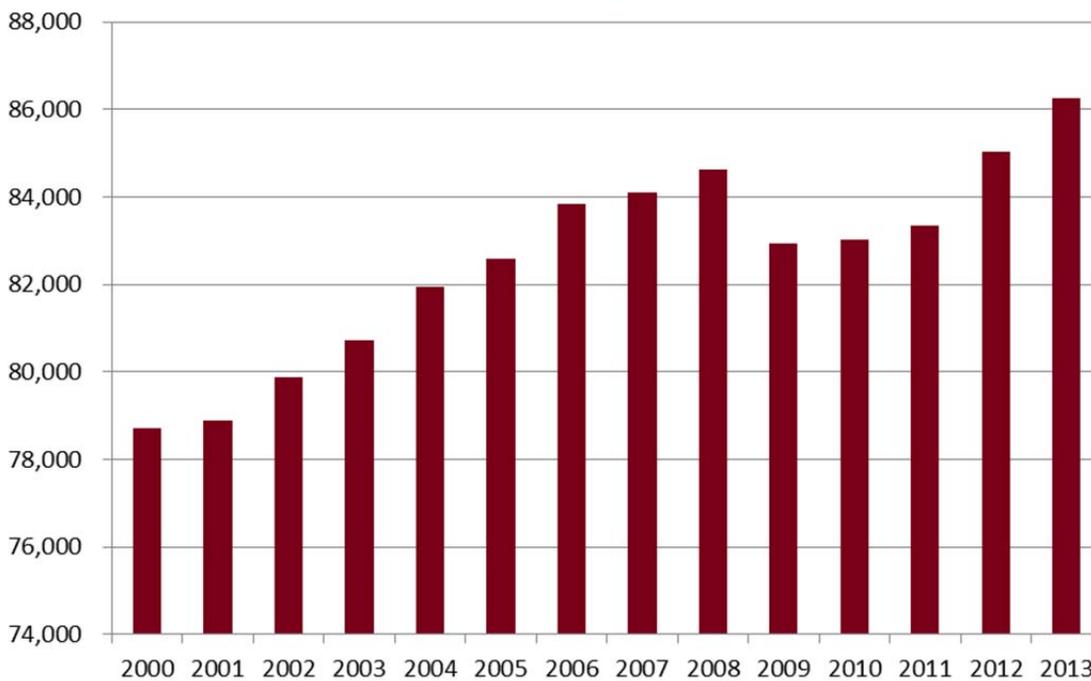
For the majority of the sectors in table 1, high output is driven by high productivity (output per worker). For example, each wholesale trade employee produces an estimated \$186,000 in output annually. The clear exception in the table is state and local government - education. Government output is linked 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. Although not in this table, 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 less than full-time.

EMPLOYMENT AND WAGES

The number of jobs in the region rose and fell between 2000 and 2013 (see chart 2). The number of jobs in the West Central region grew steadily between 2000 and 2008. The number of jobs decreased in 2009 consistent with the 2008-2009 Great Recession. The number of jobs in the region has been increasing since 2009. The recovery from the Great Recession has been strong in the West Central region with the number of jobs in 2013 exceeding that of the earlier peak in 2008.

Chart 2: Total Employment 2000-2013 West Central Region



Source: QCEW

The highest employment growth industries in the West Central region between 2003 and 2013 were manufacturing (added 1,876 jobs); health and social assistance (added 1,767 jobs); and crop and animal

production (added 904 jobs).³ The industries suffering the most job losses during the period in the West Central region include retail trade (438 lost jobs); construction (364 lost jobs); and information (335 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 through comparisons to industry and national trends. The analysis provides an interesting interpretation of the changes in each industry (table 2). 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 interpret the results see page 14.

The manufacturing industry added the most jobs between 2003 and 2013 (1,876 jobs). If the manufacturing industry in the West Central region had grown at the same overall rate as the national economy in all industries, it would have added 481 jobs (national growth effect). The manufacturing industry at the national level, however, lost jobs during the time period. If the West Central region’s manufacturing industry had shrunk at the same rate as the manufacturing industry nationally, then it would have lost 2,182 jobs (industry mix effect). The balance of these two effects (industry and national growth) predicts the West Central region should have lost 1,701 manufacturing jobs.

However, 1,876 manufacturing jobs were **added** in the region, therefore the manufacturing industry in the West Central region posted a positive competitive share effect. In other words, the manufacturing industry in the West Central region grew faster than expected given national and industry trends.

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				
Manufacturing	1,876	(2,182)	481	3,577
Health Care and Social Assistance	1,767	2,521	524	(1,278)
Crop and Animal Production	904	(2)	72	834
Top 3 Job Loss Industries				
Retail Trade	(438)	(464)	578	(552)
Construction	(364)	(770)	211	195
Information	(335)	(251)	61	(145)

Source: EMSI

³ Economic Modeling Systems International (EMSI). www.economicmodeling.com.

⁴ For an explanation of shift-share analysis, please see the methodology section. Note, the competitive effect totals may not add up due to rounding.

Within the manufacturing industry, sectors with the most positive competitive share include machinery manufacturing (added 896 jobs and all were estimated due to competitive effect) and fabricated metal product manufacturing (added 412 jobs and all were estimated due to competitive effect). These gains were offset by competitive share losses in transportation equipment manufacturing (lost 284 jobs, about half due to the competitive effect) and wood product manufacturing (lost 148 jobs and all were estimated due to competitive effect).

In addition to the manufacturing industry, the health care and social assistance industry gained 1,767 jobs, but posted a negative competitive effect. Given industry and national trends, the health care and social assistance industry in the West Central region should have added another 1,278 jobs. Within the industry, the nursing and residential care sector shed 122 jobs between 2003 and 2013. Industry and national trends, however, predict the region should have added 839 jobs, giving the sector a negative competitive share. The ambulatory health care services sector also added fewer jobs than anticipated given trends. Ambulatory health care includes offices of physicians and dentists; outpatient care centers; and home health care.

Crop and animal production added 904 jobs between 2003 and 2013. This far exceeded the expected growth based on national and industry trends. The location quotient for the crop and animal production industry in the West Central region is 3.07, indicating that employment in the crop and animal production industry is more than three times more concentrated in the region than in the nation. (For more on the location quotient, please see page 14). Growth in the number of jobs was fairly evenly distributed between crop production (added 347 jobs) and animal production (added 367 jobs). The concentration, however, is highest in animal production, with a location quotient of 7.47. Dairy and cattle are key in the region, particularly in Otter Tail County. In 2012, Otter Tail County was ranked number one in beef cow production in Minnesota, number two in cattle and calf production, and number four in milk cow production.

The retail trade industry in the West Central region shed 438 jobs during the time period. Retail trade at a national level suffered from the effects of the Great Recession. Had the retail trade industry in the West Central region contracted at the same rate as retail trade across the United States, the West Central region should have lost 464 jobs (industry mix effect). Given the trend of increasing employment across all industry in the United States, the West Central region would have been expected to add 578 jobs (national growth effect). Therefore, the competitive share is a negative 552 jobs. In other words, the retail industry in the West Central region performed below expectations given industry and national trends.

The West Central region had significant retail trade job losses between 2003 and 2013 in food and beverage stores (-362 jobs); miscellaneous store retailers (-208 jobs); and furniture and home furnishing stores (-148 jobs). The competitive effect for all three sectors was negative.

Offsetting these retail trade losses, to some extent, were gains in building materials and garden stores (367 new jobs); general merchandise stores (162 jobs); and health and personal care stores (50 jobs). The building materials sector and the health and personal care stores sector, both of which added jobs, also had positive competitive shares. This indicates that the region may have advantages on which to build these sectors. The prominence of housing (as previously mentioned) certainly plays a role to bolster gains in building materials and garden stores sector.

The construction industry lost 364 jobs in the West Central region during the time period. However, given the struggles that the construction industry faced during the Great Recession of 2008-2009, construction in the West Central region should have lost even more jobs. Therefore, the competitive effect was positive, indicating West Central performed better than expected. The competitive effect was especially strong in the construction of buildings sector, including the construction of residential homes.

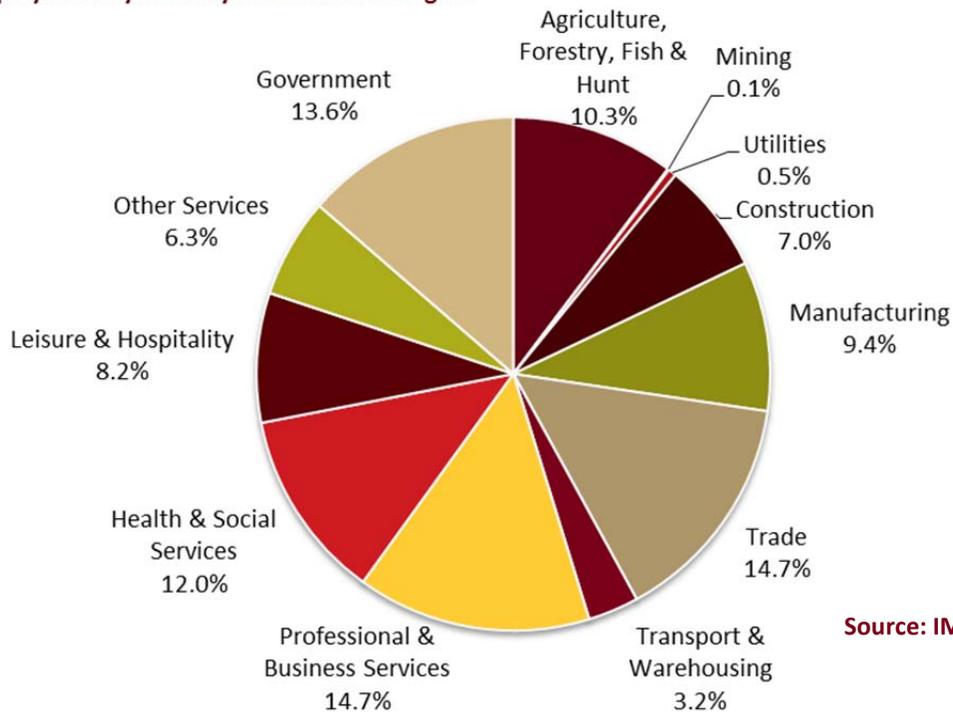
Key points for economic developers to consider from this employment data:

- 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 manufacturing. What factors are giving the West Central region a competitive advantage in this industry? What components of the manufacturing industry are growing? What can be done to support this growth?
- Some industries are competitive despite strong forces working against the industry, for example construction. What trends led to West Central being competitive despite losses in this industry? Will these trends continue?
- Certain industries can post job growth, but further analysis indicates the industry could have grown faster, such as health care. Are there strategies to support additional growth? Other regions in the state have a positive competitive share in health care. How do these regions differ from West Central?

Employment and Wages by Industry

Employment by industry in the West Central region is depicted in chart 3. The professional and business services industry and the trade industry each employ 14.7 percent of all workers in the West Central region. Government employs 13.6 percent of all workers.

Chart 3: Employment by Industry: West Central Region



Source: IMPLAN

Professional and Business Services

Within the professional and business services industry in the West Central region, the largest sectors, as measured by employment include administrative and support and waste management and remediation services (2,257 jobs); finance and insurance (2,108 jobs); professional, scientific, and technical services (1,686 jobs); and educational services (1,468 jobs).

During the period of 2003 to 2013, the fastest rate of growth was recorded in the management of companies and enterprises sector. The addition of 313 jobs in the management of companies and enterprises sector represents an increase of 134 percent between 2003 and 2013. Interestingly, according to the EMSI database, the growth in the number of jobs in this sector has been spread across three counties in the region. Clay County added the most new jobs in this sector, increasing employment by 224 jobs. Otter Tail County added 51 new jobs, and Stevens County added 35 jobs. Within the West Central region, Clay County has the highest number of jobs in this sector.

The 2013 average weekly wage in the management of companies and enterprises sector was \$1,521. This is more than twice the average weekly wage across all industries in the region (\$672). It also represents a 53 percent increase (adjusted for inflation) over the wage in 2000. The average weekly wage was highest in Otter Tail County at \$2,092.

The administrative and support and waste management and remediation services sector in the West Central region also grew during the period. The sector added 822 new jobs, a growth rate of 57 percent. The most jobs (426) were added in the employment services category. Employment services companies directly employ individuals, but place them at positions in other businesses. The growth in this industry is consistent with the recovery from the Great Recession, where many businesses first hired temporary workers. The second highest number of jobs (128) was added in the office administrative support category. Job growth was highest in Becker County (added 363 jobs); Clay County (added 173 jobs); Otter Tail County (added 172 jobs); and Douglas County (added 139 jobs).

The 2013 average weekly wage in the administrative and support and waste management and remediation services sector was \$508. This is approximately \$150 less per week than the average weekly wage across all industries in the West Central region. The region's average weekly wage in this sector grew by a modest 8 percent between 2000 and 2013, after adjusting for inflation. The average weekly wage was highest in Clay County at \$556 in 2013.

Trade

Within the trade industry in the West Central region, 73 percent of the jobs are in the retail trade sector. The other 27 percent are in the wholesale trade sector. Overall, between 2003 and 2013 jobs in the retail trade sector declined by 4 percent, shedding 438 jobs. The wholesale trade sector in the region, meanwhile, increased by 19 percent, adding 683 jobs.

Within retail trade, the sectors with the highest number of jobs in the West Central region include general merchandise stores (2,815 jobs); food and beverage stores (1,844 jobs); and gasoline stations (1,546 jobs). As explained above, between 2003 and 2013 the most jobs were added in building and garden supply stores; general merchandise stores; and health and personal cares stores. The most job losses were recorded in food and beverage stores; miscellaneous store retailers; and furniture and home furnishing stores.

The 2013 average weekly wage in the retail trade sector in the West Central region was \$448. This represents an inflation-adjusted 6 percent increase from 2000. The average weekly wage in the retail trade sector was over \$200 lower than the average weekly wage in all industries in the region. The 2013 average weekly wage

was highest in Becker County (\$513) and Pope County (\$498). The lowest average weekly wage was in Grant County (\$321).

Retail trade jobs are fairly dispersed across the West Central region. One-quarter of the retail jobs (25 percent) are in Otter Tail County. Douglas County has 23 percent of retail jobs, Clay County has 22 percent, and Becker County has 18 percent.

Within wholesale trade, the sectors with the highest number of jobs in the West Central region are machinery, equipment, and supplies merchant wholesalers (851 jobs); farm product raw material merchant wholesalers (739 jobs); and grocery and related products merchant wholesalers (625 jobs).

Health and Social Services

As discussed, the health and social services industry was a growth industry in the West Central region between 2003 and 2013, adding 1,767 jobs. However, the industry could have added another 1,278 jobs, given growth trends in the industry and the nation.

In 2013, the West Central region posted 5,133 jobs in nursing and residential care facilities; 2,800 jobs in ambulatory health care services; 2,502 jobs in social assistance; and 2,181 jobs at hospitals. Growth occurred between 2003 and 2013 in most sectors of the region's health care and social services industry, with the highest jobs gains in social assistance (1,089 new jobs). The majority of jobs gains in social assistance were in vocational rehabilitation services and individual and family services. The exception to job gains is nursing and residential care, which shed 122 jobs in the period.

The 2013 location quotient for nursing and residential care is 2.48, indicating the West Central region has over twice as many nursing and residential care jobs when compared to national averages. Since the region is already highly concentrated in the number of nursing and residential care jobs, these job losses may be a correction towards the normal.

The 2013 average weekly wage in the health and social services industry in the West Central region was \$650, which is about equal with the average weekly wage across all industries. Wages are highest in ambulatory health care services (\$1,039), followed by hospitals (\$837), nursing and residential care (\$430), and social assistance (\$427).

Over one-quarter (29 percent) of jobs in the health care and social assistance industry are located in Otter Tail County. Clay County is home to 25 percent of the industry jobs.

Manufacturing

While manufacturing accounts for 9 percent of employment in the West Central region, it also accounts for over one-quarter of output. Therefore, a discussion of employment trends in the manufacturing industry is of interest. The three largest sectors in the region's manufacturing industry, measured by employment, are food manufacturing (2,691 jobs); fabricated metal product manufacturing (2,413 jobs); and machinery manufacturing (2,401 jobs). Key types of food manufacturing include snack food manufacturing; animal slaughtering and processing; "other" food manufacturing; and sugar and confectionery product manufacturing. Major types of fabricated metal manufacturing include machine shops, and forging and stamping.

As discussed above, from an employment perspective the manufacturing industry performed well in the West Central region between 2003 and 2013. The three largest manufacturing sectors in the region (listed above) also posted the highest number of jobs gains in the period. The location quotient for food manufacturing in the region is 2.85, for fabricated metal product manufacturing is 2.64, and for machinery manufacturing is

3.38. These location quotients indicate these industries are more concentrated in the West Central region when compared to the nation.

The 2013 average weekly wage in the manufacturing sector in West Central Minnesota was \$858. This is nearly \$200 higher than the average wage across all industries. Manufacturing wages in the region have grown since 2000, by an inflation-adjusted 9 percent.

Otter Tail County has the highest number of manufacturing jobs (3,998), followed by Douglas County (3,058), and Becker County (2,075). In 2013, the EMSI database indicates Wilkin County had 20 manufacturing jobs, making it the county with the least number of these jobs in the region.

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 West Central regional economy — manufacturing and professional and business services — and their connections with other industries. Specifically, the analysis will focus on 1) snack manufacturing and 2) banks. These are two of the largest sectors within their respective industries as measured by output.

Multipliers include both indirect and induced effects. The discussion here focuses on indirect 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 that occurs when employees of a local industry spend their wages in the region.

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.

Manufacturing – Snack Food Manufacturing

Output multipliers for the food manufacturing sectors in the West Central region are estimated to range from 1.2 to 1.8. In other words, for every dollar of output generated by the sector (snack food manufacturing, for example), \$0.20 to \$0.80 are generated in other regional sectors that supply that sector.

Table 3 highlights expenditures by snack food manufacturers. For every dollar spent on inputs, snack food manufacturers are estimated to spend 11.3 percent on “all other” crop farming products, 8.2 percent on wholesale trade, and 7.5 percent on shortening and margarine and other fats and oils manufacturing. Since the snack food manufacturing industry produces \$452.4 million of output in the region, this translates into snack food manufacturers buying \$43.5 million of product from crop farmers.

Of the top inputs that snack food manufacturers purchase, the following are inputs for which more than 50 percent of the local demand is filled by local supply: crop farming products; wholesale trade; paperboard containers; vegetables and melons; flour and malt; and truck transportation. Several of the top inputs purchased by snack food manufacturers are not available from local sources at levels above 50 percent, such as shortening and margarine and other fats and oils, and plastics packaging. This may indicate opportunities to increase local supply of these goods and services.

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 still in effect, 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.

Table 3: Top Purchases by Snack Food Manufacturing Facilities in the West 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 West Central Region
All other crop farming products	11.3%	Yes
Wholesale trade	8.2%	Yes
Shortening and margarine and other fats and oils manufacturing	7.5%	No
Plastic bottles	5.9%	No
Management of companies and enterprises	5.2%	No
Paperboard containers	3.5%	Yes
Vegetables and melons	3.4%	Yes
Flour and malt	2.6%	Yes
Truck transportation	2.5%	Yes
Plastics packaging	2.2%	No

Source: IMPLAN

Professional and Business Services — Finance

Multipliers for financial sectors in the West Central region are estimated to range from 1.2 to 1.7. Table 4 shows the top inputs purchased locally by banks (monetary authorities and depository credit intermediation activities), the percent of total input expenditures spent on the item, and the local availability of the item. For every dollar spent on inputs by banks, 8.6 percent is spent on securities, commodity contracts, investments and related services; 5.1 percent on services from other banks; and 0.9 percent on advertising and related services.

Banks are important sources of local demand for securities, commodity contracts, investments, and related services; other banks; and advertising and related services.⁵ These sectors with strong connections to banks are the top industries for capturing the 20 to 70 cents of additional economic activity that flows from every dollar of banking output mentioned above. There may be opportunities for increased local production of nondepository credit intermediation and related services, because banks are purchasing these outputs from outside the region. Nondepository credit intermediaries serve as an intermediary between savers and borrows, but do not accept time deposits. Examples include credit card lenders, sales financing, and real estate credit.

⁵ Local here is the West Central region.

Table 4: Top Purchases by Banks (Monetary Authorities and Depository Credit) in the West 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 West Central Region
Securities, commodity contracts, investments, and related services	8.6%	Yes
Monetary authorities and depository credit intermediation activities (banks)	5.1%	Yes
Advertising and related services	0.9%	Yes
Nondepository credit intermediation and related services	0.9%	No
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

These two examples (food manufacturing and finance) 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 the West Central region of 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.