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The Structure of St. Croix County Economy:
A Study for Economic Opportunity

Primary Authors

Jim Janke
Community Resource Development Agent
St. Croix County
University of Wisconsin-Extension

Steven Deller
Professor and Community Development Economist
Department of Agricultural and Applied Economics
University of Wisconsin-Madison/Extension

Study Group:

Jack Breault, City of Hudson
Pamela Brion, Wipfli, LLC
Jerry Brown, New Richmond Economic Development Corporation
Shawn DeWitt, Glenwood City Tribune-Press-Reporter
David Fodroczi, St. Croix County Planning Department
Susan Yohnk Lockwood, Wisconsin Indianhead Technical College, New Richmond
Sue Lohmeier, Village of Woodville
Clarence Malick, St. Croix County Board
Tom Mews, First National Bank of New Richmond
Barbara Nemecek, School of Business & Economics, UW-River Falls
Steven Perry, First Bank of Baldwin
William Rubin, St. Croix Economic Development Corporation

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Jim Janke and Steven Deller
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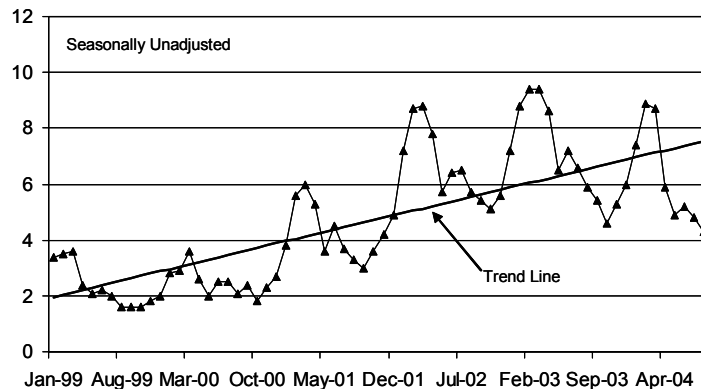
Introduction

The St. Croix County economy has benefited from its close proximity to the Twin Cities. The County has experienced significant changes, both economic and social, over the past several years. As the Twin Cities grows, some of that growth has spilled over into the County. From a perspective of economic growth and development policy the County has historically been in position to react to economic opportunities. As firms and people look to relocate farther from the Twin Cities, St. Croix County has been in a unique position to accept those relocations.

The most recent economic recession, however, has been a bit of a shock to the County. While several economic indicators can be used to address the impact of the recession, the most dramatic is the unemployment rate. Throughout much of the 1990s the County's unemployment rate has been low relative to Wisconsin and other counties in the area. More recently, however, the unemployment rate has risen to levels that are amongst the highest in Wisconsin. For example, from August 1999 through October 1999 the County's seasonally unadjusted unemployment rate was 1.6 percent. Such a low unemployment rate raised serious concerns about labor shortages within the County. In February and March 2003, the seasonally unadjusted rate was 9.4 percent; a dramatic shift in a manner of a few years (Figure 1).

At the same time as this dramatic shift in unemployment, there have been serious concerns expressed about the equity of this growth across the County. Because the western part of the County is in closer proximity to the growth engine of the Twin Cities it has experienced growth at a radically different rate than the eastern part of the County. Concerns about the equity of the growth across the County have not been addressed from an economic development and growth policy perspective.

Figure 1. St. Croix County Unemployment Rate



Source: WI Dept of Workforce Development and the Department of Agricultural and Applied Economics, UW-Madison/Extension

Clearly the recent economic recession has created an opportunity to rethink the economic policies of the County and the communities within the County. This study is intended to serve as a starting point for that discussion. The intent of this study is not to dictate specific actions, but rather provide a mechanism to rethink the economic future of the County. This study is the product of a study group comprised of representatives from across the County. The primary action plan laid out at the close of this study report is a product of that study group.

The study is composed of four primary sections. In the next section we review historical data for the County to provide common background for the study group. In this report only a sampling of the analysis is provided. We also use the most recent census to look within the County in order

to shed some light on the patterns economic activity across the County. We then offer insights into future economic trends. Using long-term forecasts of Wisconsin, the Twin Cities Metropolitan Area and St. Croix County we provide a limited analysis of the future structure of the economy. In the fourth section of the report we provide a detailed analysis of the current structure of the County's economy. Using data for 2001 we decompose the economy with a focus on imports and exports. The intent of this analysis is to uncover "gaps" and "disconnects" within the County's economy. This latter analysis is intended to provide insights into future economic opportunities. We then provide an overview of specific economic growth and development strategies and close the report with a specific action plan for the County.

A Historical Perspective

In order to provide a context for the study group to begin its discussion, we examined historical economic growth patterns using standard economic metrics. These metrics include population, employment, income and retail sales. The data are annual from 1969 to 2001, the most-current year for which the data are available.¹ We compare the growth rates of the County across all these metrics of economic activity against Wisconsin and the United States. This comparison provides a benchmark upon which to judge the growth of St. Croix County. Finally, we use a growth index to allow for direct comparisons.²

¹ The data source used in this study is based on an enhancement of the BEA-REIS database. Specifically, the data source used here is from **Woods & Poole Economics Inc.**, located in Washington DC. Woods & Poole is a small, independent corporation that specializes in long-term county economic and demographic projections. The Woods & Poole database contains more than 550 economic and demographic variables for every county in the United States for every year from 1969 to 2025. This comprehensive database includes population data by age, gender, and race; employment and earnings by major industry; personal income by source; retail sales by kind of business; and data on household size and income. This study will focus on employment and income primarily. Also note that all dollar based variables are in real terms (i.e., adjusted for inflation).

² The Index of Growth is a cumulative measure of change based on the performance of the regional economy relative to some starting year, in this case 1969. The index is computed for the US, Wisconsin and the county of interest with subscripts identifying region (r), industry (i) and year (t):

$$\text{Index}_{rit} = (Y_{rit}/Y_{ri1969}) * 100.$$

Where

Y	=	Economic variable (employment, earnings, etc.)
r	=	Region (US, Wisconsin, county)
i	=	Industry
t	=	Year
1969	=	Base Year (1969)

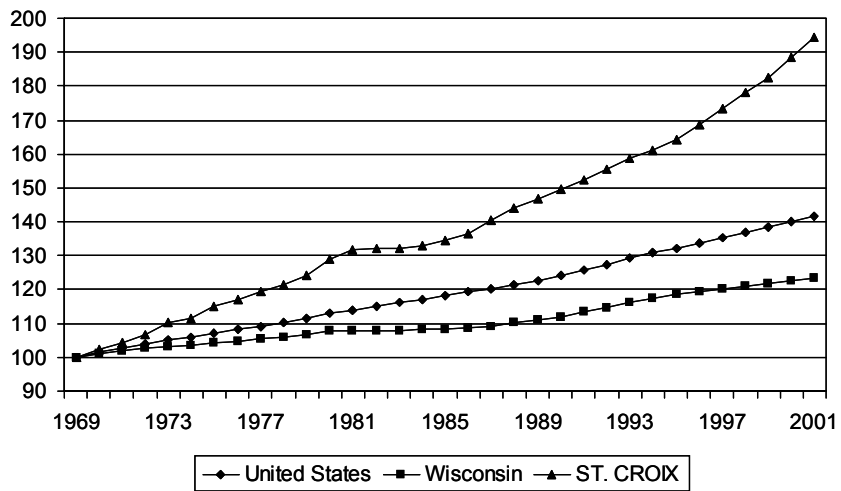
This Index compares the absolute level of the economic variable under examination to its level at the beginning of the period. For example, if employment in farming is 500 in 1969 and 600 in year 1990, then the value of the Index in 1990 is $(600/500) \times 100 = 120$. In this example, employment in farming for this region increased by 20 percent (120 - 100).

There are three advantages to using this measure of economic performance. First, placing all regional data on an index basis allows a direct comparison between regions, or in this case, the county of interest to the US and Wisconsin. Second, as noted above change in the value of the Index from one year to the next can be interpreted as a growth rate. Here fast growth, slow growth, stagnant and declining industries can be identified. Finally, by examining the Index over a period of time, one can establish the relative stability of a particular industry.

There are, unfortunately, a few disadvantages to using the Index as constructed. First, the value of the Index is very sensitive to scaling or more specifically initial levels. For example, a small industry that employs 10 persons adds an additional 10 persons for a total of 20 persons. Here the Index will go from a base of 100 to 200 indicating that this is a rapidly growing industry for the region. Now suppose that a larger industry that employs 200 persons adds 10 persons for a total of 210 persons. Here the Index will go from a

Consider growth in population. In 1969, the beginning of the period we examine, St. Croix County had 33,760 persons while in 2001 the population had grown to 65,700 an increase of 94.6 percent. This represents a much faster rate of growth than either Wisconsin, which saw population increase by 23.5 percent, or the U.S. which grew by 41.7 percent (Figure 2). Other than the period of the severe recession of the early 1980s, the growth has been stable and appears to be slowly accelerating through the later part of the 1990s. This trend is consistent with perceptions that the County is experiencing strong growth as measured by population.

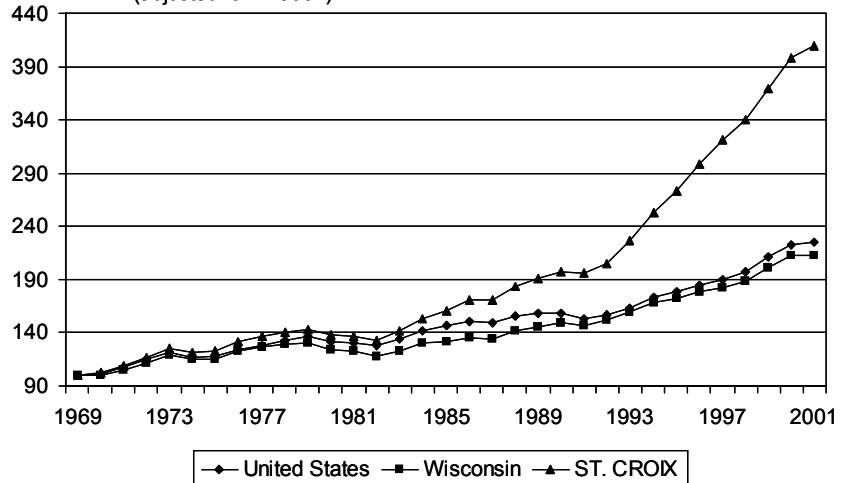
Figure 2. Population Growth Index (1969=100)



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

When a region experiences strong population growth, the markets for retail and certain types of services, expands rapidly. One concern that has been expressed within the County is the apparent explosion of retail activity particularly in the western part of the County. Tracking retail sales over the 32 year study period, the evidence of this rapid growth is clear (Figure 3). After adjusting for inflation, total retail sales increase 125 percent between 1969 and 2001 across the U.S. and increased 112.7 percent across Wisconsin. But in St. Croix County, retail sales increased almost 310 percent over the same period with the bulk of this growth occurring through the 1990s. Per capita retail sales, in 1996 dollars, were \$6,553 in 1969 for the U.S. and \$6,272 for Wisconsin yet was only \$5,309 for the County. In 2001, again the most recent year we have data, per capita retail sales in the U.S. was \$10,409 and \$10,803 for Wisconsin, but

Figure 3. Retail Sales Growth Index (1969=100) (adjusted for inflation)



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

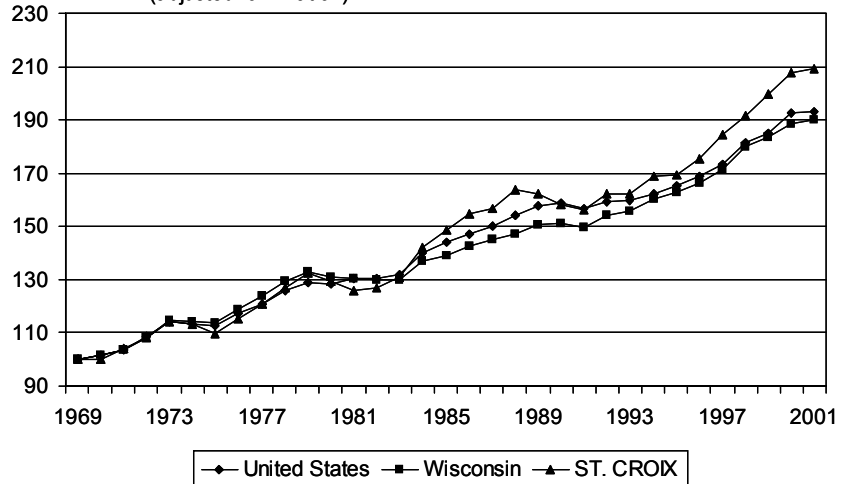
base of 100 to 105 indicating modest growth. This problem with the Index hints at the second shortcoming in that the Index does not speak to the relative importance of a particular industry to a region's economy.

\$11,184 in the County. Clearly the rapid population growth explains a large part of the growth in total retail sales, but the fact that retail sales per capita for the County is now above both the U.S. and Wisconsin average when it was below those averages in 1969 suggests that there are additional “drivers” behind the growth in retail activity.

If we examine specific types of retail activity a clearer picture emerges. For example, general merchandise stores, such as Wal-Mart and Target, increased by 100.7 percent, but gasoline service stations experienced an increase of only 52.8 percent. Eating and drinking establishment sales increased by 113.1 percent, building materials and hardware stores increased 87.7 percent while miscellaneous retail stores, which are composed of specialty stores such as book stores and jewelry stores among others, increase by 117.6 percent. If one considers the growth of retail activity in the City of Hudson one can see the type of retail growth these data suggest. Specifically, the growth of restaurants and boutique stores is becoming the “norm” for the County. But as we will see below, this growth pattern is not necessarily uniform across the County.

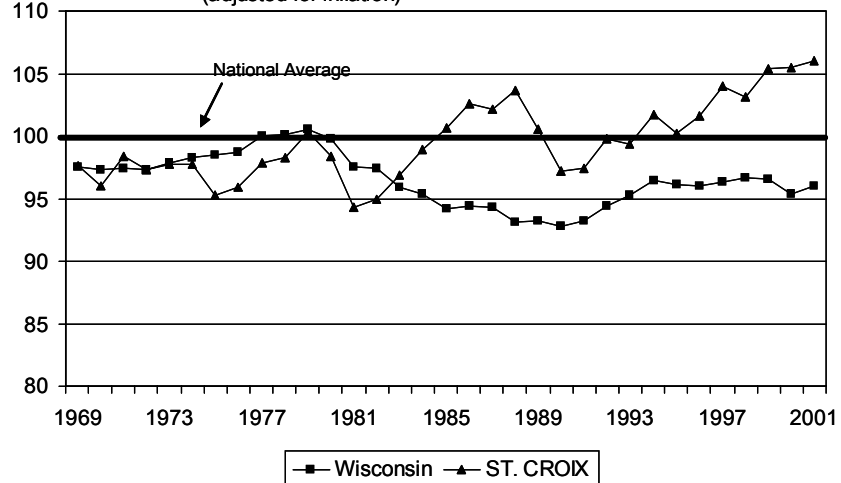
In addition to population growth, the second major driver of retail sales growth is per capita income. For the U.S. per capita income, adjusted for inflation, increased about 93 percent and for Wisconsin the increase by 89.9 percent, but for the County per capita income increased by 109.4 percent (Figure 4). We do begin to see the affects of the most recent recession with a tick down in the growth rate of per capita income in 2001. In 1996 dollars, per capita income in the U.S. was \$14,386 in 1969 and \$27,760 in 2001 and while Wisconsin experienced a similar increase, it remains below the U.S. average increasing from \$14,029 in 1969 to \$26,648. St. Croix County was below the U.S. average in 1969 at \$14,049 it was slightly above the Wisconsin average. But in 2001, per capita income, again in 1996 dollars, was above both the U.S. and Wisconsin at \$29,420. Through

Figure 4. Per Capita Income Growth Index (1969=100) (adjusted for inflation)



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

Figure 5. Per Capita Income as a Percent of the National Average (adjusted for inflation)



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

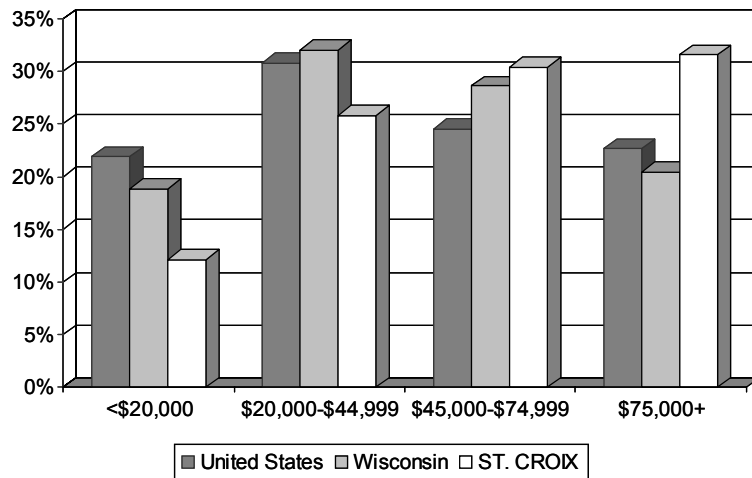
the 1990s, the growth in the County's per capita income was noticeably faster than either the U.S. or Wisconsin (Figure 5).

Looking at per capita income provides part of the picture of what is happening to overall economic well-being, but it masks what is happening around the average. For years, the distribution around the average per capita income had been converging; the poor were slowly catching up to the wealthier. In other words, the middle class, those with the average per capita income was expanding with a smaller percentage of people at the two ends of the income spectrum. Since the late 1970s, however, the trend towards convergence has reversed itself; the gap between the highest and lowest income groups has been expanding. In terms of the popular press, the middle class has been squeezed or hollowing out. At the county level, unfortunately, our data on income distribution is not as complete as our data on per capita income, retail sales and employment. But if we look at the most recent data, again 2001, we can see that St. Croix County has a much lower percentage of low income households relative to either the U.S. or Wisconsin and a much higher percentage of high income households (Figure 6).

Given the high percentage of households that are in the higher income groups, the growth patterns in retail sales discussed above begins to make sense. Not only is the population of the County growing rapidly but also income levels, particularly at the higher end of the income distribution range. This suggests that the market for restaurants, specialty stores as well as specialty personal services firms such as landscaping services, interior design and personal accounting services. But, as we will discuss below, this pattern is not necessarily uniform across the County.

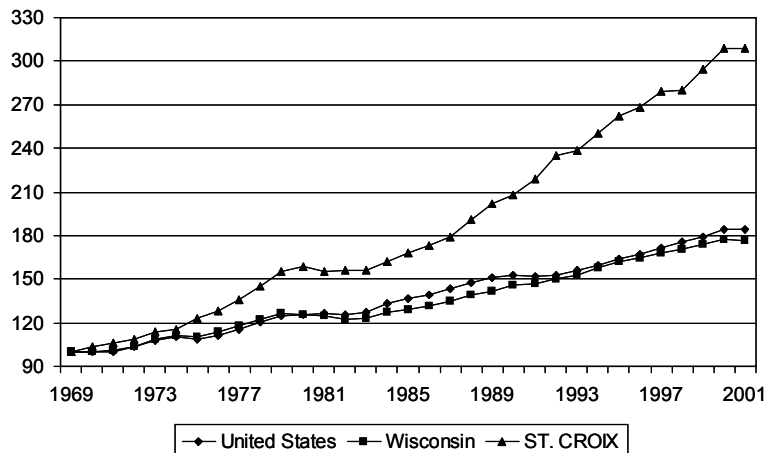
Our fourth metric of economic activity used for our historical analysis is employment. Here we examine total employment trends along with some specific sectors. Consider first total employment (Figure 7). Over the 1969-2001 period total employment grew by 84 percent for the U.S. and slightly more than 76 percent for Wisconsin. For St. Croix County, however, total employment grew by 209 percent which is more than

Figure 6. Income Distribution (Number of Households) 2001



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

Figure 7. Total Employment Growth Index (1969=100)



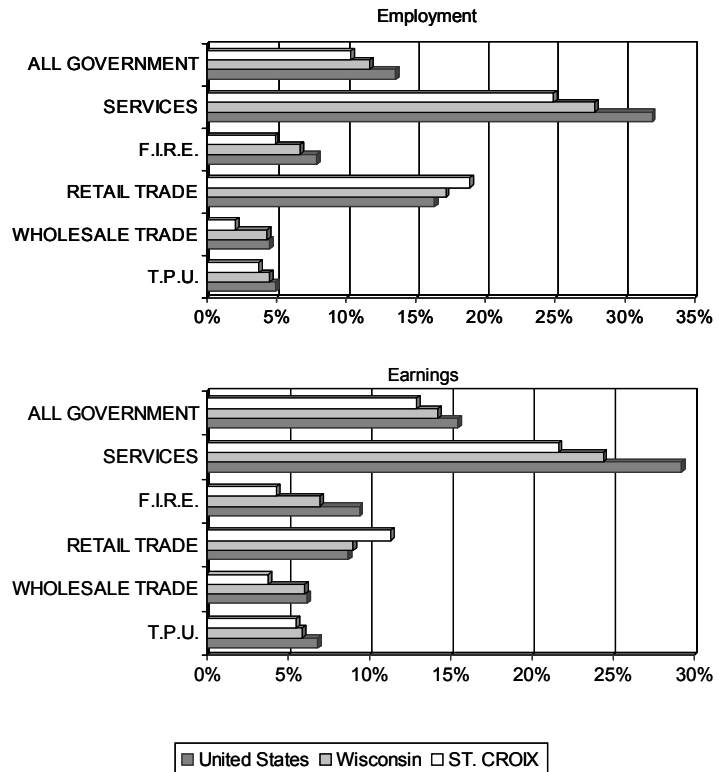
Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

double the national or Wisconsin rate. The recession of the early 1980s is readily evident as is the most recent recession. But while population and income growth for the County appears to be most predominant in the 1990s, employment growth seems to strong and stable since the mid-1980s.

To gain insights into the sources of employment growth we break the economy into two components: goods and service producing sectors. Goods producing sectors include farming, construction and manufacturing and have historically been viewed as the “backbone” of the economy. The service producing sectors include retail, transportation services, business services and personal services such as health care, financial, insurance and real estate firms and the public sector which includes public schools, police and fire protection and higher education such as the University. Let us consider the service producing sectors first.

In terms of employment the service producing sectors of the U.S. economy accounts for 79.3 percent of all jobs and 72.3 percent of all jobs in Wisconsin. In St. Croix County, the service producing sector accounts for only 64.9 percent. The largest single sector is the broadly defined services sector (business and personal) which accounts for 31.9 percent of all jobs at the national level, 27.8 percent of all jobs in Wisconsin and 24.9 percent of all jobs in the County (Figure 8). Generally, the share of employment in these service producing sectors across St. Croix County is below both the national and Wisconsin averages in 2001. For retail trade, however, the share of employment in the County is higher than the U.S. or Wisconsin at 18.8 percent compared to 16.4 and 17.1 percent for the U.S. and Wisconsin, respectively.

Figure 8. Sources of Earnings & Employment--Service Producing 2001



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

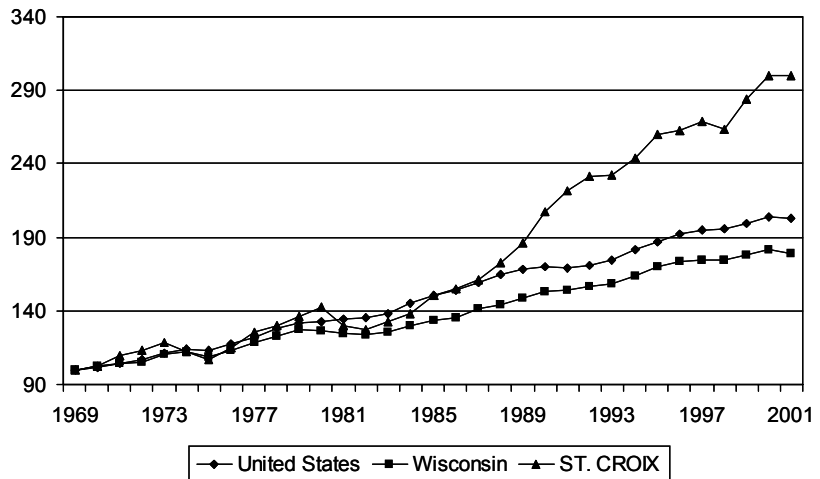
If we consider earnings (wages and salary income) for the service producing sectors we can gain some insight into quality of jobs as measured by income. It is important to note, however, that this analysis does not allow us to consider benefit packages offered such as health care insurance and/or retirement benefits. As such, our notion of job quality is limited to income earned. For the County, the service producing sectors account for 64.9 percent of all employment but only 59.6 percent of all earnings. This suggests that on average, the relative level of pay is slightly lower in the service producing sectors. This observation is particularly true for the retail sector where 18.8 percent of all jobs accounts for only 11.3 percent of all earnings in the County. While this suggests jobs in the retail sector tend to pay below the County average, if we compare the County to the nation and Wisconsin, the picture is not as unwelcoming. This is most obvious at the national level where the retail sector accounts for 16.4 percent of all jobs, but only 8.7 percent of all earnings. Growth in the retail sector is a concern if we return to the idea of

income distribution discussed above. As we have seen above, the retail sector has been a strong source of employment for the County, but these jobs tend to be part-time in nature and pay lower wages on average (Figure 9).

The service producing part of the economy that is receiving significant attention is the general category labored services (business and personal). As we saw before, total employment at the national level grew by 84 percent, but the service sector (business and personal) grew by 221 percent. For Wisconsin the service sectors grew by 213 percent and for the County it grew by 333 percent, nearly double the rate of total employment growth (Figure 10). In addition to the rapid growth rate for the service sectors, there is little evidence of the recessions of the early 1980s or early 1990s. Up until the recent recession the services sector has tended to be “immune” from general economic downturns. In addition, unlike retail sector, there is no evidence of accelerated growth in the 1990s, rather the growth appears to be stable through most of the three decade period examined.

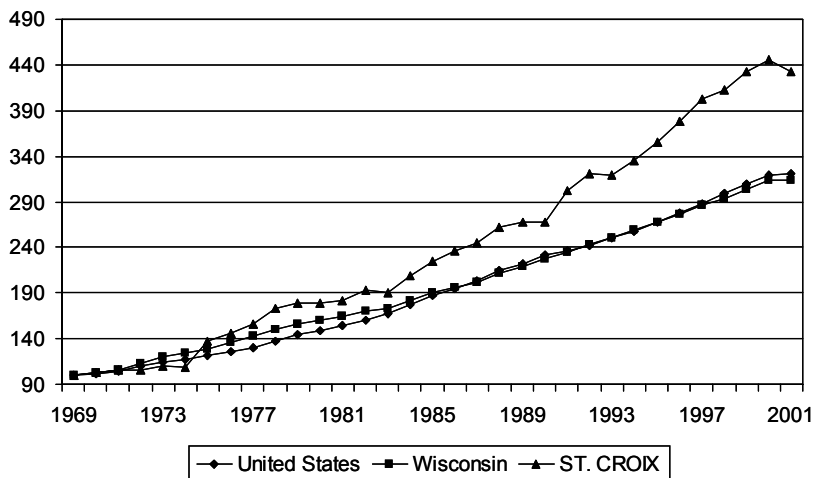
Consider now the goods producing part of the economy (manufacturing, agriculture and construction). Overall, the County is more highly dependent on the goods producing sector for employment (35.1%) than either the U.S. (23.4%) or Wisconsin (33.4%). This dependency is particularly clear if we focus on manufacturing. For the County, 21.8 percent of all jobs are in manufacturing, but for the U.S. manufacturing accounts for only 11.4 percent of all jobs and 18.4 percent of jobs in Wisconsin (Figure 11). If we consider earnings from manufacturing we can begin to understand why economic development policies tend to be biased toward the promotion of manufacturing. For the County although manufacturing accounted for 21.8 percent of all jobs, it accounted for 30.8 percent of all earnings received in the County. Jobs in the manufacturing sector tend to be higher paying than some other sectors, such as retail.

Figure 9. Retail Employment Growth Index (1969=100)



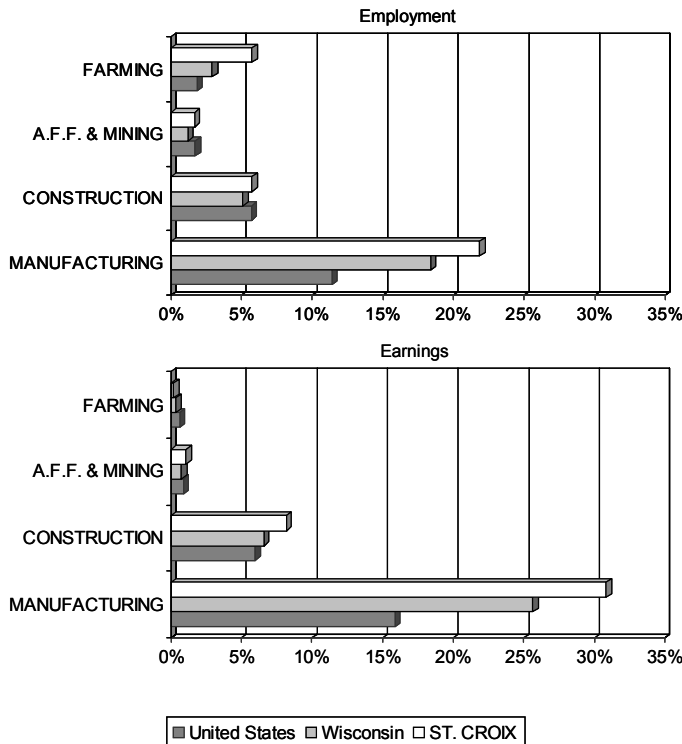
Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

Figure 10. Service Employment Growth Index (1969=100)



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

Figure 11. Sources of Earnings & Employment--Goods Producing 2001



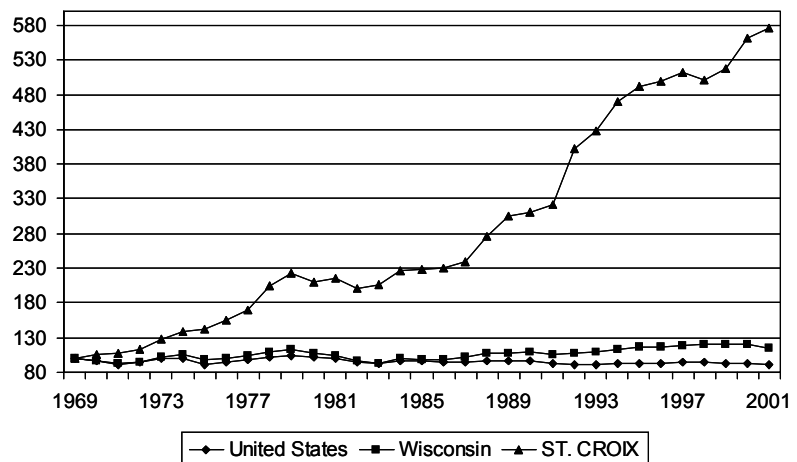
Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

The manufacturing sector, unfortunately, has undergone significant restructuring over the past few decades. The opening of international borders has seen a large part of the US manufacturing base move overseas. From a national perspective, manufacturing has not been a growth sector for the economy. For the U.S., manufacturing employment has actually declined as a source of employment with a loss of 10 percent of jobs from 1969 through 2001. For Wisconsin, the growth has been modest when compared to other sectors with growth of 15.7 percent over the same time period. But for the County, manufacturing employment has exploded increasing 418 percent

over the 32 year period. For the County, the bulk of that growth has been during the 1990s (Figure 12). A second concern with manufacturing from an economic growth and development perspective is that it is sensitive to economic swings in the business cycle. Unlike the service sector, manufacturing tends to be cyclical. These present the challenge when promoting manufacturing as an economic development strategy: manufacturing is attractive because it tends to pay reasonable wages, but from a national perspective manufacturing is not a long-term growth sector and it tends to fluctuate and is sensitive to economic downturns.

A second indicator of economic growth is the construction industry. Given the strong growth in population and income in the County, there are significant opportunities for the construction industry in much the same light as retail development. In terms of employment, the share of jobs attributable to construction at 5.7 percent is on par with the U.S. (5.7%) and Wisconsin (5.1%). But in terms of earnings, the construction industry is performing above par counting for 8.2 percent of all earnings in the County compared to 6 percent for the

Figure 12. Manufacturing Employment Growth Index (1969=100)



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

U.S. and 6.6 percent for Wisconsin. This suggests that the construction sector in the County is robust and growing. Indeed, over the entire study period employment in construction grew by 416 percent for the County which is much faster than the growth across the U.S. (114%) and Wisconsin (94.6%). Again, the bulk of this growth in construction employment occurred during the 1990s (Figure 13). Unfortunately, much like manufacturing, construction is very sensitive to swings in the business cycle. It is clear in Figure 13 the recession of the early 1980s and 1990s as well as the most recent recession.

From this historical analysis what patterns have been uncovered? First, the County has been experiencing rapid growth in terms of population, income and employment. Much of this growth

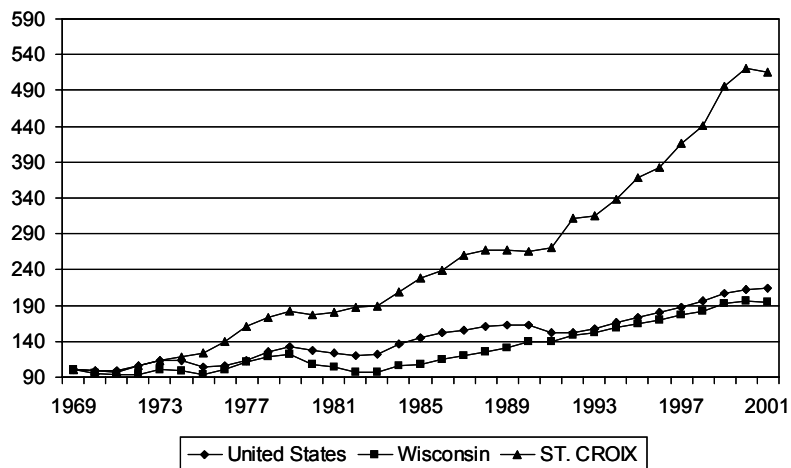
accelerated through the 1990s. Second, growth rates stand out for manufacturing, retail and construction. The growth in the latter two is tied directly to the rapid growth in population. As the Twin Cities continues to grow there is severe population growth pressure. Third, the County has been hit particularly hard by the recent recession. Unemployment rates that had been at levels generally associated with severe labor shortages have reversed trends and have been trending upward over the past few years. We have seen that few sectors within the County have been immune from the recent recession. Even the service sector (business and personal) which tends to be resistant to general economic downturns has been negatively affected by the recent recession.

In the discussion of these trends, the study group identified two central issues that required additional analysis. The first issue centers on the spatial distribution of growth across the County. Concern was expressed that the bulk of the growth that the County has experienced has been isolated to the western edge of the County and the eastern part of the County has not experienced the same level of growth. Second, much of the population growth occurring in the County is believed to be from commuters from the Twin Cities. The question that was raised is simple: is the County becoming a “bedroom community” to the Twin Cities. The historical analysis as present does not lend any insight into these questions. For example, if we compare the County’s population growth (94%) to the employment growth (208%) over the 1969-2001 study period, one could conclude that the County is not necessarily a bedroom community. But this conclusion is not consistent with the knowledge of the County expressed by the study group. Clearly, additional analysis is required to fully understand what is happening to the County’s economy.

Within County Analysis: What does the 2000 Census Tell Us?

The 2000 Census provided the study group with a wealth of information about how the County is structured within a spatial sense. To address some of the issues raised by the study group we analysis several measures of economic well-being across the County as well as detailed commuting patterns. We discuss each in order. Before we present the results of our analysis, it is important to note that the data used in the historical analysis and the data used here are

Figure 13. Construction Employment Growth Index (1969=100)

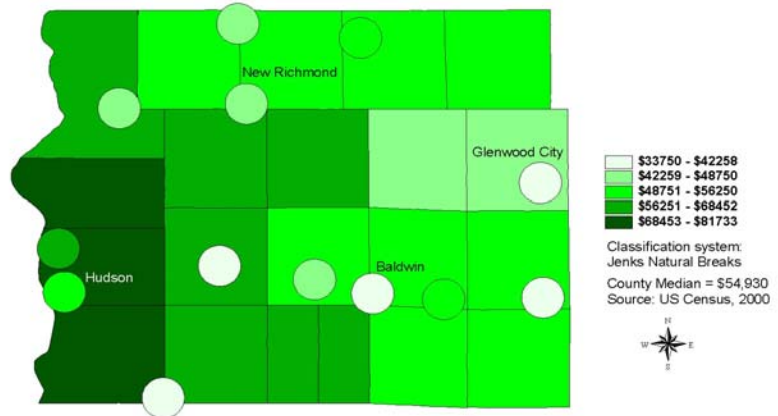


Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

fundamentally different and are not directly comparable. The historical analysis is based on “place of business” while the Census data is based on “place of residence.”

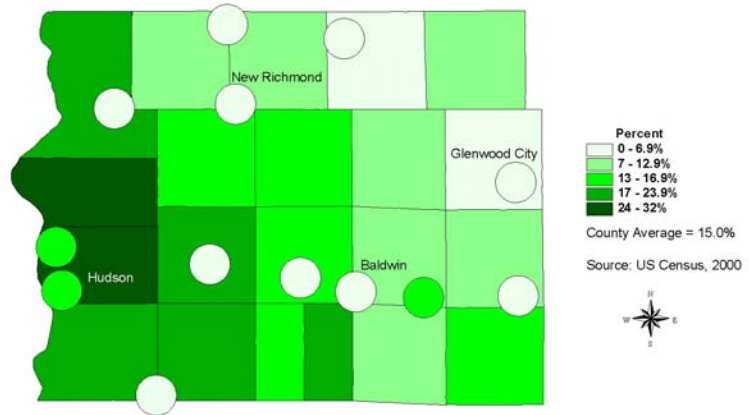
Consider first median household income (Figure 14). The County wide average is about \$55,000 and ranges from a low of \$33,720 to a high of \$81,733. As is evident from the mapping of this data across County municipalities it become readily evident that there are significant differences moving from the west part of the County to the eastern part. Clearly, the western part of the County, that part which is closest to the Twin Cities, is much wealthier than the eastern part. It is also clear that the towns are generally wealthier, as measured by median household income, than most of the cities and villages in the County. For example, the Town of Hudson has the highest median household income while Glenwood City on the eastern edge of the County has one of the lowest.

Figure 14. Median Household Income
St. Croix County



This pattern is even more evident if we look at the percentage of households that have income over \$100,000 (Figure 15). On average, 15 percent of the households in the County have a median income over \$100,000 while the Town of Hudson has 31.5 percent of households with incomes over \$100,000. It is also clear, the majority of cities and villages have fewer than seven percent of households with this high of an income level. The mirror to high income distribution across the County is seen by examining the distribution of low income households (Figure 16). County-wide, about 17 percent of the households in the County have incomes below \$25,000, but the spatial distribution of these low income households are clearly clustered in the eastern part of the County. Glenwood City has, for example, 31.7 percent of its households with income below \$25,000 but the Town of Hudson has only five percent of low-income households.

Figure 15. Household Income Over \$100,000
St. Croix County

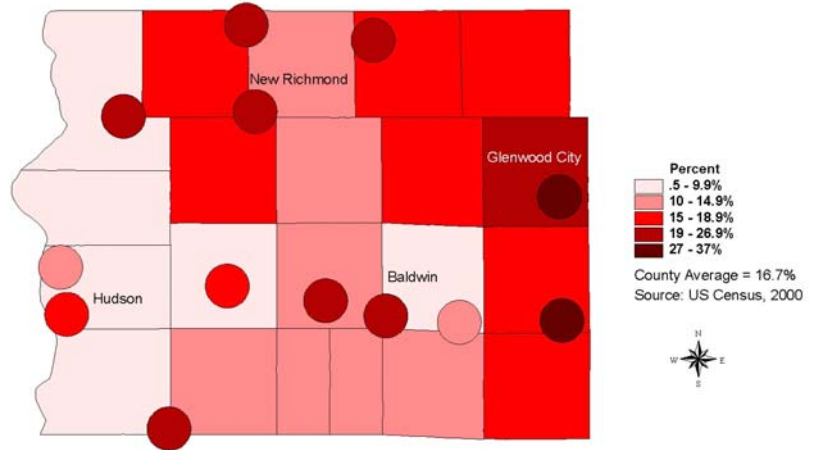


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Income is a very narrow definition of wealth and economic well-being. An alternative and complementary measure is the value of one's home. Higher valued homes are associated with higher levels of wealth. Clearly, income and housing values are highly correlated but they are not perfect substitutes. For rapidly growing communities, low income people may find that the value of their house grows much more rapidly than their income. Similarly, persons with high incomes who live in a community experiencing economic decline may find that the value of their house declines independent of their own personal income.

For the County, the median owner occupied house is valued at about \$139,500 with some of the more expensive houses being located in the Town of Troy with a median value of \$193,600 to a low of \$67,500 in the Town of Wilson (Figure 17). As expected the spatial distribution of housing value closely matches the distribution of income with the more expensive properties located in the more rural parts of the western edge of the County. There is one caveat with the Census housing value data that warrants mention; these values are self-reported by the person completing the census forms. While in Wisconsin property owners are provided with assessments that are at market value for the purpose of property taxes, some property owners have been documented to significantly underestimate the value of their homes.

Figure 16. Household Income Under \$25,000
St. Croix County



If we match housing value data with a simple measure of the age of the housing stock, the percent of houses built since 1995 a clearer picture of the structure of housing becomes clear. The County-wide average is about 15 percent of all houses having been built since 1995 (Figure 18). This compares to the Wisconsin-wide average of 9.5 percent. This higher stock of newer houses is a direct result of the rapid population growth rate experienced by the County. In the Town of Hudson, between one-quarter and one-third of housing stock has been built since 1995. For some communities, such as the Towns of Forest and Wilson have less than ten percent of their housing stock built since 1995. If we return to the concern expressed above about the self-reported value of housing, it is reasonable to expect that the owners of newer homes will have a better understanding the value of their house. Given the rapid

Figure 17. Value of Owner Occupied Housing
St. Croix County



growth in population, income and housing values, it is reasonable to expect that those persons located in the middle part of the County may be underestimating their values. The study group also noticed that the Census data is already showing signs of being dated as there has been significant new housing construction in places such as the City of New Richmond and the northwest part of the County. It is clear that the people moving into the County are seeking a more rural setting to locate.

From the mapping analysis of 2000 Census data the perceptions of the study group were confirmed. While the County overall has been experiencing significant growth in population, jobs and income, the spatial distribution of that growth is not even across the County. As expected the bulk of the growth has been in the western edge of the County, those communities closest to the Twin Cities. The study group noted that much of the new housing development has tended to be “high-end” and located in more rural settings. There is also some evidence of “back-fill” development where developers are taking advantage of lower price parcels of land. There is some evidence that this back-fill development is taking place in the more urban setting in the County. The growth that the County is experiencing is clearly moving from the far western edge of the County, such as the Town of Hudson, to central and northern parts of the County such as in the New Richmond area.

One concern expressed by the study group centered on the notion that the County was becoming a bedroom community to the Twin Cities. While the population and employment growth analysis presented above casts some doubt on that notion, there is valuable information from the 2000 Census that can shed farther light on the issue, specifically commuting data. From the Census we know that 51 percent of the County’s labor force commutes out of the County and the vast majority of those commuting out are traveling out of Wisconsin and toward the Twin Cities. But is this a high percentage of out-commuters or typical of other places?

Consider Jefferson County which is located between Madison and Milwaukee. Although Jefferson County is not experiencing the same level of growth as St. Croix County, it is faced with growth pressures from the western suburbs of Milwaukee and to a lesser extent Madison to the west. Despite these growth pressures, only 39 percent of Jefferson County’s labor force commutes out of the County for work. Walworth County, Wisconsin is located on the Illinois-Wisconsin border and is experiencing growth pressure from the Chicago metropolitan area. Like Jefferson County, although Walworth County is not experiencing the same growth pressures as St. Croix County it is within easy commuting distance to the northern suburbs of Chicago and Milwaukee to the north making it a fair comparison county. Much like Jefferson County, only 37 percent of Walworth County’s labor force commutes out of the county for employment. To complete the picture, consider two additional counties; Calumet County east of the Fox Valley region of Wisconsin and Kane County, Illinois which represents the far western suburbs of Chicago. Both of these counties are experiencing growth pressures because of their close proximity to growing urban hubs. In the case of Kane County, 44 percent of the labor force commutes out of the county for work and for Calumet County 59 percent commutes out. While a

Figure 18. Housing Stock Built Since 1995
St. Croix County



definitive definition of a bedroom community is not available, it is clear from the gross commuting data, that St. Croix County could be justified in considering itself a bedroom community.

But what is the make-up of those out-commuters? The 2000 Census data allows to classify commuters in several ways and for this study we look at commuters by income and occupation.

The perception is that the County's out-commuters tend to be wealthy white-collar workers who travel to the Twin Cities for work. By decomposing commuters by income and occupation we can informally test this perception. In Figure 19 we break the labor force into three groups: those residing in the County and working within the County (non-commuters); those that work in another county; and those that work in another state. While there are a handful of people in St. Croix County that commute as far away as Iowa, the vast majority of those commuting to another state are indeed commuting to Minnesota. We also look across eight income groups ranging from those with annual earnings below \$10,000 and those with earnings above \$100,000. Of those workers earning less than \$10,000 73.1 percent work within the County and only 18.3 percent commute to another state, most likely Minnesota. As expected, as earnings increase, the percentage of workers commuting out of the County increases. But an interesting pattern emerges at the highest earning levels. Out-commuting peaks not in the highest earnings level but rather in the \$50,000 to \$74,999 range with 69.1 percent commuting out of state. But at yet higher earnings levels, the percent begins to modestly decline. Clearly, the majority of high income workers commute out of the County but at the highest earnings level, \$100,000 and above, there is an increase in the number of workers who work within the County. While the general perception that higher income workers tend to commute out of the County is true, it is not the case that the highest earners necessarily out-

Figure 19. Commuting Status by Wage/Salary Income, Census 2000
Employed Persons 16 Years and over living in St. Croix Croix Co

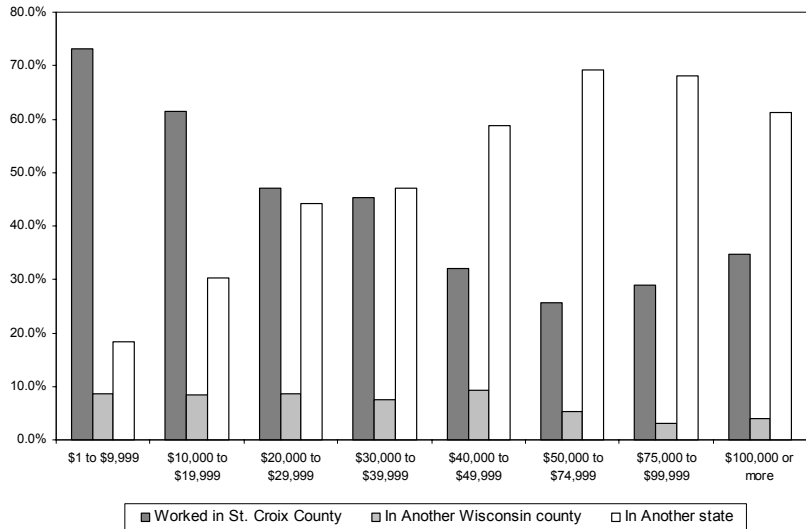
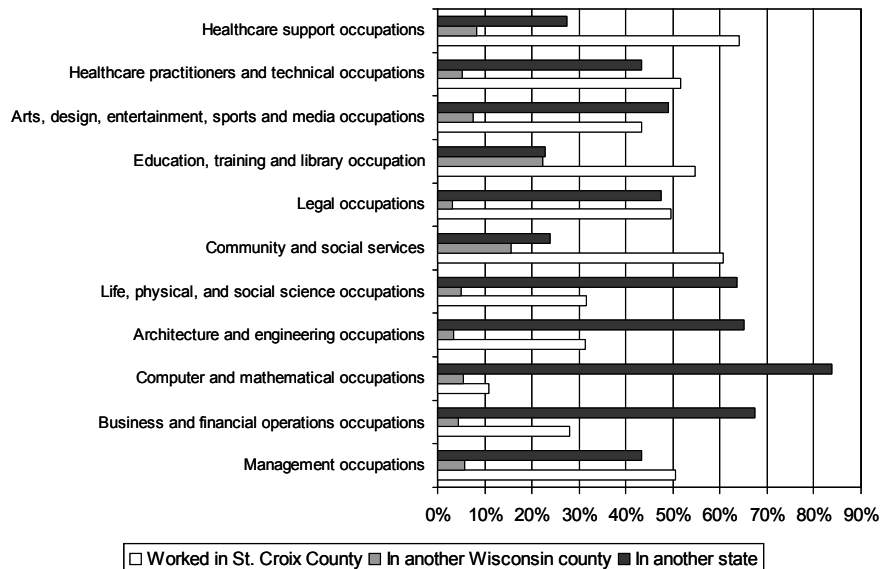


Figure 20. Commuting Status by Occupation Census 2000
Employed Persons 16 Years and over living in St. Croix County



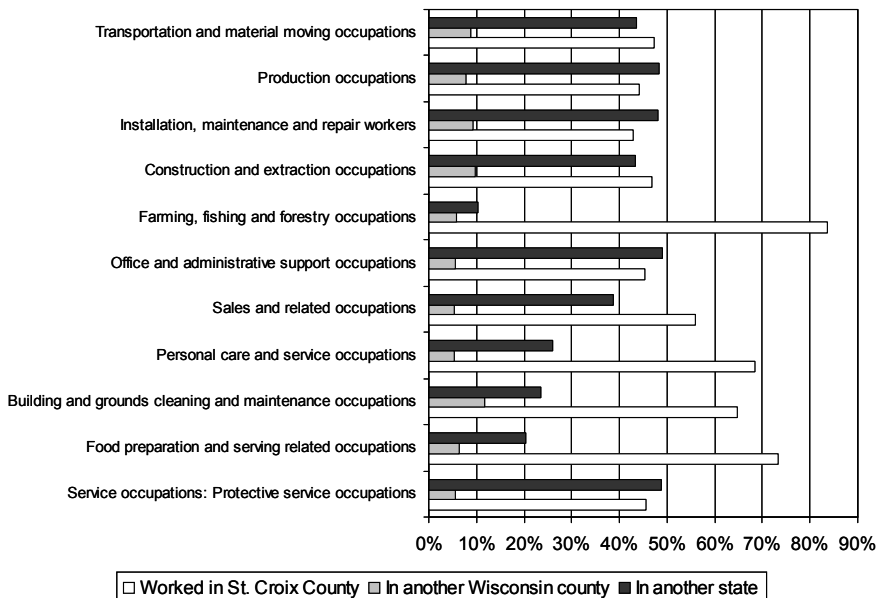
commute. It is also clear the flow of workers to other counties within Wisconsin is relatively modest compared to the flow to Minnesota.

We complete the analysis by decomposing worker flows by occupation; occupations that could be classified as “white-collar” are presented in Figure 20 while those that could loosely classified as “blue-collar” are presented in Figure 21. Of those that are classified as white-collar, there is no distinct pattern. Consider first health care professionals. Workers that are classified as health care support occupations which would include clerical staff and office managers tend to work in the County; 64 percent live and work in the County, 8.4 percent commute to another county in Wisconsin and 27.6 percent commute out of state. This compares to healthcare practitioners and technical occupations such as doctors and nurses also tend to work within the County but at a somewhat lower rate; 51.6 percent work within the County, 5.2 percent commute to another Wisconsin county but 43.2 percent commute to another state, most likely Minnesota. But when one considers other specialized occupations, such as computer and mathematical occupations, a large majority (83.7%) commutes to another state, again most likely Minnesota and the Twin Cities area. Legal occupations are evenly split between those that work within the County (49.5%) and those that commute into Minnesota (47.5%). The largest single category contained in Figure 20 is management occupations with 3,689 persons. Despite the perception, the majority (50.7%) work within the County and 43.4 percent commute out of state.

Consider now the occupations that are more closely called blue-collar (Figure 21). Some occupations have very few people commuting out of the County including farmers (83.6%), food preparation (73.3%) and personal care and services occupations (68.4%). This makes intuitive sense, particularly for farmers, because these occupations tend not to pay high wages and the cost of commuting is not compensated through higher wages. But the level of out-commuting for some blue-collar occupations is surprisingly high. For example, more than one in three people working in sales and related occupations commute out of state and 48.2 percent of production operators commute out of state. This latter result might be explained by the location of the large Andersen Windows production facility in nearby Bayport, where the relative high wages is sufficient to offset the cost of commuting. Similarly, the location of the large Minnesota correctional facility in Washington County likely explains the large number of persons in the protective services commuting out of the County.

The perception that the County’s out-commuters tend to be wealthy white-collar workers who travel to the Twin Cities for work is an over-simplification. While these data do support that idea that many of the commuters to Minnesota tend to be higher income and could be classified as white-collar, we find that at the highest income levels a surprising large number of persons work within the County. In addition, there are several occupations that could be deemed as blue-collar, such as corrections officers and production occupations, also have high rates of out-commuting.

Figure 21. Commuting Status by Occupation Census 2000
Employed Persons 16 Years and over living in St. Croix County



Based on the available research, patterns of commuting are largely explained by two factors; the availability of high income jobs and housing affordability. As these data show, occupations *per se* have little influence on commuting patterns. Communities that offer relatively high paying jobs and offer a supply of relatively reasonably priced homes tend to have lower levels of out-commuting. Communities that offer high paying jobs but whose housing market is relatively expensive will see a higher percentage of workers in-commuting. This latter characteristic explains, in part, why St. Croix County looks attractive to people who work in the Twin Cities, particularly on the eastern side of the metropolitan area. Given higher housing prices on the Minnesota side of the state line makes Wisconsin locations more attractive to households.

Regional Economic Structure

While the historical analysis presented above provides us with an idea of where St. Croix County has been over the past 30 plus years and hints at future directions, it is important to dive more deeply into the current structure of the County's economy. The analysis presented in this section of the report is aimed at identifying the specific strengths and weaknesses of individual industries in the County. Attention is paid to employment, industry sales, wages and salaries (earnings), total income, which includes wages and salaries, proprietor income and other property income and regional imports and exports.

We undertake this analysis by constructing a detailed regional economic model of the County. The model is called an input-output model and can be called a viewed as a "spreadsheet of the economy." Across the columns of the spreadsheet are the consumers or purchasers in the economy and captures the demand side of the economy. Looking across the rows captures the sellers in the economy and represents the supply side of the economy. Any individual cell of the spreadsheet (where a column and row intersect) captures the level of interaction between the buyers (demand) of the good or service and the sellers (supply) of the good or service. The model allows for goods and services to be exported (supply) as well as imported (demand) from and into the County. These models are widely used for conducting impact assessment but also provide a powerful tool for looking at the strengths and weaknesses of the local economy. A more complete description of how an input-output model is structured is provided in an appendix to this report. For this study we constructed an input-output model of the County's economy using data for 2001, and we have sectoral detail for 210 industries.

We use the St. Croix County input-output model to accomplish three tasks. First, the sectoral detail allows us to identify the largest industries in the County. Second, we can identify the relative strengths of these industries by computing location quotients (LQ). Finally, we look at trade into (imports) and out of (exports) of the County's economy. By deconstructing the County's economy in this way we are able to identify opportunities for targeted economic development efforts.

Before presenting the results of our analysis consider first what a location quotient provides us. The location quotient approach assumes the national economy is self-sufficient. While that is not completely true, it is more appropriate to make that assumption for the national economy than a state, multi-state or multi-county economy. The local economy, in this case the County, is compared against that standard of self-sufficiency. If the local economy has relatively less economic activity in a particular sector that suggests the good or service is being imported from other communities. If the local economy has relatively more economic activity in a particular sector that suggests the good or service is being exported to other communities.

The calculation of the LQ is relatively straightforward and involves comparing the percent of total economic activity in the County in some specific sector to the percent of total economic activity for the US in the same sector. A ratio of "1" means that the local level of economic activity in that sector is just sufficient to support local demand (supply equals demand). A LQ greater than 1 implies that the sector being examined produces more than is needed for local consumption

(supply is greater than demand), therefore the surplus is said to be exported from the region. A LQ less than 1 suggests that local production does not satisfy local demand (demand is greater than supply) and unmet demand implies importation of the good or service.

Traditional economic development theory has focused on the promotion and expansion of sectors that have LQ greater one. The rationale is that export sectors bring new monies into the local economy enhancing economic growth. For Wisconsin and the County, these types of sectors have historically included, but are not limited to, manufacturing and agricultural production. These types of industries are often referred to as “basic” industries and represent the engine of the economy. The remaining “non-basic” sectors, traditionally thought of as trade and services, are in place to support the “basic” industries. The economic growth policies that have followed from this simple view of the economy have tended to focus on the promotion of “basic” industries such as manufacturing and agriculture.

Care must be taken in drawing conclusions based on location quotients. For example, a location quotient less than 1 does not mean the community should strive for self-sufficiency in that activity. Each community need not be completely self-sufficient in all sectors (e.g., steel mills or shoe manufacturers, etc.). If the location quotient is less than one in a trade or service activity, it suggests there may be a gap in the local economy because most trade and service activities are expected to be present in most cities and villages. At the same time, the idea of what defines a “basic” industry has expanded to include a range of service producing sectors such as financial and insurance companies, health care facilities and certain types of recreational or tourism activities.

When considering the structure of the regional economy it is important to keep in mind that it is part of a larger national and indeed international economy. The degree of “openness” of the regional economy can be examined by looking to the levels of regional imports and exports. The larger the relative share of imports and exports compared to industrial size (industry output) the more open the economy and hence more dependent upon the larger economy. For example, if a large share of industry output is exported out of the region, that industry is more dependent on the performance of the larger economy than if the regional economy were more “closed.”

Industry exports can, at the same time, be a reflection of the industry’s contribution to the regional economy’s economic engine. As discussed above, the location quotient is a measure of the relative strength of a particular sector. A direct interpretation, a larger location quotient is an indicator of an industry exporting a larger proportion of its production out of the region. As more production is exported there is a larger flow of dollars coming into the regional economy. This inflow of dollars represents economic growth. In a simple sense, the export-base of the regional economy (those sectors that have large location quotients and large exports) brings money into the regional economy and could be described as the “backbone” of the economy. These exporting sectors represent “injections” of money into the regional economy and injections in turn spur economic growth.

At the same time industries can import intermediate goods and services used in their own production. For example, a cheese plant may import much of the milk used in its production of cheese. These imports represent a “leakage” of economic activity from the region. The larger the leakages are, the slower the economic growth of the region. When examining exports (injections) one must keep in mind the counteracting imports (leakages). A comprehensive economic development policy must look at the promotion of exports while at the same time look to minimize leakages. Consider, for example, a community that has a large manufacturing firm (exporter) but has little or no retail and service development. While the manufacturing firm brings money into the community, the lack of businesses in which to spend that money results in the money immediately leaking out or leaving the community economy. In a sense the “multiplier affect” of that manufacturing firm will be low because of the low ability of the community to retail those dollars.

Industry Scale As discussed above we use four ways to measure the scale of individual sectors in the St. Croix County economy: industry sales, jobs, earnings and total income. We rank and present the top 25 industries by each of these metrics and they are reported in Tables 1 through 4.³ For comparison purposes we also report the number of jobs each of these “top 25” sectors, earnings per job as well as total income per job. The latter are included to provide the study group with a basis for judging the “quality” of the jobs in these sectors as measured by income.

Table 1. Top Twenty-five Industries Based on Industry Sales

	Industry Sales	Jobs	Earnings per Jobs	Total Income per Jobs
Cheese manufacturing	\$ 257,516,510	455	\$ 36,116	\$ 52,774
Plastics plumbing fixtures and all other plastics	\$ 165,270,767	943	\$ 33,981	\$ 55,904
Food services and drinking places	\$ 97,700,378	2,761	\$ 9,773	\$ 15,959
Wholesale trade	\$ 90,306,152	701	\$ 46,619	\$ 86,196
Hospitals	\$ 88,336,678	953	\$ 27,257	\$ 27,940
Truck transportation	\$ 83,088,310	737	\$ 30,343	\$ 51,254
Automotive repair and maintenance, except car wash	\$ 81,227,661	693	\$ 16,503	\$ 51,448
Cattle ranching and farming	\$ 79,820,702	1,008	\$ 5,485	\$ 2,981
Packaging machinery manufacturing	\$ 74,094,887	392	\$ 50,334	\$ 77,505
Real estate	\$ 74,090,881	731	\$ 7,603	\$ 70,683
State & Local Education	\$ 67,223,709	1,637	\$ 35,863	\$ 41,064
Monetary authorities and depository credit interme	\$ 66,086,578	539	\$ 25,456	\$ 83,562
Motor and generator manufacturing	\$ 57,920,265	451	\$ 32,812	\$ 45,426
AC, refrigeration, and forced air heating	\$ 57,495,026	292	\$ 43,737	\$ 57,809
State & Local Non-Education	\$ 54,934,914	1,479	\$ 31,665	\$ 37,139
Other animal food manufacturing	\$ 53,518,379	108	\$ 41,963	\$ 61,298
Motor vehicle and parts dealers	\$ 53,231,392	780	\$ 30,677	\$ 41,311
Fruit and vegetable canning and drying	\$ 51,486,233	176	\$ 36,372	\$ 87,018
Offices of physicians, dentists, and other health	\$ 49,579,422	742	\$ 37,191	\$ 48,859
Metal window and door manufacturing	\$ 49,407,536	345	\$ 39,533	\$ 65,355
New residential 1-unit structures, nonfarm	\$ 48,778,427	402	\$ 30,331	\$ 40,880
Commercial and institutional buildings	\$ 47,436,165	596	\$ 30,152	\$ 32,854
All other food manufacturing	\$ 39,313,232	175	\$ 34,062	\$ 53,467
Food and beverage stores	\$ 39,038,361	967	\$ 14,647	\$ 21,216
Commercial printing	\$ 34,181,198	297	\$ 34,832	\$ 45,010
County-wide Average			\$ 24,664	\$ 42,076

Source: IMPLAN 2001 and the University of Wisconsin

Based on the input-output model of St. Croix County, the largest industry in the County as measured by industry sales is cheese manufacturing. The study group expressed concern over this result because there are only a small number of cheese processing plants located within the County, and they are all relatively small. It was concluded that the office of a large cheese processing company must be located in the County and is reporting from that location. This result should thus be discounted. It is widely acknowledged in the County that the plastics industry has a large presence in the County and this is confirmed by our analysis. Plastic plumbing fixtures and all other plastic products has sales of over \$165 million and employs about 950 persons. Average earnings per job is almost \$34,000, which is noticeably higher than the County-side average of \$24,664 and total income per job is almost \$56,000 which is also above the County-wide average of \$42,076.

It is important to note that the next five largest sectors are classified as service producing and include eating and drinking places, wholesale trade, hospitals, trucking transportation services

³ The study group was provided with a complete listing of all 211 industries and we limit the discussion here to the top 25 for purposes of brevity.

and automotive repair businesses. These five service producing sectors account for \$440 million in sales, or about 13.5 percent of the County's total. Unfortunately, some of these sectors pay wages and salary levels below the County average. For example, eating and drinking places pay about \$9,700 per job and automotive repair businesses pays about \$16,500 per job. Total income per job for the latter, however, is about \$51,000 per job.

The large difference between earnings per job and total income per job speaks to two things. First, some businesses tend to structure the business such that much of the income is paid through what is called proprietor income. This is income that comes to the owners of the business through what might be called profits. Thus, one could compare earnings per job and total income per job to obtain a crude indicator of business profitability. Consider cattle farming in the County where total income per job is lower than earnings per job. This indicates that 2001 was not a particularly a good year for cattle farmers in that proprietor income was sufficiently negative to pull down the total income per job measure. The second issue is the location of the business owners who are paid the proprietor income, which is the major difference between earnings income and total income. One of the major concerns about promoting tourism as an economic development strategy is that tourism promotes low-paying jobs. Research has suggested that such a line of thinking is too narrow; it depends on the ownership structure of the tourism businesses. Research has shown that if the owners of the tourism dependent businesses are located within the community, tourism can be a viable economic development strategy. If, however, the owners of the businesses are located outside of the community, those profits leave the community and the community is left with low-paying jobs. Unfortunately, our

Table 2. Top Twenty-five Industries by Employment

	Jobs	Earnings per Jobs	Total Income per Jobs
Food services and drinking places	2,761	\$ 9,773	\$ 15,959
State & Local Education	1,637	\$ 35,863	\$ 41,064
State & Local Non-Education	1,479	\$ 31,665	\$ 37,139
Nursing and residential care facilities	1,066	\$ 16,020	\$ 17,782
Cattle ranching and farming	1,008	\$ 5,485	\$ 2,981
Food and beverage stores	967	\$ 14,647	\$ 21,216
Hospitals	953	\$ 27,257	\$ 27,940
Plastics plumbing fixtures and all other plastics	943	\$ 33,981	\$ 55,904
Civic, social, professional and similar organizati	796	\$ 8,157	\$ 8,192
Motor vehicle and parts dealers	780	\$ 30,677	\$ 41,311
General merchandise stores	778	\$ 13,479	\$ 19,135
Employment services	764	\$ 14,564	\$ 19,337
Offices of physicians, dentists, and other health	742	\$ 37,191	\$ 48,859
Truck transportation	737	\$ 30,343	\$ 51,254
Real estate	731	\$ 7,603	\$ 70,683
Wholesale trade	701	\$ 46,619	\$ 86,196
Automotive repair and maintenance, except car wash	693	\$ 16,503	\$ 51,448
Gasoline stations	663	\$ 14,161	\$ 22,800
Commercial and institutional buildings	596	\$ 30,152	\$ 32,854
Monetary authorities and depository credit interme	539	\$ 25,456	\$ 83,562
Grain farming	462	\$ 3,046	\$ 14,105
Cheese manufacturing	455	\$ 36,116	\$ 52,774
Motor and generator manufacturing	451	\$ 32,812	\$ 45,426
All other crop farming	404	\$ 4,508	\$ 20,126
New residential 1-unit structures, nonfarm	402	\$ 30,331	\$ 40,880
County-wide Average		\$ 24,664	\$ 42,076

Source: IMPLAN 2001 and the University of Wisconsin

input-output model does not provide sufficient information to talk about the location of the owners of the business.⁴

If we look simply at jobs, a slightly different picture of the County is painted (Table 2). Of the top 25 industries all but five are classified as service producing with the public sector being a major employer in the County. If we look at some of the some of the individual largest employers at the community level, the public school systems rise to the top of the list. This latter result is not uncommon for remote rural areas, but is somewhat uncommon for a county that is classified as part of a metropolitan area. This does provide some indication that some of the communities within the County could be classified as bedroom communities. If this is the case it is reasonable to expect growth in retail and personal services type businesses, and as noted above, the County is experiencing this growth in several communities such as the City of Hudson as well as New Richmond.

We also see that several of the industries in the top 25 sectors as defined by jobs pay wages that are below the county-wide average. This observation goes back to the discussion above where we noted that the manufacturing sectors in the County tend to offer good wages and as a result tend to be favored in economic development policy. But again, concerns about the overall growth potential for manufacturing given national trends as well as the stability of manufacturing in light of the most recent recessions call into question the soundness of development policies that favor manufacturing over other sectors of the economy.

Turning attention to the top 25 industries ranked by earnings, a similar picture to our jobs rankings comes to light (Table 3). Fifteen of the top 25 are classified as service-producing, with the public sector, specifically public education, contributing the greatest amount to total earnings. Some of the manufacturing sectors that are in the top 25 include plastics, packaging machinery manufacturing and metal windows and door manufacturing. Finally, by ranking industries by total income and then comparing to the top 25 by earnings, we can gain insights into some of the more profitable businesses in the County (Table 4). Again, public education in the County is largest source of total income as are other public institutions. Consider, however, real estate. This industry is a prime example of how different industries compensate their employees. In a typical real estate office there are only a handful of people that are paid standard wages, such as secretarial support staff, and the vast majority of people are paid on commission based on their sales levels. If we look simply at earnings the real estate sector in the County appears to pay sub-standard wages, but in reality, real estate is a very profitable sector for the County. Indeed, the "average" person working in real estate made about \$70,000 in 2001. Given the strength of the real estate market in the County and the large number of new homes and commercial structures being built it is not surprising that real estate agents and brokers are doing well. This latter observation is supported by the ranking of businesses that focus on the construction of single family homes. Although there are only 402 jobs in this sector, the total level of pay makes this an important sector. The difference between earned income and total income also comes to light when examining legal services.

One sector that appears to pay relatively low wages as well as total income per job is hospitals. It is important to keep in mind the wide range of occupations that are present in a typical hospital. If one thinks about the percentage of total employment in hospitals that are doctors and highly trained medical professionals it is relatively low. For every doctor there are numerous support persons ranging from low-paid nurses aids to custodial staff to people working in the food service department of the hospital. Care must be taken to sensitive to the occupational mix that is matched to each particular industry.

⁴ It should be noted that the data used to construct our model of the County's economy is closely tied to the same source of data used in our historical analysis. Data are reported by place of business unlike the Census data which is reported by place of residence.

Table 3. Top Twenty-five Industries by Earnings

	Total Earnings	Jobs	Earnings per Jobs	Total Income per Jobs
State & Local Education	\$ 58,709,232	1,637	\$ 35,863	\$ 41,064
State & Local Non-Education	\$ 46,838,158	1,479	\$ 31,665	\$ 37,139
Wholesale trade	\$ 32,663,406	701	\$ 46,619	\$ 86,196
Plastics plumbing fixtures and all other plastics	\$ 32,034,912	943	\$ 33,981	\$ 55,904
Offices of physicians, dentists, and other health	\$ 27,580,791	742	\$ 37,191	\$ 48,859
Food services and drinking places	\$ 26,986,778	2,761	\$ 9,773	\$ 15,959
Hospitals	\$ 25,972,601	953	\$ 27,257	\$ 27,940
Motor vehicle and parts dealers	\$ 23,942,631	780	\$ 30,677	\$ 41,311
Truck transportation	\$ 22,374,332	737	\$ 30,343	\$ 51,254
Packaging machinery manufacturing	\$ 19,712,713	392	\$ 50,334	\$ 77,505
Commercial and institutional buildings	\$ 17,982,864	596	\$ 30,152	\$ 32,854
Nursing and residential care facilities	\$ 17,074,680	1,066	\$ 16,020	\$ 17,782
Cheese manufacturing	\$ 16,448,122	455	\$ 36,116	\$ 52,774
Motor and generator manufacturing	\$ 14,798,035	451	\$ 32,812	\$ 45,426
Food and beverage stores	\$ 14,164,515	967	\$ 14,647	\$ 21,216
Monetary authorities and depository credit interme	\$ 13,725,636	539	\$ 25,456	\$ 83,562
Metal window and door manufacturing	\$ 13,630,794	345	\$ 39,533	\$ 65,355
AC, refrigeration, and forced air heating	\$ 12,781,302	292	\$ 43,737	\$ 57,809
Legal services	\$ 12,776,081	301	\$ 42,477	\$ 70,317
New residential 1-unit structures, nonfarm	\$ 12,206,664	402	\$ 30,331	\$ 40,880
Other new construction	\$ 11,743,431	378	\$ 31,084	\$ 33,342
Automotive repair and maintenance, except car wash	\$ 11,428,236	693	\$ 16,503	\$ 51,448
Air purification equipment manufacturing	\$ 11,387,854	290	\$ 39,308	\$ 55,967
Machine shops	\$ 11,196,546	274	\$ 40,927	\$ 48,845
Employment services	\$ 11,130,651	764	\$ 14,564	\$ 19,337
County-wide Average			\$ 24,664	\$ 42,076

Source: IMPLAN 2001 and the University of Wisconsin

Table 4. Top Twenty-five Industries by Total Income

	Total Income	Jobs	Earnings per Jobs	Total Income per Jobs
State & Local Education	\$ 67,223,710	1,637	\$ 35,863	\$ 41,064
Wholesale trade	\$ 60,393,058	701	\$ 46,619	\$ 86,196
State & Local Non-Education	\$ 54,934,913	1,479	\$ 31,665	\$ 37,139
Plastics plumbing fixtures and all other plastics	\$ 52,701,405	943	\$ 33,981	\$ 55,904
Real estate	\$ 51,651,247	731	\$ 7,603	\$ 70,683
Monetary authorities and depository credit interme	\$ 45,056,257	539	\$ 25,456	\$ 83,562
Food services and drinking places	\$ 44,070,440	2,761	\$ 9,773	\$ 15,959
Truck transportation	\$ 37,793,394	737	\$ 30,343	\$ 51,254
Offices of physicians, dentists, and other health	\$ 36,233,174	742	\$ 37,191	\$ 48,859
Automotive repair and maintenance, except car wash	\$ 35,627,954	693	\$ 16,503	\$ 51,448
Motor vehicle and parts dealers	\$ 32,241,668	780	\$ 30,677	\$ 41,311
Packaging machinery manufacturing	\$ 30,353,747	392	\$ 50,334	\$ 77,505
Hospitals	\$ 26,623,518	953	\$ 27,257	\$ 27,940
Cheese manufacturing	\$ 24,034,681	455	\$ 36,116	\$ 52,774
Metal window and door manufacturing	\$ 22,534,129	345	\$ 39,533	\$ 65,355
Legal services	\$ 21,149,767	301	\$ 42,477	\$ 70,317
Food and beverage stores	\$ 20,518,236	967	\$ 14,647	\$ 21,216
Motor and generator manufacturing	\$ 20,486,823	451	\$ 32,812	\$ 45,426
Commercial and institutional buildings	\$ 19,594,156	596	\$ 30,152	\$ 32,854
Nursing and residential care facilities	\$ 18,952,677	1,066	\$ 16,020	\$ 17,782
AC, refrigeration, and forced air heating	\$ 16,893,416	292	\$ 43,737	\$ 57,809
New residential 1-unit structures, nonfarm	\$ 16,452,183	402	\$ 30,331	\$ 40,880
Air purification equipment manufacturing	\$ 16,214,206	290	\$ 39,308	\$ 55,967
Insurance agencies, brokerages, and related	\$ 16,061,892	304	\$ 28,098	\$ 52,853
Fruit and vegetable canning and drying	\$ 15,342,771	176	\$ 36,372	\$ 87,018
County-wide Average			\$ 24,664	\$ 42,076

Source: IMPLAN 2001 and the University of Wisconsin

Our final measure of relative strength is the location quotient (LQ). As discussed above, the LQ is a simple indicator of relative industrial strength, or levels of specialization. Again, a ratio of “1” means that the local level of economic activity in that sector is just sufficient to support local demand (supply equals demand). A LQ greater than 1 implies that the sector being examined produces more than is needed for local consumption (supply is greater than demand), therefore the surplus is said to be exported from the region. A LQ less than 1 suggests that local production does not satisfy local demand (demand is greater than supply) and unmet demand implies importation of the good or service. Again, we rank industries from the largest to the smallest LQ and report the top 25 along with the LQ for Wisconsin for comparisons (Table 5). Again, the study group was provided with a complete listing of all 211 sectors contained in the County input-output model.

All of the top 25 industries ranked by the location quotient are classified as goods producing, specifically manufacturing. Packaging machinery manufacturing is a strong specialization for the County with a LQ of 105.4; this sector employs 392 people, with an average earnings per job just over \$50,000 and total income per job of \$77,500. A natural question is what is it about the County that makes this particular industry so strong? Is there potential for expansion of this industry? What can the County do to strengthen this industry? It should be noted that some sectors may be identified as having a strong presence in the County as measured by the LQ but is relatively small in absolute size. Consider, for example, the manufacturing of lighting fixtures where the LQ is 9.9 for the County and 1.2 for Wisconsin. Based on the location quotient, this might be an industry worth further investigation. But for the County, the manufacturing of lighting fixtures employs only 74 people and pays about \$36,000 per job. Perhaps a stronger example of this balancing that must be done between the LQ and overall size of the industry is in cement manufacturing. A LQ of 6.6 for the County, compared to only 0.1 for Wisconsin, indicates that

Table 5. Location Quotient

	County		
	St. Croix	Employment	Wisconsin
Packaging machinery manufacturing	105.452	392	5.330
Air purification equipment manufacturing	88.585	290	2.757
Cheese manufacturing	65.101	455	18.364
Industrial pattern manufacturing	56.647	77	7.918
Motor and generator manufacturing	35.102	451	4.127
Coated and uncoated paper bag manufacturing	30.615	114	1.145
Custom architectural woodwork and millwork	28.212	72	1.312
Metal window and door manufacturing	24.760	345	1.962
Die-cut paper office supplies manufacturing	20.987	51	0.893
All other food manufacturing	17.903	175	2.297
Other animal food manufacturing	16.300	108	2.043
Rolling mill and other metalworking machinery	15.569	51	0.655
AC, refrigeration, and forced air heating	13.745	292	2.195
Plastics plumbing fixtures and all other plastics	12.811	943	2.994
Miscellaneous electrical equipment manufacturing	11.443	59	1.308
All other forging and stamping	11.342	166	3.670
Other rubber product manufacturing	10.866	216	1.407
Lighting fixture manufacturing	9.933	74	1.239
Fruit and vegetable canning and drying	9.913	176	3.063
Construction machinery manufacturing	9.557	118	2.800
Miscellaneous fabricated metal product manufacturi	7.876	102	4.398
All other crop farming	7.667	404	3.636
Showcases, partitions, shelving, and lockers	6.860	99	1.649
Metal cutting machine tool manufacturing	6.716	41	2.838
Cement manufacturing	6.666	18	0.096

Source: IMPLAN 2001 and the University of Wisconsin

this sector is a strength for the County. But, there are only 18 jobs present in the County in the manufacturing of cement.

Economic “Openness” We know from our discussion of the commuting data above that the County economy is what economists call “open.” This means that there is significant flow of resources, goods and service into and out of the County. One of the direct interpretations of the location quotient discussed in the previous section of the report is that those sectors with a LQ greater than one are export or “basic” sectors. In the simplest interpretation of such a large LQ for industrial pattern manufacturing (LQ=56.6) is that the vast majority of the output from that particular sector (about \$92 million) is exported from the County. Conversely, an industry with a location quotient significantly below one, such as agricultural and forestry support industries (LQ=0.26), means that that particular good or service needs to be imported into the County. Traditional economic development policies that follows from LQ analysis is to promote those industries that have large location quotients and try to understand why some sectors are relatively weak and can not meet local demand.

A natural next step in considering the values of location quotients is to look at the actual flow of dollars into (imports) and out of (exports) the County. Intuitively, a sector that has a large LQ and high levels of employment should have a large out-flow of products. But, a low LQ with small levels of employment does not necessarily imply that there is a large level of importation. It is possible that the local demand for some goods and services is simply low. To gain additional insights into the “openness” of the St. Croix County economy we conducted what we refer to as a “gap and disconnect” analysis.

The idea is that the high levels of imports may be due to one of two reasons. First, it may be that certain goods and services must be imported into the region because the good or service is simply not available. For example, the plastics industry in the County imports large amounts of plastic resins because almost all the plastic resins produced in the U.S. is in Texas and Louisiana. This would be an example of a “gap.” There may be good reasons for a gap to exist and the community may elect that the certain negative aspects associated with the good or service does not make it a good match for the community. The production of plastic resins is a good example of the latter. Plastic resins production is a not a particularly a clean industry and the costs of shipping the oil required in its production does not make Wisconsin good fit for that industry.

Second, it may be the case that the good or service being imported into the community is available locally, but there is a “disconnect” between the consumers of that good or service (demand) and the producers of that good or service (supply). Reasons for a disconnect are varied and complex. The simplest explanation is that there is a lack of information within the network of community businesses. This is a situation where economic development initiatives can have a significant impact. By identifying disconnects and sharing information within and across the business community, networks can be formed to close the disconnects. Other reasons may be historical (e.g., firms have a long tradition of working with each other), unfavorable pricing policies (e.g., firms are aware of each other but contracts can not be agreed to), customization of the work to be done (e.g., firms outside the community are better positioned to provide custom work) or as simple as the persons involved (e.g., some firms prefer to not work together).

The intent of the analysis presented in this report is to point the study group in directions for future work. If gaps and disconnects can be identified using the input-output model, more focused questions can be posed to move the discussion forward (e.g., why don’t these two firms work together?). We accomplish this in three steps; first we rank industries by gross export levels; second, we rank commodities by intermediate imports; and finally, we decompose the purchasing patterns of selected industries in detail. While the first and last steps are straightforward, the second step is not as intuitive. We are limiting our discussion to business-to-

business transactions. We are not interested at this stage of the analysis in the level of imports being purchased by households. Given the logic of the input-output model, a family vacation to Disney World would be treated as an import of recreational services into households.

In terms of total exports, cheese production rises to the top, but again the study group determined this is an anomaly of how a particular business is structured in the County. As expected based on our other analysis, plastics manufactures are major exporters along with a heating and cooling equipment manufacturer and a handful of food processing companies. Given our prior analysis there are no surprises in Table 6.

Table 6. Top Twenty-five Industries by Total Exports

	Total Exports	Jobs	Earnings per Jobs	Total Income per Jobs
Cheese manufacturing	\$ 187,270,285	455	\$ 36,116	\$ 52,774
Plastics plumbing fixtures and all other plastics	\$ 143,269,547	943	\$ 33,981	\$ 55,904
AC, refrigeration, and forced air heating	\$ 58,147,272	292	\$ 43,737	\$ 57,809
Other animal food manufacturing	\$ 53,162,136	108	\$ 41,963	\$ 61,298
Fruit and vegetable canning and drying	\$ 48,261,638	176	\$ 36,372	\$ 87,018
Metal window and door manufacturing	\$ 45,110,993	345	\$ 39,533	\$ 65,355
Motor and generator manufacturing	\$ 41,200,903	451	\$ 32,812	\$ 45,426
All other food manufacturing	\$ 38,707,829	175	\$ 34,062	\$ 53,467
Other rubber product manufacturing	\$ 29,309,202	216	\$ 24,413	\$ 36,476
Air purification equipment manufacturing	\$ 27,245,957	290	\$ 39,308	\$ 55,967
All other forging and stamping	\$ 25,828,548	166	\$ 38,570	\$ 57,775
Truck transportation	\$ 24,585,031	737	\$ 30,343	\$ 51,254
Packaging machinery manufacturing	\$ 23,892,128	392	\$ 50,334	\$ 77,505
Automotive repair and maintenance, except car wash	\$ 23,202,287	693	\$ 16,503	\$ 51,448
Grain farming	\$ 22,481,216	462	\$ 3,046	\$ 14,105
Construction machinery manufacturing	\$ 21,804,848	118	\$ 51,614	\$ 76,811
Machine shops	\$ 20,621,731	274	\$ 40,927	\$ 48,845
Gasoline stations	\$ 18,612,667	663	\$ 14,161	\$ 22,800
Commercial printing	\$ 17,478,014	297	\$ 34,832	\$ 45,010
Insurance agencies, brokerages, and related	\$ 17,084,177	304	\$ 28,098	\$ 52,853
Monetary authorities and depository credit interme	\$ 16,992,485	539	\$ 25,456	\$ 83,562
Motor vehicle and parts dealers	\$ 15,559,138	780	\$ 30,677	\$ 41,311
Lighting fixture manufacturing	\$ 14,938,985	74	\$ 61,037	\$ 90,554
Miscellaneous fabricated metal product manufacturi	\$ 14,533,221	102	\$ 36,885	\$ 56,911
Coated and uncoated paper bag manufacturing	\$ 14,392,483	114	\$ 49,535	\$ 58,824
County-wide Average			\$ 24,664	\$ 42,076

Source: IMPLAN 2001 and the University of Wisconsin

The focus of our analysis is really on the level of imports as outlined in Table 7. In the terminology of the economic development literature, we are looking at potential candidates for “import substitution.” There are several commodities that are being imported into the County because there are no businesses producing the good or service locally. In our terminology that would constitute a “gap” in the County’s economy.⁵ For example, there are no steel mills located in the County, nor are there any petroleum refineries. There are clear and reasonable explanations for these gaps and the County is not in a position to close these gaps nor is the necessarily a desire to bring these types of industries to the County. Sectors that are present in the County, yet there is still significant levels of imports of the goods and services they produce, include management services businesses, architectural and engineering services and advertising and related services.

⁵ Because we limit our discussion here to the top 25 largest imported commodities, there are a number of other “gaps” in the local economy that may be deemed too small to attempt to fill. Again, the study group was provided with a complete listing of imports.

Consider firms that specialize in the management services. There are firms within the County that provide that service and employ 153 persons and may high wages and salaries, averaging \$58,000 a year. Yet at the same time, other business in the County are importing management services to the tune of almost \$33 million dollars. In addition, there are architectural and engineering firms in the County and employ 147 people paying wages that are compatible with the County-wide average. Yet, other businesses import \$15.6 million worth of architectural and engineering services. One sector that is particularly surprising is the large importation of the commodities produced by cattle ranchers and farmers. In the case of St. Croix County this is primarily dairy farming and is likely tied to the cheese industry, which the study group has already discounted. This is somewhat surprising because of the presence of a large cattle industry already within the County. Given the information reported in Table 7, the next question is who, or what industries are importing these goods and services. The third and final set of analysis to be presented and discussed focuses on answering this latter question for a handful of industries.

Table 7. Top Twenty-five Industries by Intermediate Imports

	Intermediate Imports	Jobs	Earnings per Jobs	Total Income per Jobs
Wholesale trade	\$ 91,284,676	701	\$ 46,619	\$ 86,196
Cattle ranching and farming	\$ 40,321,011	1,008	\$ 5,485	\$ 2,981
Real estate	\$ 35,463,745	731	\$ 7,603	\$ 70,683
Plastics material and resin manufacturing	\$ 34,282,185	2	\$ 25,890	\$ 54,810
Management of companies and enterprises	\$ 32,991,432	153	\$ 58,555	\$ 67,395
Lessors of nonfinancial intangible assets	\$ 26,088,793	1	\$ 36,542	\$ 2,735,489
Iron and steel mills	\$ 25,985,779	0	-0-	-0-
Petroleum refineries	\$ 21,891,262	0	-0-	-0-
Insurance carriers	\$ 21,433,310	25	\$ 27,875	\$ 36,154
Grain farming	\$ 18,237,268	462	\$ 3,046	\$ 14,105
Paperboard container manufacturing	\$ 17,042,101	0	-0-	-0-
Paper and paperboard mills	\$ 17,029,882	0	-0-	-0-
Telecommunications	\$ 16,238,346	118	\$ 30,981	\$ 77,114
Architectural and engineering services	\$ 15,649,824	147	\$ 33,797	\$ 52,203
Securities, commodity contracts, investments	\$ 14,581,543	63	\$ 16,927	\$ 20,006
Other animal food manufacturing	\$ 13,448,013	108	\$ 41,963	\$ 61,298
All other electronic component manufacturing	\$ 12,415,666	50	\$ 29,786	\$ 36,516
Nondepository credit intermediation and related a	\$ 12,100,590	69	\$ 40,990	\$ 79,872
Advertising and related services	\$ 11,452,237	175	\$ 18,087	\$ 30,222
Power generation and supply	\$ 10,582,869	25	\$ 189,371	\$ 536,308
Other basic organic chemical manufacturing	\$ 9,576,180	0	-0-	-0-
All other miscellaneous professional and technical	\$ 9,396,149	4	\$ 25,048	\$ 108,006
Management consulting services	\$ 9,224,545	76	\$ 32,050	\$ 51,762
Monetary authorities and depository credit interme	\$ 9,033,617	539	\$ 25,456	\$ 83,562
Aluminum sheet, plate, and foil manufacturing	\$ 8,904,678	0	-0-	-0-
County-wide Average			\$ 24,664	\$ 42,076

Source: IMPLAN 2001 and the University of Wisconsin

Based on the discussions of the study group, it was decided to focus on what are called business services. These tend to be professional white-collar type occupations that provide professional services to local and regional businesses. An example of this type of business is Nuclear Management Corporation, which operates six nuclear power plants in the upper Midwest and has its corporate headquarters in Hudson. The reasoning for this is fourfold. First, the study group elected to focus on jobs that offered wages and salaries of at least \$35,000 with a high likelihood of offering benefits including health insurance and retirement packages. Second, there was concern expressed over the "exposure" the County experienced during the most recent economic downturn. By focusing on the service sector, specifically business services, the risk of

such exposure would be minimized. It was decided that personal services will likely grow as a natural by-product of the growth in population and income. Third, there was an expressed interest in promoting “clean” industry that would place the minimum pressure on waste streams and risks of environmental degradation. Fourth, there was an expressed desire that the new enterprises would offer job opportunities for people with a wide range of educational backgrounds. Although business services tend to require people with either a college degree or business experience, there are a number of support-staff positions that would be open to a wider range of persons.

Given these criteria coupled with the high levels of imports into the County, six different industries were selected for further analysis: agricultural and forestry support activities; securities, commodity contracts and investment services; architectural and engineering services; management consulting services; advertising and related services; and management services. The first types of businesses may not seem to complement the criteria outlined above. This need not be the case. First, the study group was concerned that the transformation that agriculture is currently undergoing will cause an increase in the demand for custom services. Second, some among the group suggested that one way to retain open green space in the County is to work towards a stronger agricultural base. Third, there was some concern that the study group was narrowing its focus on too few types of occupational opportunities. By considering agricultural support services there would be a better mix of opportunities for residents of the County.

Let us now consider agricultural services which is a relatively modest industry in the County sales of only about \$783,000 employing 32 people and paying an average wage and salary of just over \$13,000. A location quotient of .258 suggests that the local industry is not sufficient to meet local demand and County-based industries are importing these services to the tune of almost \$8.6 million dollars. As detailed in Table 8, cattle-based farms, predominately dairy farming, is importing \$2.8 million worth of agricultural services, grain-based farmers are importing \$2.2 million and other types of crop farmers are importing \$2.6 million. If the County elects to pursue agricultural support surveys, a next step might be to interview farmers to uncover the types of services that they require and the location of the firms that are currently providing those services. It may be the case that the firms providing these services are located in near-by counties and as such may not warrant further consideration.

The next industry considered is securities, commodity contracts and investment services. This industry is present in the County and has current sales of \$3.2 million employing 63 persons paying an average wage of \$28,753 but total income of \$34,000 per job. At the national level, however, this industry has total income per job of over \$77,000 suggesting that the potential income generated by this industry is significant. The level of services in this sector that are imported into the County is over \$14 million suggesting a rather large “gap” that may warrant further investigation. The industry within the County that imports the largest level of these services is depository credit intermediaries at about \$3.5 million dollars. These are businesses that provide financial services to local banks, savings and loans and credit unions. Because these services tend to be highly specialized, it may be the case that there are large firms in the Twin Cities or even Chicago that offers these services. The ability of a local firm to compete may be questioned, but this sector may warrant further investigation. Hospitals within the County also contract out of the County to the tune of almost \$3 million dollars. Hospitals, like any other high cost enterprise, must carry large cash reserves to cover future investments as well as daily operating expenses. Because of the size of these reserves hospitals are unlikely to keep large sums of cash in a bank savings account. Rather hospitals make short- and long-term financial investments. The question facing the study group is why County hospitals are using outside firms to perform these services.

Next consider architectural and engineering services. Again, these services are available within the County and current sales are over \$10 million and employ 147 persons with an average pay of just under \$34,000 per year. Not surprisingly, construction companies are the largest purchaser of these services, but are importing \$2.4 million worth of services. But existing

Table 8. Import Substitution Candidates

Good or Service Imported	Industry Importing	Level of Import
Agriculture and forestry support activities		
	Cattle ranching and farming	\$ 2,780,228
	All other crop farming	\$ 2,610,620
	Grain farming	\$ 2,183,558
	Vegetable and melon farming	\$ 370,304
	Oilseed farming	\$ 210,220
	Greenhouse and nursery production	\$ 123,472
Securities, commodity contracts, investments		
	Monetary authorities and depository credit interme	\$ 3,534,917
	Hospitals	\$ 2,990,156
	Securities, commodity contracts, investments	\$ 739,545
	Cheese manufacturing	\$ 693,354
	Funds, trusts, and other financial vehicles	\$ 368,397
	Packaging machinery manufacturing	\$ 287,036
Architectural and engineering services		
	Commercial and institutional buildings	\$ 3,044,234
	Other new construction	\$ 1,311,871
	New residential 1-unit structures, nonfarm	\$ 1,135,829
	Other State and local government enterprises	\$ 1,005,209
	Real estate	\$ 601,491
	Plastics plumbing fixtures and all other plastics	\$ 587,487
Management consulting services		
	Hospitals	\$ 1,310,889
	Wholesale trade	\$ 760,819
	Truck transportation	\$ 381,994
	Monetary authorities and depository credit interme	\$ 373,321
	Cheese manufacturing	\$ 342,567
	Motor vehicle and parts dealers	\$ 336,171
Advertising and related services		
	Motor vehicle and parts dealers	\$ 946,524
	Food and beverage stores	\$ 835,159
	Food services and drinking places	\$ 793,097
	Wholesale trade	\$ 754,965
	Gasoline stations	\$ 691,272
	Management of companies and enterprises	\$ 454,041
Management of companies and enterprises		
	Cheese manufacturing	\$ 2,448,249
	Plastics plumbing fixtures and all other plastics	\$ 2,220,129
	Motor vehicle and parts dealers	\$ 1,764,213
	Food and beverage stores	\$ 1,556,640
	Packaging machinery manufacturing	\$ 1,414,357
	Gasoline stations	\$ 1,288,451

Source: IMPLAN 2001 and the University of Wisconsin

buildings, both privately owned as well as public buildings, are major consumers of architectural and engineering services. For example, if a public school building is experiencing problems with mold, an engineering firm may be required to study the building and offer suggestions. Again, the question is why are local construction contractors and owners of existing buildings going out of the County to contract for these services.

The next two business services business we consider, management consulting and advertising services, offer a smaller opportunity for the County from a pure import substitution because the level of imports are relatively small compared to other sectors considered. For example, management consulting importation levels is impressive at \$9.2 million, but it appears to be scattered over several sectors across the County. As reported in Table 8, hospitals is a large importer of management consulting services at \$1.3 million but the next largest is the vague category of wholesale firms with only \$760,000 followed by trucking firms at \$382,000. The question that this analysis can not answer is if the nature of these management consulting services are so specialized, that the local market is not sufficiently large to support a County-based business. Or, if the management consulting is so specialized that there are a relatively small number of firms that are in a position to offer these types of services. Advertising services also appears to have a potential market in the County, but again the total level of imported advertising services is about \$11.4 million. But there is no single industry that seems to account for the majority of this importation. Obviously, the bulk of these importing industries are in the broad area of retailing including car dealerships, grocery stores, restaurants and taverns and gasoline service stations. The question is are these ads targeting potential customers in Minnesota and specifically the Twin Cities and hence County-based businesses are using advertising firms in the Twin Cities.

The final business type that we examine is companies which manage other companies. This represents a large potential for the County as these services are imported into the County at a level of \$33 million. Companies that operate in this classification are those that provide more than management consulting services but actually are contract to manage and run customer firms. Based on the input-output model of St. Croix County there are a number of plastics manufacturing firms in the county that contract out the actual management of the company. Again, based on the model plastics firms import \$2.2 million worth of these management services. This is result is not surprising. Several business owners grow their businesses to the point that they personally may not feel comfortable managing the “business-end” of the firm or would rather focus their attention on other parts of the firm. Owners may elect to focus their energies on product development, sales, or managing the day-to-day operations of the firm. To allow them to focus they contract out the “business-end” of the company and allow the contracted company to handle billings and receipts, taxes, and personnel. Again, the question is if these services were available through local companies, would these firms be interested in contracting these local firms.

The information contained in this part of the report can appear to be overwhelming and excessively detailed. As the study group uncovered in the case of cheese production, there is the potential for significant error in the County’s input-output model. These data should be viewed as presenting an opportunity to think about the economic development opportunities for the County beyond simple industrial recruitment. There are numerous opportunities to build stronger linkages between existing businesses, document local markets for existing businesses to expand into, or use as marketing information to attract businesses into the County to satisfy local markets. If this study has raised more focused questions than it has answered, a primary objective of the study has been reached.

Future Trends

The part of the analysis focuses on future projects of current socioeconomic trends. The bulk of the analysis considered by the study group centered on major undertakings by the Wisconsin

Department of Workforce Development and Minnesota Department of Employment and Economic Development. Because those analysis are widely available and were provided to the study group, the results of those analysis will not be presented in this report. Both of these studies are available at on the web sites of each of the respective agencies.

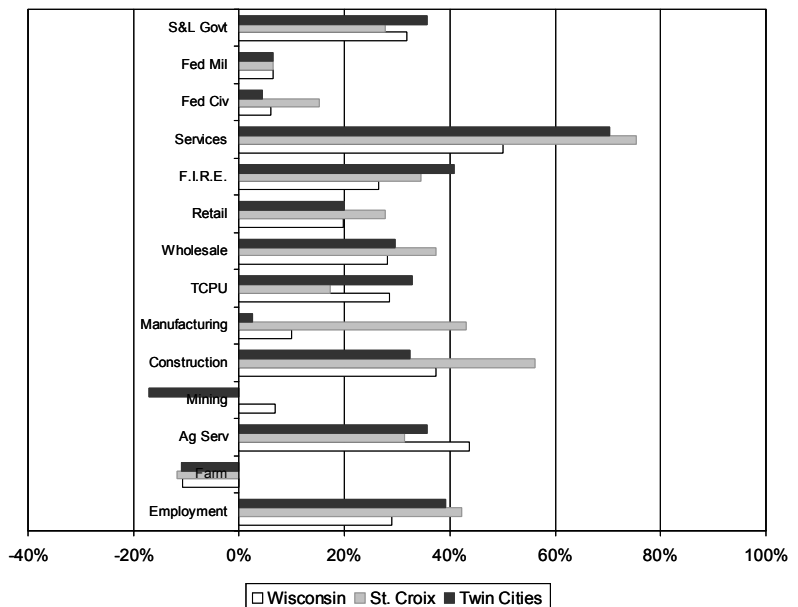
For our purposes here we will limit our discussion to long-term employment and earnings forecasts provided by Woods and Poole, Inc which is the secondary source of our historical analysis presented in the first section of this report. These forecasts are provided to the year 2025 and represent simple projections of historical trends adjusted for more detailed national forecasts. As with any economic forecast great care must be taken with their interpretation. These forecasts can not consider major changes in economic policy such as international trade policy or fiscal policies (e.g., tax policy). Nor do these forecasts consider natural changes in the business cycle. Rather these simple forecasts look at past trends and project them into the future. The forecasts are intended as a mechanism to foster discussion.

Consider simple employment growth for St. Croix County, Wisconsin and the Twin Cities metropolitan area (Figure 22). For the County total employment is expect to grow by 42 percent over the 25 year forecast period which is slightly faster than the Twin Cities which is expected to grow by 39 percent and significantly faster than Wisconsin which is expected to see employment grow by 29 percent. The reason for this is partially reflective of the rapid growth the County experienced over the 1990s. In addition, as metropolitan areas grow, it is generally the case that the largest share of that growth occurs at the spatial fringes of the metropolitan area. In the planning field this is sometimes referred to as “sprawl” it is a product of a growing economy in a spatial context. Land costs in the urban hub couple with what economists call negative externalities (e.g., congestion, crime, etc.) as well as positive externalities (e.g., rural settings) drives growth to the fringes of the metropolitan area. The County is already experiencing this phenomena and is the root cause of the rapid growth through the 1990s.

In terms of specific sectors, the broad category of services (business and personal services) is expected to experiencing the fastest growth. For the County the services sector is expected to grow by 75 percent which is again slightly faster than the Twin Cities (70%) and Wisconsin (50%). This is a direct result of the strong growth in the services sector over the past 30 years. The economics behind this growth is reflective of the growth in income that the U.S. is experiencing. As we as a society become wealthier, a larger share of income is spent on services. A family can own only so many refrigerators, washing machines, cars and televisions. More income is available for the purchase of services. This is perhaps most evident in the growth of the recreation industry in the U.S.

Another sector that is expected to see significant growth is the construction industry, which is again reflective of population growth. Retail growth is also expected but at a much slower rate, where job growth in the County is expected to be about 28 percent which is again faster than either the Twin

Figure 22. Employment Growth Rates: 2001-2025



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

Cities (20%) or Wisconsin (19%). The public sector is also expected to grow, such as public education, which is a natural by-product of population growth. More people in the County means increased needs for more teachers, police officers, fire fighters, and members of the public works departments.

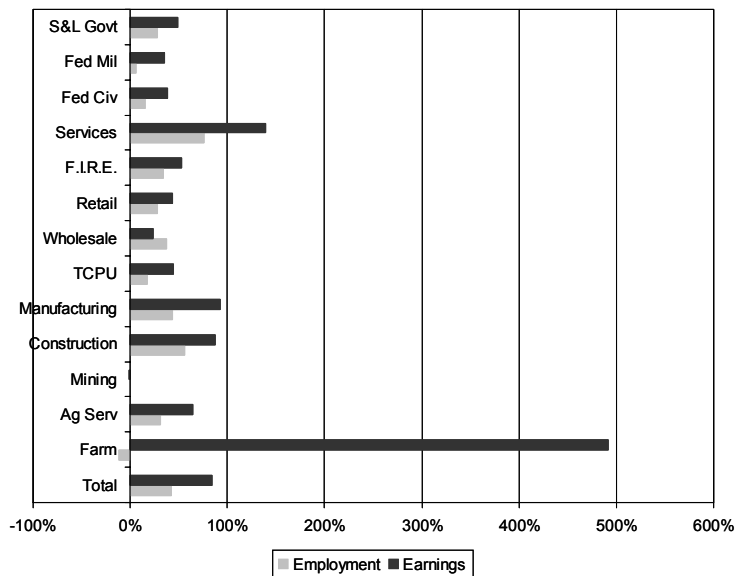
Two sectors that warrant discussion are manufacturing and farming. As discussed above in detail, the manufacturing sector is not expected to be a growth sector for the U.S., nor is it expected to be a growth sector for the Twin Cities. Indeed, the detailed study undertaken by the Minnesota department of Employment and Economic Development expects manufacturing employment to be stagnating for the next ten years. Nor is manufacturing expected to be much of a growth sector for Wisconsin where employment is expected to increase by only ten percent. The County, however, is expected to experience continued strong growth. This is simply a by-product of the strong growth in manufacturing the County has experienced over the past 15 years.

Farming is also not expected to see growth and indeed, it is expected that the number of jobs in farming is expected to decline over the next 25 years. This is not surprising what has been happening in agriculture over the past 50 years. Also, given the population growth in the County there will be strong incentives for farmers to sell their land for development. However, there is evidence of strong growth in agricultural services. One of the transitions that is occurring in agriculture is that as farms grow in individual size, farmers are contracting out for custom work. For example, as dairy farmers become bigger there is an increase demand for technical services for maintenance of more complex milking equipment. As crop farmers become bigger there is a greater tendency to hire customer work such as harvesting. This trend complements the import substitution analysis presented in the previous section.

A second interesting trend related to agriculture is the expected strong growth in earnings attributable to farming (Figure 22). Two factors are at play here. First, as farms consolidate and become bigger there is strong pressure to hire workers to help in the operation of the farm. Because these workers will tend to be paid an hourly wage or a salary, the level of earnings is expected to grow rapidly. Second, there is an ongoing filtering process that is weeding out farms that are marginally profitable. In the Corn Belt of the U.S. much of this filtering has already occurred and the remaining farmers tend to be more profitable and able to pay farmers and workers higher wages. This weeding out is now occurring in Wisconsin, particularly in the dairy industry.

The intent of examining these long-term forecasts is to provide some additional light on the growth sectors of the County's economy. Other than the result for agriculture, there are no real surprises presented. Instead, these forecasts are intended to provide the study group with additional insights into which sectors of the economy have the greatest potential for growth. It was partially the result of these discussions that the study group elected

Figure 23. Employment and Earnings Growth for St. Croix County: 2001-2025



Source: Woods and Poole, Inc and the Department of Agricultural and Applied Economics, UW-Madison/Extension

to focus attention on business services within the County.

Economic Development Strategies

As outlined in Shaffer, Deller and Marcouiller (2004)⁶ there are at least seven ways that an economist would look at the economic choices that affect the economic viability of an area. There are two broad approaches to community economic development. The first is to increase the flow of dollars into the community. This would emphasize the promotion of those sectors with large exports and/or large location quotients. The second is to increase the re-circulation of dollars within the community. From our discussion above, this would be focusing on import substitutions, or building stronger linkages between existing businesses or establishing new businesses to “plug gaps”. There are really two ways. The first is to increase the amount of resources available. The second is to use resources differently, including new uses. When examining rules the idea is to change or re-interpret the rules to an advantage for your community. In terms of decision-making essentially all one needs to do is act smarter. And finally, just get lucky. The community could encourage a stronger entrepreneurial spirit within the community, both in terms of businesses but also attitudes towards policy experimentation. Now let's turn to these in more detail and outline some examples of specific actions the community can undertake.

Increasing the flow of dollars into the community means that the community is essentially injecting new money into the local economy by attracting new basic employers; by existing basic employers increasing their sales outside the community; by the community increasing its visitors; or by the community increasing its inter-governmental aids. In each case the community is bringing more money into the community. But this broad approach is only part of the answer. People and businesses must have some place to spend the money. Either they spend it locally or elsewhere. Too often communities think all they have to do is attract a basic employer, such as a manufacturing plant, and all the economic woes of the community are solved. Examples of specific activities a community can undertake to increase the inflow of dollars include:

1. Develop local industrial sites, public services, and potential employee information.
2. Develop community and regional facilities necessary to attract new employers.
 - a. Transportation (e.g., airports, railways, highways)
 - b. Recreational facilities (e.g., parks, hunting grounds, restaurants, hotels, convention centers)
 - c. Communications (e.g., newspaper, telephone)
 - d. Business Services (e.g., banking, computers, legal assistance, accounting)
3. Expand purchases by nonlocal people (e.g., tourists, neighboring citizens) through appropriate advertising and promotions.
4. Ensure that key public services (e.g., fire and police, water and sewer, general administration) are more than satisfactory.
5. Recognizing the important role of transfers such as retirement benefits, and unemployment compensation as a flow of funds into the community.

Increasing the re-circulation of dollars in the community means that the community is plugging leakages of money out of the local community's economy. In other words, the community is actively seeking ways to get people and businesses to spend more locally. It could be altering store hours, encouraging new or different store types, physically renovating down towns or even talking to businesses about buying inputs locally rather than from non-local

⁶ Ron Shaffer, Steven Deller and Dave Marcouiller. (2004). *Community Economics: Linking Theory and Practice*. Blackwell Press: Ames, IA.

sources. The end result is that dollars re-circulate at least one more time locally. The community could:

1. Identify market potential of retail outlets through surveys of consumer needs and buying habits.
2. Improve share of retail market captured through downtown analysis and renewal through:
 - a. Use of consumer and merchant surveys
 - b. Providing convenient parking or public transit
 - c. Reviewing store hours and merchandising
3. Aid businesses in developing employee-training programs to improve quality of service.
4. Through information programs, encourage local citizens and businesses to buy locally.
5. Encourage collective action through the formation of organizations such as Chamber of Commerce or Merchants Association.

Increasing the amount of resources available simply means that the community has increased the amount of labor and capital, including both public and social capital, available for producing output. This could be local financial institutions making more loans available locally, or an outside business making a local investment, forming a credit union, or establishing a local branch of a community college. It could be people moving or commuting into the community, or working more hours. This can be done by:

1. Organizing community capital resources to assist new business formation or to assist in attracting new business
 - a. Encourage investment of private funds locally through formation of capital groups.
 - b. Encourage the use of secondary capital markets and public financing programs.
 - c. Encourage the use of industrial revenue bonding, bank loans.
2. Organize training programs for youth, in-migrants, and resident population.
3. Encourage population in-migration.
4. Provide the same services to start-up businesses as provided to businesses being sought from outside the community.
5. Create an encouraging community attitude towards entrepreneurship.

Using existing resources differently generally means that you have applied new technologies. You have found new ways to combine existing capital and labor to produce greater output per worker. It could also mean that you have used existing capital and labor to produce a new good or service that previously had not been produced locally. It could also mean that you have now have local jobs for workers who previously commuted out for work. Or it could mean that workers have received training and are now able to do different tasks than before. Examples of specific community actions are:

1. Strengthen management capacities of existing firms through educational programs (e.g., personnel, finance, organization).
2. Encourage business growth through identification of equity and loan capital sources.
3. Develop training programs for workers using new and different technology.
4. Increase knowledge of new technology through educational programs in science and engineering.
5. Aid employers in improving work force quality through educational programs, employment counseling, and social services (e.g., day care, health services).
6. Develop community and regional facilities that improve local business efficiency and access to nonlocal markets (e.g., transportation, services, communications).

Changing the rules means that the community seeks a change in rules that would benefit the community or seeks a change in interpretation of rules. For example, a land use plan might encourage further development on some land by ensuring that incompatible uses do not occur next door. On the other hand changes into some land use regulation can impose major costs on some firms. Or maybe the community gets the state to re-interpret eligibility rules on some type of manpower training fund. Thus making some community residents eligible. Remember that rules are societal constraints that govern how we either use resources or exploit markets. These activities include:

1. Ensuring correct use of public assistance programs for the elderly, handicapped, and others who cannot work.
3. Supporting political activities to ensure fair treatment of community concerns by broader governmental units.
4. Review how retirees and handicapped people might find services, access, housing, volunteer organizations, and community attitudes.
5. Minimize contradictory regulations and regulatory barriers, including uncertainty.

Acting smarter translates into how the community goes about making decisions and sets up and implements strategies. Does it involve a broad spectrum of interests or just a select few? Does the community really get at the problems or treat just symptoms? Does the community integrate sound analysis with community perspectives and desires? This is what it means when a community is acting smarter, almost in an entrepreneurial manner.

1. Identify market potential for new retail, wholesale, and input-providing businesses.
2. Organize to provide individual counsel and intensive education for those interested in forming a new business.
3. Utilizing aids from broader government whenever possible (e.g., streets, parks, lake improvements, emergency employment) through active monitoring and support of the activities of local officials.
3. Identify specific public programs, projects, offices, and/or services that could be located in the community and organize politically to secure them.
4. Encourage collective action through formation of organizations such as economic/industrial development corporations.
5. Ensure that quality and access and appropriateness of local school systems, including vocational-technical.
6. Identify through research the most desired type of basic employer with greatest potential.
7. Organize business-networking forums.
8. Sponsor business appreciation events.
9. Create organizations (including high school programs) to stimulate entrepreneurial thinking and action.

Getting lucky may seem like an unusual item, but think about it for a second. A small rural community could be located within the commuting shed of a growing metro area or fifty years ago could have been the birthplace of a budding entrepreneur. While we like to think more than luck is involved, and it is, it also explains a lot of current economic activity. A community could:

1. Examine old high school yearbooks for previous graduates who might like to return to the community.
2. Promote to outside visitors locally available natural resources and amenities.
3. Design vacant residential sites for development.

One will notice that there is significant overlap in many of the specific strategies offered. The important thing to remember is to be comprehensive in your approach to community economic development. It is also important to note that these strategies range from the simplistic to the

complex. Many communities may find that pursuing a collection of simple projects to “get started” helps build social capital within the community. Short-term successes with simple projects can help build a foundation for more comprehensive and complex long-term strategies.

Most important, however, is the realization that there is no “magic bullet” that a community can use to promote sustainable economic development and growth. Effective policies involve a balanced approach of short- and long-term efforts that include complex strategies as well as simpler strategies.

Conclusions

The County has been experiencing significant economic growth over the past 20 plus years with rapid growth throughout the 1990s. The recent economic recession, however, hit the County unexpectedly hard. A labor market went from what was widely described as “tight” with firms having a hard time finding qualified workers, to a period of much higher unemployment that is unfortunately trending upward (Figure 1). As a result, a group of concerned citizens, elected public officials and professional staff thought the timing was right for a revisiting of economic development strategies for the County. The intent of this study has been to provide a mechanism to focus those discussions and shed light on alternative economic development strategies.

In this study we reviewed three decades of economic employment and income data. We also made use of an input-output model of the County’s economy to identify potential opportunities for targeted economic development efforts. As a result of these discussions, the study group has elected to focus its energies on three goals as listed below. Each of the goals has a specific action plan that is described beneath the goal.

Goal 1: Increase coordination of economic development programs St. Croix County.

- **Action Plan 1:** Initially seek to increase joint marketing among existing business through the development of a quarterly magazine to promote St. Croix County for businesses that have average wages more than \$35,000 per year and that have a fringe benefit package. Expand coordination efforts to include areas not within business parks. Seek to coordinate promotional efforts with emerging 10-County economic development marketing group. Establish a networking forum for the coordinators of the industrial and business parks within the County. Leadership: Bill Rubin, Jerry Brown

Goal 2: Foster “home grown” businesses in the business services and high tech sectors.

- **Action Plan 2:** Encourage and motivate entrepreneurship through the publication of success stories in local newspapers. Develop initial agreement from newspaper editors and identify a list of potential entrepreneurs to interview. Publicize entrepreneurial assistance programs. Better market the business opportunities within the County. Leadership: Buck Malick and Jim Janke

Goal 3: Identify opportunities for business services sector development with existing businesses

- **Action Plan 3:** Develop a survey of current businesses to identify current suppliers of business services and assess potential interest in utilizing local suppliers. Seek assistance from the Economic Research Center at UW-River Falls for implementation. Identify potential opportunities for additional business networking. Leadership: Barbara Nemecek, Jack Breault, Sue Lohmeier.

The groups working on the action plans agreed to provide progress reports via email within one month to the study committee.

Appendix: Basics of Input-Output Modeling

A simple non-technical discussion of the formulation of input-output (IO) modeling is presented in this section. Similar descriptive treatments are readily available, including Shaffer, Deller and Marcouiller (2004) while more advanced discussions of input-output include Miernyk (1965), and Miller and Blair (1985). As a descriptive tool, IO analysis represents a method for expressing the economy as a series of accounting transactions within and between the producing and consuming sectors. As an analytical tool, IO analysis expresses the economy as an interaction between the supply and demand for commodities. Given these interpretations, the IO model may be used to assess the impacts of alternative scenarios on the region's economy.

Transactions Table

A central concept of IO modeling is the interrelationship between the producing sectors of the region (e.g., manufacturing firms), the consuming sectors (e.g., households) and the rest of the world (i.e., regional imports and exports).⁷ The simplest way to express this interaction is a regional *transactions table* (Table 1). The transactions table shows the flows of all goods and services produced (or purchased) by sectors in the region. The key to understanding this table is realizing that one firm's purchases are another firm's sales and that producing more of one output requires the production or purchase of more of the inputs needed to produce that product.

The transactions table may be read from two perspectives. Reading down a column gives the purchases by the sector named at the top of the column from each of the sectors named at the left. Reading across a row gives the sales of the sector named at the left of the row to those named at the top. In the illustrative transaction table for a fictitious regional economy (Table 1), reading down the first column shows that the agricultural firms *buy* \$10 worth of their inputs from other agricultural firms. The sector also buys \$4 worth of inputs from manufacturing firms and \$6 worth from the service industry. Note that agricultural firms also made purchases from non-processing sectors of the economy, such as the household sector (\$16) and imports from other regions (\$14).⁸ Purchases from the household sector represent value added, or income to people in the form of wages and investment returns. In this example, agricultural firms purchased a total of \$50 worth of inputs.

Reading across the first row shows that agriculture *sold* \$10 worth of its output to agriculture, \$6 worth to manufacturing, \$2 worth to the service sector. The remaining \$32 worth of agricultural output was sold to households or exported out of the region. In this case \$20 worth of agricultural output was sold to households within the region and the remaining \$12 was sold to firms or households outside the region. In the terminology of IO modeling, \$18 ($=\$10+\$6+\2) worth of agricultural output was sold for intermediate consumption, and the remaining \$32 ($=\$20+\12) worth was sold to *final demand*. Note that the transactions table is balanced: total agricultural output (the sum of the row) is exactly equal to agricultural purchases (the sum of the column). In an economic sense, total outlays (column sum, \$50) equal total income (row sum, \$50), or supply exactly equals supply. This is true for each sector.

⁷ A "region" is defined here as a functioning economic area. This could be as large as multiple states such as the Great Lakes states or as small as a specific county. For this study we are interested in the region defined as Wisconsin.

⁸ Note that government has not been entered into the table. If government were to be introduced, payments would be in the form of taxes.

Table 1. Illustrative Transactions Table						
Processing Sectors (Sellers)	Purchasing Sectors (Demand)			Final Demand		Output
	Agr	Mfg	Serv	HH	Exports	
Agr	10	6	2	20	12	50
Mfg	4	4	3	24	14	49
Serv	6	2	1	34	10	53
HH	16	25	38	1	52	132
Imports	14	12	9	53	0	88
Inputs	50	49	53	132	88	372

The transactions table is important because it provides a comprehensive picture of the region's economy. Not only does it show the total output of each sector, but it also shows the interdependencies between sectors. It also indicates the sectors from which the region's residents earn income as well as the degree of openness of the region through imports and exports. In this example households' total income, or value added for the region is \$132 (note total household income equals total household expenditure), and total regional imports is \$88 (note regional imports equals regional exports). More open economies will have a larger percentage of total expenditures devoted to imports. As discussed below, the "openness" of the economy has a direct and important impact on the size of economic multipliers. Specifically, more open economies have a greater share of purchases, both intermediate and final consumption purchases, taking the form of imports. As new dollars are introduced (injected from exports) into the economy they leave the economy more rapidly through leakages (imports).

Direct Requirements Table

Important production relationships in the regional economy can be further examined if the patterns of expenditures made by a sector are stated in terms of proportions. Specifically, the proportions of all inputs needed to produce one dollar of output in a given sector can be used to identify linear production relationships. This is accomplished by dividing the dollar value of inputs purchased from each sector by total expenditures. Or, each transaction in a column is divided by the column sum. The resulting table is called the *direct requirements table* (Table 2).

The direct requirements table, as opposed to the transactions table, can only be read down each column. Each cell represents the dollar amount of inputs required from the industry named at the left to produce one dollar's worth of output from the sector named at the top. Each column essentially represents a 'production recipe' for a dollar's worth of output. Given this latter interpretation, the upper part of the table (above households) is often referred to as the matrix of technical coefficients. In this example, for every dollar of sales by the agricultural sector, 20 cents worth of additional output from itself, 8 cents of output from manufacturing, 12 cents of output from services, and 32 cents from households will be required.

Processing Sectors (Sellers)	Purchasing Sectors (Demand)		
	Agr	Mfg	Serv
Agr	0.20	0.12	0.04
Mfg	0.08	0.08	0.06
Serv	0.12	0.04	0.02
HH	0.32	0.51	0.72
Imports	0.28	0.24	0.17
Inputs	1.00	1.00	1.00

In the example region, an additional dollar of output by the agricultural sector requires firms in agriculture to purchase a total of 40 cents from other firms located in the region. If a product or service required in the production process is not available from within the region, the product must be imported. In the agricultural sector, 28 cents worth of inputs are imported for each dollar of output. It is important to note that in IO analysis, this production formula, or technology (the column of direct requirement coefficients), is assumed to be constant and the same for all establishments within a sector regardless of input prices or production levels.

Assuming the direct requirements table also represents spending patterns necessary for additional production, the effects of a change in final demand of the output on the other of sectors can be predicted. For example, assume that export demand for the region's agricultural products increases by \$100,000. From Table 2, it can be seen that any new final demand for agriculture will require purchases from the other sectors in the economy. The amounts shown in the first column are multiplied by the change in final demand to give the following figures: \$20,000 from agriculture, \$8,000 from manufacturing, and \$12,000 from services. These are called the *direct effects* and, in this example, they amount to a total impact on the economy of \$140,000 (the initial change [\$100,000] plus the total direct effects [\$40,000]). For many studies of economic impact the direct and initial effects are treated as the same although there are subtle differences.

The strength of input-output modeling is that it does not stop at this point, but also measures the indirect effects of an increase in agricultural exports. In this example, the agricultural sector increased purchases of manufactured goods by \$8,000. To supply agriculture's new need for manufacturing products, the manufacturing sector must increase production. To accomplish this, manufacturing firms must purchase additional inputs from the other regional sectors.

Continuing our \$100,000 increase in export demand for a region's agricultural products, for every dollar increase in output, manufacturing must purchase an additional 12 cents of agricultural goods ($\$8,000 \times .12 = \960), 8 cents from itself ($\$8,000 \times .08 = \640), and 4 cents from the service sector ($\$8,000 \times .04 = \320). Thus, the impact on the economy from an increase in agricultural exports will be more than the \$140,000 identified previously. The total impact will be \$140,000 plus the indirect effect on manufacturing totaling \$1,920 ($\$960 + \$640 + \320), or \$141,920. A similar process examining the service sector increases the total impact yet again by \$1,440 ($[\$12,000 \times .04] + [\$12,000 \times .06] + [\$12,000 \times .02] = \$1,440$).

The cycle does not stop, however, after only two rounds of impacts. To supply the manufacturing sectors with the newly required inputs, agriculture must increase output again, leading to an increase in manufacturing and service sector outputs. This process continues until the additional increases drop to an insignificant amount. The total impact on the regional economy, then, is the sum of a series of direct and indirect impacts. Fortunately, the sum of these direct and indirect effects can be more efficiently calculated by mathematical methods. The methodology was

developed by the Noble winning economist Wassily Leontief and is easily accomplished in computerized models.

Total Requirements Table

Typically, the result of the direct and indirect effects is presented as a *total requirements table*, or the Leontief inverse table (Table 3). Each cell in Table 3 indicates the dollar value of output from the sector named at the left that will be required *in total* (i.e., direct plus indirect) for a one dollar increase in final demand for the output from the sector named at the top of the column. For example, the element in the first row of the first column indicates the total dollar increase in output of agricultural production that results from a \$1 increase in final demand for agricultural products is \$1.28. Here the agricultural multiplier is 1.28: for every dollar of direct agricultural sales there will be an additional 28 cents of economic activity as measured by industry sales.

An additional, useful interpretation of the transactions table, as well as the direct requirements and total requirements tables, is the measure of economic linkages within the economy. For example, the element in the second row of the first column indicates the total increase in manufacturing output due to a dollar increase in the demand for agricultural products is 12 cents. This allows the analyst to not only estimate the total economic impact but also provide insights into which sectors will be impacted and to what level.

Highly linked regional economies tend to be more self-sufficient in production and rely less on outside sources for inputs. More open economies, however, are often faced with the requirement of importing production inputs into the region. The degree of openness can be obtained from the direct requirements table (Table 2) by reading across the imports row.⁹ The higher these proportions are the more open the economy. By definition, as imports increase the values of the direct requirement coefficients will decline. It follows then that the values making up the total requirements table, or the multipliers, will be smaller. In other words, more open economies have smaller multipliers due to larger imports. The degree of linkage can be obtained by analyzing the values of the off- diagonal elements (those elements in the table with a value of less than one) in the total requirements table. Generally, larger values indicate a tightly linked economy, whereas smaller values indicate a looser or more open economy.

Processing Sectors (Sellers)	Purchasing Sectors (Demand)		
	Agr	Mfg	Serv
Agr	1.28	0.17	0.06
Mfg	0.12	1.11	0.07
Serv	0.16	0.07	1.03
Total	1.56	1.35	1.16

⁹ As described above, the openness of the economy can also be discussed in terms of leakages; greater leakages translate into a more open economy.