**ECONOMIC IMPACT ANALYSIS**

**An Extension Community Economics Program**

# The Economic Impact of Increasing Local Buying in Blue Earth and Nicollet Counties, Minnesota


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# Introduction

Regional economies have essentially two main avenues to growth. Arguably, the most commonly adopted method is to attract and recruit new businesses and industries into the region, bringing new employment and output to the economy. A growing alternative is to expand the level of interaction between businesses and industries in the region. As local businesses demand more goods and services from other local businesses, those businesses increase employment and output. This internal growth method has also been endorsed by many communities.

In many locales, campaigns to increase local purchases are designed to increase retail sales within the community by encouraging local residents to buy from local retail stores. However, such campaigns will have the greatest impact when industry and government are included. Businesses and governments import a significant amount of goods and services into the community. If they can be convinced to purchase just a fraction of those goods and services locally, it can have a significant impact on the regional economy.

What then, is the economic impact of increasing local purchases? David Swenson of Iowa State University addressed this question directly for the City of Marshalltown and Marshall County in Iowa[1]. Similarly, this report will attempt to answer the same question for the counties of Blue Earth and Nicollet in Minnesota using the methodology outlined by Mr. Swenson.

The main research question of this report is: "How will the Blue Earth and Nicollet county economies be affected if five-percent of commodities (or raw materials) currently imported are purchased locally instead?" Alternatively, it could be stated "How will the Blue Earth and Nicollet county economies be affected if local businesses, government and households substitute five-percent of their imports for locally-produced goods and services?"

To answer this question, one must first define and quantify the regional economy. The regional economy in this report is Blue Earth and Nicollet counties. A special economic model based on input-output theory can be used to quantify the regional economy. Input-output models trace the flow of dollars throughout an economy by measuring how industries interact with other industries and how industries interact with households and government. These flows can then be summed to quantify the total flow of dollars in a regional economy. One widely used (and used in this report) input-output model is IMPLAN (IMpact Analysis for PLANning, Minnesota IMPLAN Group). IMPLAN can report the total output (or sales), total employment and total labor income in an economy. It also measures

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[1] "Buying Local in Marshall County and Marshalltown, Iowa: An Economic Impact Assessment". Dave Swenson. Iowa State University. March 2006.

how industries, households, and government spend their dollars and estimates how much of that is spent locally and how much is spent on imports. These estimates can then be used to determine how a five-percent change will affect the local economy.

## The Current Local Economy

The Blue Earth and Nicollet counties are well-established. Blue Earth is home to the City of Mankato which is a regional hub in the state. Nicollet County's largest city is St. Peter which also serves as a thriving economic center. Table 1 illustrates the current economic structure in Blue Earth and Nicollet counties. In total, the region produces nearly $8 billion worth of goods and services. In order to produce those items, industries use $4.3 billion dollars worth of commodity inputs or raw materials such as steel, soybeans, electricity, legal representation, and wood. Industries also use $2.3 billion dollars worth of labor in their production.

**Table 1: <u>Industrial Composition</u> of Blue Earth and Nicollet counties, 2007**

| | (millions) |
|---|---:|
| Total Industrial Output | $7,988 |
| Commodity Inputs | $4,298 |
| Imports | $2,735 |
| Local Purchases | $1,563 |
| Value Added | $3,690 |
| Employee Compensation | $2,167 |
| Proprietor Income | $177 |
| Returns to Investors | $1,085 |
| Indirect Business Taxes | $261 |

Currently, industries in the region purchase 64 percent ($2.7 billion) of their raw materials from outside the region. These commodities come from any area outside the region, including neighboring counties, the rest of the State of Minnesota, other states, the nation, and abroad. The remaining 36 percent of raw materials are purchased locally.

As mentioned earlier, industries are not the only importers in the region. Governments and households also import goods and services. State and local governments located in the region imported $113 million of raw materials in 2007 (see table 2). State and local governments here include not only county and city governmental activities, but also state run educational institutions, such as Minnesota State University – Mankato and South Central Technical College. It also includes the activities of any regionally-based state offices that are located in the region. Households imported $1.1 billion worth of goods and services into the region in 2007.

| **Table 2: <u>Institutional Demand</u> in Blue Earth and Nicollet counties, 2007** | (millions) |
|---|---|
| Total State and Local Government Demand | $680 |
| Locally Supplied Demand | $567 |
| Imported Demand | $113 |
| Total Household Demand | $2,822 |
| Locally Supplied Demand | $1,680 |
| Imported Demand | $1,142 |

Total imports into the region, therefore, are derived from three sources: industries, government and households. Industrial imports are an intermediate demand, because they are used in the production of a good or service for immediate resale. Government and household imports are final demands because they are used for final consumption.

| **Table 3: <u>Imports by Industry, Government and Households</u> Into Blue Earth and Nicollet counties, 2007** | (millions) |
|---|---|
| Industrial Imports | $2,735 |
| Government Imports | $113 |
| Household Imports | $1,142 |
| Total Imports | $3,990 |

Table 3 details imports by each of the three sources. Industries imported the largest share of goods and services in 2007, accounting for almost 70 percent of all imports. Governments imported the smallest share.

Total imports into the region have been established. Before the economic impact of a five-percent substitution can be calculated, several adjustments must be made. First, for certain commodities, a five-percent increase may not be realistic, especially given the scale of imports. This needs to be addressed. Second, not all goods and services are substitutable. This also needs to be addressed.

Several large companies that process oilseeds operate in the region. They imported over $275 million dollars worth of oilseeds in 2007. It is not reasonable to assume that they could shift and purchase five-percent of these oilseeds locally. First, the change in demand would be of an enormous scale. Second, oilseeds are an agricultural commodity. There is only so much land in the region that can be used for the production of oilseeds. It is not reasonable to expect a great enough shift in land use to meet a five-percent increase in demand. However, there may be some ability for the oilseed processors to buy one-percent of their imports locally. Therefore, in the case of oilseeds, a one-percent increase will be applied as opposed to a five-percent increase.

Not all goods and services used by industries, households, and governments in the region can be substituted with locally-produced goods and services. They just are not produced in the region. For example, tobacco is not grown in the region, coal is not mined there, and nuclear bombs are not manufactured in the region. Therefore, before applying a five-percent increase, commodities that are not locally available must be removed. No judgment is made in this report on whether the goods and services that are produced will meet the specifications and needs of local businesses. For instance, the wiring industry may exist in the region but not be the right type of wire needed by local businesses.

Table 4 breaks down imports by each of the three groups into those that are available locally and those that are not. Industries import $2.7 billion worth of commodities, and of those, $1.8 billion could potentially be purchased locally.[2] Government imports $113 million of imports of which $76 million could be locally provided. Households, meanwhile, buy $706 million worth of imports that could be purchased locally.

**Table 4: Imports by Source Blue Earth and Nicollet counties, 2007** (millions)

| | Industrial | Government | Households | Total |
|---|---|---|---|---|
| Imported Commodities Produced Locally | $1,800 | $76 | $706 | $2,562 |
| Imported Commodities Not Produced Locally | $935 | $37 | $436 | $1,408 |
| Total Imported Commodities | $2,735 | $113 | $1,142 | $3,990 |

Based on the information in Table 4, one can establish the value of a five-percent substitution of local commodities for imports by industry, government and households. If industries in the region substitute five-percent of imports for local commodities (with the exception of one-percent for oilseeds), industries would be buying $78,941,899 more locally. If state and local governments substituted five-percent of their current imports for locally available commodities in the region, governments would buy $3,807,550 more locally. Finally, if households substituted five-percent of their current imports for local goods and services, they would purchase $35,290,700 more in the region.

## Economic Impact of Increased Local Purchasing

Increasing local production by increasing local purchases will increase total output (sales) in the economy by more than just the initial five-percent. When demand increases in one industry, the effects are felt across all industries and institutions. When one industry increases its production to meet an increase in demand, it simultaneously increases its demand for its inputs and orders more from its suppliers. Therefore, suppliers must increase their output and demand more of their suppliers and so on. This causes a ripple effect in the local

[2] Assuming they exist in sufficient quantity, quality and price.

economy as each layer of the supply chain has to increase production to meet the new demand. To the extent that the increased demand is satisfied by local production, the increases in the supply chain are captured and can be attributed to the initial change in demand.

Input-output models are designed to measure the effects of an initial change in the economy. In this analysis, the initial impact is the substitution of the local commodities for five-percent of previously imported items. In input-output terminology, this is the direct impact. The value of the additional economic activity being created by the initial change is called the indirect impact. Indirect impacts are separated into indirect and induced effects. While complicated, in general, indirect effects are those that accrue from the increase in the purchase of commodity inputs. Induced effects are those associated with an increase in household incomes from increased employment. Added together, direct and indirect effects amount to total impact. Multipliers are a standardized way to interpret the total change associated with the initial change. For instance, a multiplier of 1.40 indicates that for every $1 in initial increase in output, total output will increase by $0.40 to total $1.40.

The final step to determine the economic impact of businesses, government and households buying five-percent more locally is to run the initial increase (here equal to five-percent of imported commodities) through the input-output model to quantify the indirect and induced effects. The results of this final analysis are shown in tables 5-9.

Table 5 shows the economic impact of industries and businesses in the region purchasing five-percent (one-percent of oilseeds) of their imported goods and services locally as opposed to importing them. Initially as local businesses buy locally, the regional economy will receive a shock of $79 million dollars. It will take 518 employees to produce the goods and services to meet that initial demand. Businesses will pay $19 million to those employees in the form of labor income. As local businesses adjust their production to accommodate the increased demand, dollars will flow throughout the economy both to suppliers and to employees. This will generate indirect and induced effects as shown below. In total, the regional economy could expand by $113 million of output, $30 million of labor income and 840 jobs if industries increase local purchases by five-percent.

**Table 5: Economic Impact of Substituting Five Percent of <u>Industrial</u> Imports for Local Commodities in Blue Earth and Nicollet counties**

| | Direct | Indirect | Induced | Total | Multiplier |
|---|---|---|---|---|---|
| Output | $78,941,899 | $19,837,802 | $13,986,699 | $112,766,399 | 1.43 |
| Labor Income | $19,311,386 | $6,211,080 | $4,363,377 | $29,885,843 | 1.55 |
| Employment | 518 | 169 | 153 | 840 | 1.62 |

Similar results for the substitution of five-percent of imports by government are illustrated in table 6.   As a result of the initial $3.8 million increased local spending, a total of 52 new jobs, $5.6 million of output, and $1.8 million in labor income will be created in the regional economy.

| **Table 6: Economic Impact of Substituting Five Percent of <u>Government</u> Imports for Local Commodities in Blue Earth and Nicollet counties** | | | | | |
|---|---|---|---|---|---|
| | Direct | Indirect | Induced | Total | Multiplier |
| Output | $3,807,550 | $920,679 | $855,189 | $5,583,418 | 1.47 |
| Labor Income | $1,261,422 | $303,961 | $266,792 | $1,832,176 | 1.45 |
| Employment | 34 | 8 | 9 | 52 | 1.53 |

The economic impact of substituting five-percent of household imports for local commodities is detailed in table 7.  Directly, households will purchase $35 million more of goods and services in the region if they substitute five-percent of their imports.  This spending is associated with 368 jobs and $9 million in labor income.  As the effects of this increased spending work through the economy, more output, income and employment will be created and are shown as indirect and induced impacts in the table.  As a result of the five-percent substitution by households, total output in the regional economy will increase by $50.7 million, employment by 515 and labor income by $13.8 million.

| **Table 7: Economic Impact of Substituting Five Percent of <u>Household</u> Imports for Local Commodities in Blue Earth and Nicollet counties** | | | | | |
|---|---|---|---|---|---|
| | Direct | Indirect | Induced | Total | Multiplier |
| Output | $35,290,700 | $8,939,846 | $6,486,586 | $50,717,133 | 1.44 |
| Labor Income | $9,041,078 | $2,780,766 | $2,023,586 | $13,845,431 | 1.53 |
| Employment | 368 | 76 | 71 | 515 | 1.40 |

The total potential economic impact for a five-percent increase in industry and government local spending in the Blue Earth and Nicollet county economies is shown in table 8.  If all businesses and state and local governments decreased imports by five-percent and increased local spending by the equivalent amount, an additional $118 million dollars could be created in the regional economy, along with 892 jobs and $32 million of labor income.

| **Table 8: Economic Impact of Substituting Five Percent of <u>Industrial and Governmental</u> Imports for Local Commodities in Blue Earth and Nicollet counties** | | | | | |
|---|---|---|---|---|---|
| | Direct | Indirect | Induced | Total | Multiplier |
| Output | $82,749,449 | $20,758,481 | $14,841,888 | $118,349,817 | 1.43 |
| Labor Income | $20,572,808 | $6,515,041 | $4,630,169 | $31,718,019 | 1.54 |
| Employment | 552 | 177 | 162 | 892 | 1.62 |

Table 9 shows the economic impact of industry, government and households substituting five-percent of purchases currently made outside the region for locally-produced goods and services. A five-percent shift by government, households, and industry would equate to $118 million more of direct spending in the local economy. Local businesses, in order to produce this direct spending, would need to hire 920 employees and pay almost $30 million in labor income. As local businesses increase their sales, they will have to increase purchases from their suppliers, those suppliers would increase purchases from their own suppliers, and so forth. Therefore, the direct spending will generate additional increases in the economy which are shown in the table as indirect and induced impacts. Thus, in total, if all households, governmental units, and industries in Blue Earth and Nicollet counties were to shift five-percent of their current imports for locally-produced goods and services, output in the local economy would increase by $169 million, labor income by $46 million and employment by 1,407.

**Table 9: Economic Impact of Substituting Five Percent of <u>Industrial, Governmental, and Household</u> Imports for Local Commodities in Blue Earth and Nicollet counties**

| | Direct | Indirect | Induced | Total | Multiplier |
|---|---|---|---|---|---|
| Output | $118,040,149 | $29,698,327 | $21,328,474 | $169,066,950 | 1.43 |
| Labor Income | $29,613,886 | $9,295,801 | $6,653,755 | $45,563,450 | 1.54 |
| Employment | 920 | 253 | 233 | 1,407 | 1.53 |

## Conclusion

Substituting locally produced commodities for imports is one way to increase economic activity. Increasing the demand for local commodities not only increases the amount of commodities bought directly to meet the initial increase, but also generates even more economic activity to meet the increased demand for supplies. *In the case of Blue Earth and Nicollet counties, a substitution of locally produced commodities for five-percent of heretofore imported raw materials across both industry and government would lead to a $118 million increase in total economic output and an increase of 892 jobs.*

Industry is the leading importer into the region. Imports brought in to satisfy the need of industry in the region far outweigh the value of imports into the region by governments and households. Industry imports $2.7 billion of commodities compared to government and households $1.3 billion. Further, institutions (governments and households) already buy the vast majority of their commodities locally. Therefore, to fully experience the economic boost of replacing imports with local commodities, industry has to be a leading proponent. Simply increasing local retail sales will not drive a major increase in economic activity.

There are a couple of notes of caution to consider when interpreting this analysis. This analysis is based on substituting locally produced commodities for five-percent of commodities that are currently imported. Five-percent is an arbitrary number, used simply as a guide for the analysis. A five-percent increase in local purchases may not be a realistic goal, particularly for some of the larger companies in the county. Although the analysis indentified commodities that are currently produced locally, there is no guarantee that the commodity exists in sufficient quantity, quality, and variety to satisfy the new demand. The price must also be acceptable. Any effort to increase the use of local products to fulfill production needs should consider providing assistance to businesses by identifying locally produced goods and services and by educating companies and consumers on availability.

## Appendix A: Commodity Imports

**Table A1: Top Twenty Commodity Imports and Local Production by Industry into Blue Earth and Nicollet Counties, 2007 (millions)**

| Commodity | Imports | Local Production |
|---|---|---|
| Oilseed Farming | $276 | $86 |
| Real Estate Establishments | $156 | $137 |
| Soybean and other Oilseed Processing | $128 | $582 |
| Wholesale Trade Business | $56 | $326 |
| Management of Companies and Enterprises | $52 | $84 |
| Telecommunications | $45 | $318 |
| Insurance Carriers | $44 | $29 |
| Securities-Commodity Contracts – Investments- and Related Activities | $40 | $29 |
| Grain Farming | $36 | $133 |
| Transport by Truck | $32 | $59 |
| Nondepository Credit Intermediation and Related Activities | $30 | $22 |
| Transport by Rail | $39 | $6 |
| Legal Services | $38 | $23 |
| Monetary Authorities and Depository Credit Intermediation | $27 | $246 |
| Other Animal Food Manufacturing | $27 | $103 |
| Management – Scientific – and Technical Consulting Services | $27 | $14 |
| Paperboard Container Manufacturing | $24 | $16 |
| Printed Circuit Assembly (electronic assembly) Manufacturing | $23 | $81 |
| Motor Vehicle Parts Manufacturing | $22 | $63 |
| Office Administrative Services | $21 | $6 |

**Table A2: Top Twenty Commodity Imports and Local Production by Government into Blue Earth and Nicollet Counties, 2007 (millions)**

| Commodity | Imports | Local Production |
|---|---|---|
| Telecommunications | $0.30 | $318 |
| Real Estate Establishments | $0.21 | $137 |
| Legal Services | $0.18 | $23 |
| Printing | $0.17 | $276 |
| Management – Scientific – and Technical Consulting Services | $0.15 | $14 |
| Electronic and Precision Equipment Repair and Maintenance | $0.14 | $4 |
| Data Processing – Hosting – ISP – Web Search Portals | $0.14 | $39 |
| Other Information Services | $0.14 | $2 |
| Wholesale Trade Businesses | $0.12 | $326 |
| Office Administrative Services | $0.10 | $6 |
| Employment Services | $0.10 | $24 |
| Other Computer Related Services – Including Facilities Management | $0.10 | $0.5 |
| Scientific Research and Development Services | $0.09 | $7 |
| Stationery Product Manufacturing | $0.09 | $44 |
| Book Publishers | $0.08 | $19 |
| Architectural – Engineering – and Related Services | $0.07 | $52 |
| All Other Chemical Product and Preparation Manufacturing | $0.07 | $4 |
| Securities – Commodity Contracts – Investments and Related Activities | $0.06 | $29 |
| Motor Vehicle Parts Manufacturing | $0.06 | $63 |
| Waste Management and Remediation Services | $0.06 | $18 |

**Table A3: Top Twenty Commodity Imports and Local Production by <u>Households</u> into Blue Earth and Nicollet Counties, 2007 (millions)**

| Commodity | Imports | Local Production |
|---|---:|---:|
| Insurance Carriers | $58 | $29 |
| Real Estate Establishments | $56 | $137 |
| Securities – Commodity Contracts- Investments and Related Activities | $33 | $29 |
| Telecommunications | $33 | $318 |
| Wholesale Trade Businesses | $30 | $326 |
| Funds – Trusts – and Other Financial Vehicles | $29 | $3 |
| Transport by Air | $26 | $6 |
| Retail Nonstores – Direct and Electronic Sales | $24 | $10 |
| Private Hospitals | $22 | $219 |
| Legal Services | $20 | $23 |
| Amusement Parks – Arcades – and Gambling Industries | $20 | $4 |
| Soft Drink and Ice Manufacturing | $18 | $114 |
| Medical and Diagnostic Labs and Outpatient and Other Ambulatory Care Services | $17 | $37 |
| Monetary Authorities and Depository Credit Intermediation | $17 | $246 |
| Audio and Video Equipment Manufacturing | $17 | $100 |
| Food Services and Drinking Places | $13 | $179 |
| Electronic Power Generation – Transmission – and Distribution | $13 | $92 |
| Private Junior Colleges and Universities | $11 | $120 |
| Automotive Equipment Rental and Leasing | $10 | $4 |
| Hotels and Motels – Including Casino Hotels | $9 | $14 |