



IOWA STATE UNIVERSITY



Targeting Industrial Growth in Southern Iowa

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Research and technical assistance services provided by
Iowa State University Extension Services:
Center for Industrial Research and Service
Department of Economics
Colleges of Engineering and Business
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Economic Development Administration Statement:

The Center for Industrial Research and Services is supported by the Economic Development Administration (EDA), U.S. Department of Commerce, through its University Centers Program.

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Targeting Industrial Growth Opportunities in South Iowa

I. Industrial Targeting Analytic Approach

Section Objectives:

- *Explain industrial targeting terminology, including “industrial linkages” and “industrial clusters.”*
- *Identify economic advantages and disadvantages of industry clusters.*
- *Compare and contrast different approaches to targeted industrial assessment.*
- *Outline broad scope of responsibilities of analysts and local officials.*

Overview

- Relationships between firms or industries may be characterized as horizontal or vertical linkages. Horizontal linkages occur across similar firms producing similar products. Vertical linkages occur between firms or industries along different stages of production and distribution of a product.
- When linked firm exist in some meaningful proximity to one another, they constitute a proximal “cluster.”
- Improving the extent of linkages among firms in a region can often result in efficiency gains and other beneficial economic outcomes. However, an absence of diversity may leave a region vulnerable to economic cycles.
- Targeted industrial assessment seeks to identify industries either important to or desired for the region. This research uses a hybrid approach in the industry identification process.

Introduction

This is an applied research and technical assistance project for the South Iowa region. The objective of the research is to assist the region to identify its industrial strengths, to clarify its potential for job growth, and to help educate economic development officials about their economic and social foundations.

We employ what we call an “industrial targeting” approach to this research. This involves isolating, using standard economics criteria, industries in the region that stand out from the state and the nation – areas where the region appears to have

a clear competitive advantage. This research is supplemented by additional data that helps us to understand characteristics of the region's industrial structure to include firm size, average earnings, the amount of sales that are generated in different sectors, and the overall worth of the firms to the regional economy.

Taken as a whole, industries are important to a region for a variety of reasons to include their job potential, the incomes that are generated, their importance to communities and collections of communities, and their importance to other industries. Industries are not only important to workers and communities, they are important to each other. We measure this importance by tracking the flow of inputs into different sectors of the economy and measuring just how interdependent industries are with one another. Accordingly, we use statistical means to isolate regional industrial linkages and the degree to which there may be meaningful and sustainable industrial clusters in a region. This section outlines the major terminology used for this research and the approach to studying the region that we employ.

What Do We Mean by Industrial Linkages and Industrial Clusters?

Linkages

There are two types of industrial organizations pertinent to this research: those with *horizontal* relationships and *vertical* relationships. These relationships are also called *linkages*. Horizontal linkages occur when similar firms producing similar products rely on shared input sources. These kinds of firms have access to highly efficient and common suppliers, skilled labor pools, and may even benefit from public infrastructure designed specifically for their industrial group. These kinds of firms may also collectively, develop product ideas, promote their products collectively, and cooperatively organize to influence laws and regulations (lobbying). Good examples might include computer software and advanced information technology sectors in, for example, Seattle or the Silicone Valley region of California. Central Iowa's extensive insurance industry is another good example

Vertical linkages exist when we find evidence of significant relationships along different lines of production. In Iowa, for example, there may be a very rich vertical relationship from crop production, to animal production, to meat slaughtering, to specialized processing. These kinds of relationships imply a rich "multiplier" effect to the extent that the multiplier reflects the value of successive processing that may occur in a region.

These two types of configurations are not mutually exclusive. Horizontally-linked firms certainly may and most likely will have rich and significant linkages to sets of suppliers in their region. Vertically-linked firms, on the other hand, can very well exist in the absence of any significant horizontal relationships, especially in more rural areas. It is therefore important for the analysts to thoroughly research the potential for or the value of supplying relationships (linkages) in a study region so that the reader understands whether there are meaningful multiplier effects to be considered or whether there are other, non-multiplier effects at work in an economy.

Clusters and Agglomerations

There is also a geographic component to industrial analysis. When like industries (those horizontally configured) or inter-related firms (vertically configured) exist in some meaningful proximity to one another, they constitute a proximal “cluster.” Some industrial location research incorporates spatial statistics of actual firm locations to determine whether there are, in fact, significant geographic correlations in evidence in a region. This research will not look at firm specific locations; instead, it looks at the presence, size, and comparative competitiveness of industries in the region. At the outset this region contains an agri-business and value added processing concentration. The research will look to see if there are other potential configurations of sufficient size and inter-relationships to constitute clear industrial clusters.

Economic Advantages and Disadvantages of Clusters

There are both advantages and disadvantages to the existence of clusters in a region.

As advantages,

- Clusters are part of what are often termed “localization” economies or localization agglomerations. These economies accumulate because firms are able to tap into more specialized (and efficient) suppliers of inputs and producer services, and the firms are able to access an adequate pool of specialized and skilled workers.
- Significant industrial clusters may be more responsive to demands for re-organization, re-investment, and related industrial spin-offs as a consequence to their proximity to each other, because of their pool of both

specialized suppliers and labor in the region, and the need to remain not just globally but regionally competitive with one another.

- Clusters maximize the opportunity for inter-firm and intra-industry communication, cooperation, and coordination regarding their collective capacities to identify markets, share and disseminate expert industrial knowledge, and otherwise operate beneficial formal and informal networks.
- Last, clusters have the potential for larger localized economic impacts than industries that pop up where there are no clusters in evidence. The existence of linked, affiliated or supplier firms in a region and the ability of those firms to concomitantly grow with, adapt to, or gear up to supply necessary inputs into new firms implies a greater regional multiplier effect. A multiplier is simply a ratio that expresses the relationships of one kind of firm in an economy to other businesses. The higher the multiplier, the greater the linkages, the greater the value of a firm's growth (or decline) to the local economy.

As a disadvantage,

- The presence of locational clusters can be disadvantageous to an area. A notable national example is the entire textiles industry. This industry has been significantly concentrated in the Middle Atlantic and Southern states. Over just the past 10 years, the nation's textile industries have lost 570,000 jobs. Those manufacturing job losses are highly localized among urban areas and result in significant multiplied-through losses in fabric mills, accessory manufacturers, cut and sew apparel makers, fiber and yarn mills, and thread manufacturers. The advantageous multipliers of growth are highly disadvantageous to regional economies during declines. Of late, the fortunes of U.S. automakers will also demonstrate the downside of clusters, as well. As Ford and GM re-size and down-size over the next few years, industries that existed solely to supply them with parts and engineering inputs will necessarily downsize as well. The multiplier effect works in reverse, too.

Targeted Industrial Analysis and Economic Development Programming

Regional economic development planning organizations increasingly rely on industrial analysis techniques designed to "target" potential and desirable

industrial recruitment opportunities. Using research to limit the field of candidate industries, these methods aid the efficient use of public and private economic development resources.

There are several general approaches to this type of analysis, all of which are designed to yield a manageable set of desirable industries for development activities.

Top-Down Targeted Industry Approaches: Relying on an established list of “desired” industries, a region’s industrial portfolio may be assessed to ascertain how closely it aligns with the list. This research is typically used to gauge an area’s overall economic strengths and alignment with a set of overarching growth goals for a regional or a statewide economy, thus its characterization as a “top-down” approach. For example, the state of Iowa, relying on research conducted over many years, has determined three major categories of desired growth are compatible with its existing industrial strengths, represent possible emerging industrial growth opportunities, or will otherwise beneficially diversify the state’s economy. These industries, and there are hundreds of them, are organized into three main groups to include life sciences industries, advanced manufacturing, and information solutions.

Pre-defined Clusters: Analysts may also assess a region’s industrial structure to detect the presence of industries that align with specific, nationally pre-defined industrial groupings. These groupings are now also commonly called industrial clusters. Following the “birds of a feather” maxim, the presence of an industry fitting into a proto-typical cluster might suggest a local competitive advantage in attracting other firms or industries in that cluster grouping. However, identifying cluster potentials based on national industrial criteria may contribute very little information to a region about its own, unique industrial structure and relationships, its intrinsic strengths and weaknesses, nor how the interplay of those factors shape its overall attractiveness to different types of industrial prospects. The applicability of this approach to the needs of most rural regions is highly questionable, yet still remains popular in some circles.

Hybrid Industrial Cluster/Agglomeration Analysis: This approach begins with the assumption that if a region demonstrates a competitive advantage (or sets of competitive advantages), there will be significant agglomerative

benefits in evidence. Such evidence might include shared, specialized providers of inputs and labor, other external scale economies, or other similarities in significant supplier or customer characteristics. This kind of analysis fits within the generic rubric of “cluster” industrial assessment; however, distinct from the version mentioned above, analysts rely on actual, local industrial configurations to identify potential clusters of industrial activity, not pre-identified national configurations. This approach may be used to identify a region’s historical competitive strengths and to assess how well its economy aligns with dominant national industrial trends. For example, a region with significant concentrations of capacity in an industry declining nationally may find itself deciding between working to enhance and complement this existing strength or diversify industrial recruitment into unrelated but still desired categories.

Targeted Industrial Analysis Combined with Local Goal Setting: Planners might also consider, based on both internal and external research and intrinsic, expert-based knowledge of their region, sets of their own industrial targets or industrial recruitment goals as well as an assessment of existing, potential industrial clusters, opportunities for cluster industry enhancement, and a realistic assessment of their region’s capacity to attract specific types of growth.

This blended approach relies heavily on local or regional economic development goal setting, a thorough assessment of an area’s social, demographic, and economic structure, and the opportunity to work iteratively over a period time with analysts, industry leaders, community decision makers, and state and federal agencies. This approach has top-down characteristics in that the methods chosen for analysis will determine industries warranting additional scrutiny. The approach has bottom-up characteristics in that it is not the analyst’s job to choose which industries the region wishes to study further or, ultimately, target for recruitment. This is the model employed in this study.

Cautions on Targeted Industrial Development Strategies

- This entire process pits local leaders and economic development planners against the entire regional, national, and global economies and puts them in the position of sorting out industrial winners from losers. It’s asking them to be smarter than they can possibly be. The consequences, on the

margins, can be great for choosing poorly. While, for example, people in northwest Iowa still bemoan the lost opportunity when Gateway Computers abandoned its Iowa base near Sioux City and relocated to North Sioux City, South Dakota, the fact remains that the computer industry has tremendously transformed itself over the past decade or so. Even though the nation added more than 130,000 jobs in semiconductor and electronic component manufacturing between 1993 and 1998, it turned around and lost 188,000 of these jobs between 1998 and 2003. Five years of relatively robust growth were followed by five years of stark decline. Industrial development officials at the state and local levels that cut multi-year deals with these kinds of firms found themselves increasingly holding the bag, rhetorically and fiscally, for something that was once quite promising that is now bust. Another regional example is the Mitsubishi Motors situation in Bloomington, Illinois, which is now, after not very long in existence, significantly downsizing. Last year's economic development hero can be this year's economic development goat.

- **Fads.** The term industrial clustering is bandied about so much that it has a muddled meaning for many. There are other categories of industrial change occurring continuously that may or may not have an impact on local production, local capacity, or local growth. It is difficult for most planners and elected leaders to sort out fad and faddishness from fact. A case in point: Iowa aggressively promotes its potential in biotechnology, especially as they relate to the state's existing cash crops. It is not surprising that at least 49 other states also list biotechnology industries among their top industrial recruitment prospects. It is implied that, because Iowa is heavily and valuably farmed, it has an obvious advantage in this area. It can also be implied that such a heavily and valuably farmed region can be placed at risk if rules and safeguards are not put in place to protect traditional agriculture from emerging agriculture and non-agricultural uses of farm commodities. In short, the entire biotechnology category of industrial growth potential is substantively lacking regarding product definition, market growth, producer and community risks, and global acceptance of future products and processes. Sorting fad from fact, growth opportunity from risky venture, and isolating the appropriate investment levels of public infrastructure and resources requires insights into the future that most local officials, nor anyone else, could possibly possess.

- The whole targeted industry process has risks. Statistical measures are applied to assist decision makers and to provide guidance. But statistical measures in and of themselves must be tempered by both expert perspective on the parts of analysts, assessments of recent trends and transformations in the economy, and the considered local expertise that development officials possess. If the two dimensions are not able to communicate clearly, industrial targeting research and programming can be an exercise in futility.
- In addition, expectations for both job and income growth and regional change must be made explicit and be based on realistic data. There is often a large difference between the rhetoric of growth (declared new jobs, retained jobs, etc., and regional multipliers) and actual quantified growth. Iowa's local governments are easily dedicating in excess of \$250 million annually towards economic development as investment in urban revitalization, infrastructure or development site investments, or more and more commonly as simple tax abatements in support of industrial growth. The state of Iowa of late has dedicated hundreds of millions more. The relationship between direct state and local investment in economic development and the likely beneficial outcomes to the entire Iowa economy are very poorly demonstrated. In short, in an era where governments must increasingly pay to play in the arena of economic development, and the "pay" is taxpayers' money of some form or another, it is very unclear what the payoff is to communities, the state as a whole, and the average well-being of its citizens per public dollar re-channeled away from other traditional government uses.

All of this acknowledged, however, regions and planners engaged formally in industrial targeting activities should be able to attain a competitive advantage vis a vis regions that have not undergone this kind of a process. The process should assist planners in focusing their efforts, targeting scarce public resources, and in increasing their likelihood of enhancing the stability of their regional economies.

Regional Economic Development Research and Programming Requirements

The overall expected outcome of all industrial assessment processes is to bring intelligence and information to bear on the economic development activities so that scarce public and private resources are maximized towards promoting

economic growth and regional stability. Regardless of the approach, whether top-down, heavily researched, locally-participatory, or a blend of them all, the process should be driven by participant consensus in three major areas:

1. The region is responsible for developing its economic development goals and identifying the specific objectives that it intends to accomplish in support of those goals.
2. The region, ultimately, is responsible for selecting the industries for targeting that best fit with its goals and with the region's collective expectations for industrial growth. Analysts can provide lists of desirable industries and criteria for evaluating them, but outside analysts do not select the region's goals or its industrial priorities.
3. The region develops procedures, programs, and activities designed to recruit industries, retain or expand industries, provide or otherwise facilitate technical assistance to improve industrial productivity, and, not to be forgotten, promote programs to assist small business development and entrepreneurial activity in keeping with its industrial recruitment and development goals. Economic development is a comprehensive process that is conducted in light of community and regional capacities and the collective needs of the citizenry.

In this entire process it is important for the region and the participating analysts to pay particular attention to the region's strengths, whether they are industrial, labor based, or locational, along with the region's capacity to supply public goods. When an industrial targeting approach is employed, it provides a research and procedural foundation for focusing both private and public resources in support of community and regional growth.

By using a goal-driven process for identifying industrial prospects, the region should be able to

- better identify the region's industrial needs and its capacity for growth,
- more efficiently utilize existing resources, and potentially,
- limit its reliance on or otherwise focus growth inducements, like tax abatements or other development incentives

II. Taking Stock of the Region: A Demographic and Economic Overview

Section Objectives:

- *Introduce readers to key trends or indicators to help rank or gauge the region's strengths or weaknesses.*
- *Demonstrate regional-wide contrasts with the nation or the state for individual county representatives.*

Overview:

- The region's share of statewide population has eroded persistently since 1980. The rate of loss slowed between 1995 and the end of 2000, but it has increased since.
- The region has proportionately fewer men and women of prime working ages, 25 to 39 years, than the statewide average.
- The region experienced net outmigration during the last decade.
- Job growth in the region nearly kept pace with the state between 1990 and 2000. Since 2000, the region has lost jobs more rapidly than the statewide average rate.
- Average earnings per job in the region have eroded to just above 50 percent of the national average.
- Average income per nonfarm proprietor has eroded to about 45 percent of the national average.

Population Characteristics

The total population of the South Iowa region grew slightly during the decade of the 1990s, but declined sharply in the 2000 to 2004 period (See Table 1). During the 1990 to 2000 period, Clarke County had the highest growth at 10 percent, and Adams led the losers at -7.5 percent.

Table 1

Population Changes for South Iowa

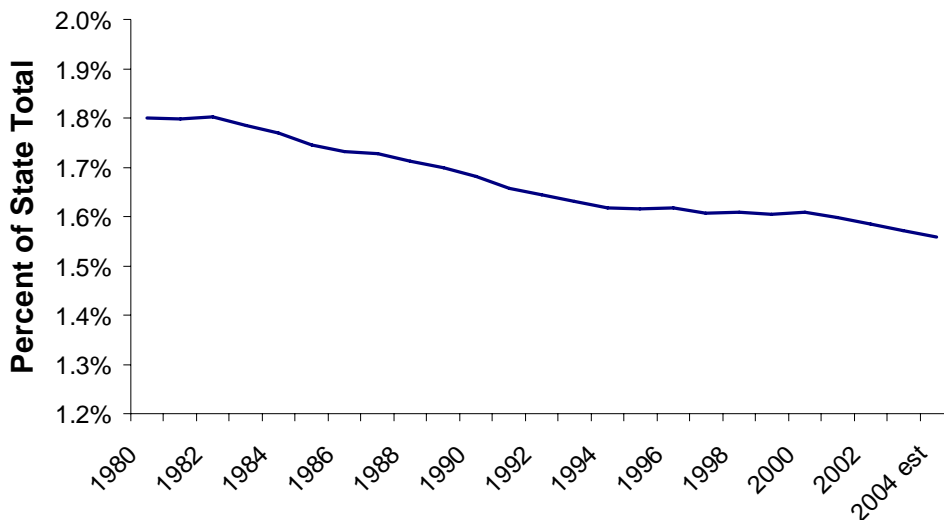
	1990	2000	2004	Change 1990 to 2000	Percent	Change 2000 to 2004	Percent
State of Iowa	2,781,018	2,926,324	2,954,451	145,306	5.2%	28,127	1.0%
Adams	4,845	4,482	4,320	-363	-7.5%	-162	-3.6%
Clarke	8,301	9,133	9,223	832	10.0%	90	1.0%
Decatur	8,303	8,689	8,538	386	4.6%	-151	-1.7%
Ringgold	5,416	5,469	5,284	53	1.0%	-185	-3.4%
Taylor	7,103	6,958	6,689	-145	-2.0%	-269	-3.9%
Union	12,774	12,309	11,993	-465	-3.6%	-316	-2.6%
Region	46,742	47,040	46,047	298	0.6%	-993	-2.1%

In the nearer term, the entire region declined an estimated 2.1 percent between 2000 and 2004. Taylor at -3.9 percent and Adams at -3.6 percent posted the highest loss rates. Only Clark County posted gains in the past four years.

The region's population lost ground to the state of Iowa persistently since 1980 (Figure 1). The rate of loss slowed between 1995 and the end of 2000, but it has increased since.

Figure 1

South Iowa's Share of State Population

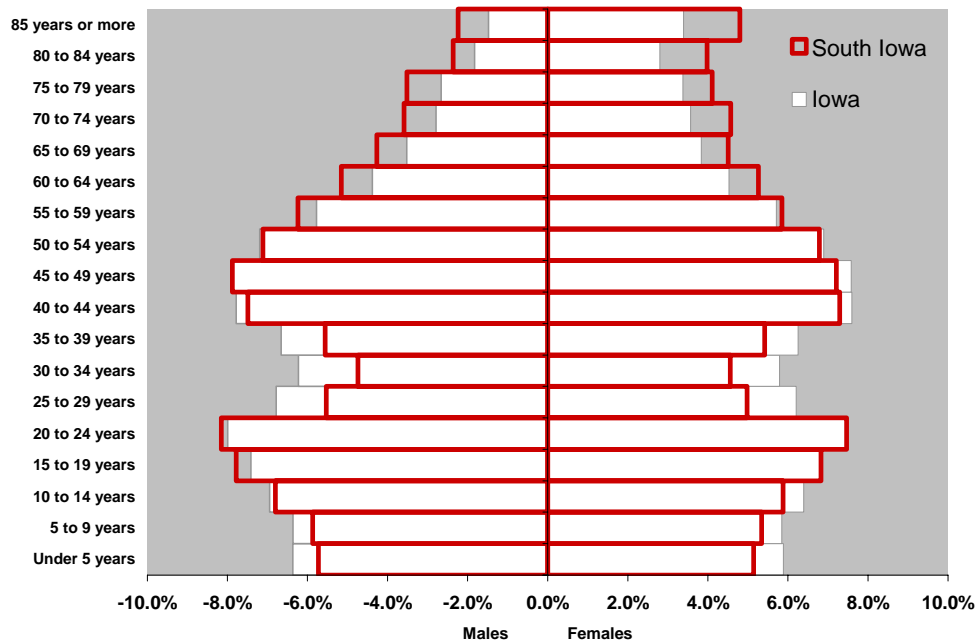


Age Distribution

Figure 2 represents the distribution of the region's population by age group. It compares the distribution of males and females in the region to the state of Iowa distribution. It is evident that the region has proportionately many more elderly men and women than the state of Iowa, and it has proportionately fewer men and women of prime working ages, 25 to 39 years. The region also posts proportionately less young people than the state average.

Figure 2

Iowa and South Iowa Population Pyramid, 2004



This later statistic, the smaller proportions of young people, is explored in Table 2. Here we see the compounded average annual rate of change in school enrollments in the several counties, the region, and the state. Overall, statewide, enrollment is declining by -.7 percent per annum. The region, however, is declining at a nearly 5 times greater rate with Decatur County posting a nearly 6 percent decline per annum. Fewer young adults mean fewer marriages, family starts, and young children in schools.

Table 2**Private and Public School Enrollment**

School Year	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	Annual Average Percentage Change
State of Iowa	494,962	492,022	485,932	482,210	481,226	478,319	-0.7%
Adams County	744	704	697	686	691	613	-3.8%
Clarke County	1,876	1,878	1,790	1,816	1,764	1,739	-1.5%
Decatur County	1,598	1,456	1,444	1,452	1,400	1,179	-5.9%
Ringgold County	916	933	845	783	779	789	-2.9%
Taylor County	1,316	1,225	1,168	1,178	1,149	1,041	-4.6%
Union County	2,092	2,116	2,012	1,922	1,932	1,867	-2.3%
Region	8,542	8,312	7,956	7,837	7,715	7,228	-3.3%
Region as a Percentage of State	1.73%	1.69%	1.64%	1.63%	1.60%	1.51%	N/A

Recent Migration Patterns

Generally, there appears to be relatively high cross border movement in the six county region. For persons ages 5 and over, the highest incidence of immigration was in Decatur County at 29 percent, the greatest fraction of whom came from another state. Its location on the border and as the home to a small college fueled that distinction. Clarke County has the next highest immigration rate at 25 percent, with 17 percent moving there from another Iowa county. Taylor County had the lowest estimated rate of inflow from another Iowa county or in total.

Table 3**Regional Migration Characteristics**

	Percent Immigrated 1995 to 2000	From Other Iowa County	From Other State	From Other Country
Adams	18.5%	13.8%	4.5%	0.2%
Clarke	25.3%	16.9%	7.6%	0.8%
Decatur	28.7%	10.7%	16.6%	1.3%
Ringgold	21.5%	13.6%	7.5%	0.4%
Taylor	17.8%	8.0%	9.0%	0.8%
Union	18.7%	10.0%	7.6%	1.1%

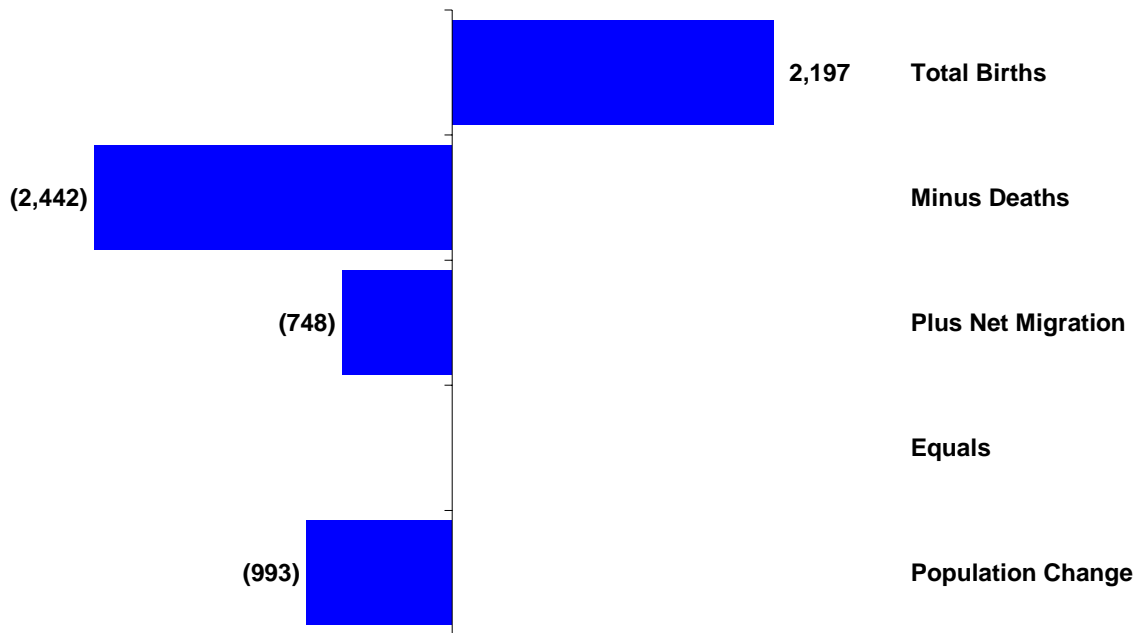
The values in Table 3 represent the fractions of residents in the counties during the 2000 census that said that they lived in another county, state, or country in 1995. They do not tell us about the overall rate or pace of migration into or out of a region. Migration represents the net change in an area's population over time after we factor in all resident deaths and births. The dominant demographic

characteristics of the region for the 2000 to 2004 period are clearly displayed in Figure 3.

The region posted 2,197 births offset by 2,442 deaths. Because deaths exceeded births, the region had a natural decline of 245 persons. The remaining difference in the population change of 993 persons over this time was due to the net regional outmigration of 748 persons. Stated differently, 75 percent of the regional decline of late is due to outmigration and 25 percent is due to natural decline.

Figure 3

Components of Regional Population Change, 2000 to 2004



Educational Attainment

Another important aspect of any economic region is the educational composition of its population. In Table 4 we see that the region has proportionately more residents with just a high school diploma or less (59 percent) than the state average (50.0 percent). At the upper end of the education range, 13.7 percent of the residents ages 25 or older had a college bachelors degree or advanced degree compared to 21.2 percent for the whole state. Taylor County had the highest percentage of persons with a high school diploma or less at 63.3 percent, and Decatur County had the highest percentage of persons with college bachelors degrees or more at 15.2 percent.

Table 4

Educational Attainment in the Region

	Adams	Decatur	Ringgold	Taylor	Union	Regional Total	State of Iowa
Less than high school	484	966	650	796	1,058	3,954	263,436
High school diploma (or equivalency)	1,297	2,192	1,679	2,221	3,603	10,992	683,942
Some college, no degree	741	1,010	702	896	1,843	5,192	405,748
Associates degree	233	315	242	282	610	1,682	140,640
Bachelors degree	285	516	334	397	930	2,462	278,350
Post-bachelors degree	91	284	174	174	298	1,021	123,740
Total population ages 25 and over	3,131	5,283	3,781	4,766	8,342	25,303	1,895,856
	<i>As a percentages of totals</i>						
Less than high school	15.5%	18.3%	17.2%	16.7%	12.7%	15.6%	13.9%
High school diploma (or equivalency)	41.4%	41.5%	44.4%	46.6%	43.2%	43.4%	36.1%
Some college, no degree	23.7%	19.1%	18.6%	18.8%	22.1%	20.5%	21.4%
Associates degree	7.4%	6.0%	6.4%	5.9%	7.3%	6.6%	7.4%
Bachelors degree	9.1%	9.8%	8.8%	8.3%	11.1%	9.7%	14.7%
Post-bachelors degree	2.9%	5.4%	4.6%	3.7%	3.6%	4.0%	6.5%

The Labor Force

Table 5 lists labor statistics as gathered by the U.S. Department of Labor for 2005. Here we see that the region's unemployment rate was 4/10^{ths} of a percentage point above the state average for all of last year. It was highest in Adams County at 5.4 percent, and lowest in Taylor County at 4.1 percent.

Table 5

Labor Force Statistics for 2005

	Labor Force	Employed	Unemployed	Unemployment Rate
Adams	2,040	1,930	110	5.4%
Clarke	4,990	4,730	260	5.2%
Decatur	4,230	4,010	220	5.2%
Ringgold	2,450	2,330	120	4.9%
Taylor	3,440	3,300	140	4.1%
Union	6,500	6,160	340	5.2%
Region	23,650	22,460	1,190	5.0%
State of Iowa	1,659,800	1,584,100	75,700	4.6%

Regional Jobs

During the last decade, the nation, the state, and the South Iowa region posted persistent job gains. Between 1990 and 2000, jobs in the U.S. grew by 1.8 percent annually and the state averaged 1.6 percent growth per year. In the region, during this period of general economic expansion, the region grew by 1.5 percent per year, only a little less than the state rate. The highest rate of growth was in Clarke County at 3.4 percent, and the lowest in Adams at just .2 percent. From 2000 on, however, the overall rates of national, state, and local growth changed. The U.S. rate was just .1 percent per year, the state of Iowa eroded by -.4 percent, and the region suffered a -1.3 percent annual decline, 3 times the rate of erosion in the rest of the state. Union had the highest annual job rate loss at -2.2 percent, and Ringgold among the six had the only positive value at .4 percent.

Table 6

Total Jobs, Selected Years

	1980	1990	2000	2003
U.S.	114,231,200	139,380,900	166,758,800	167,174,400
Iowa	1,541,044	1,645,944	1,934,077	1,912,399
Adams	2,846	2,855	2,922	2,806
Clarke	4,317	4,849	6,756	6,513
Decatur	4,317	4,211	4,595	4,560
Ringgold	3,046	2,799	3,008	3,047
Taylor	3,639	3,146	3,483	3,289
Union	7,643	7,412	8,632	8,073
Region	25,808	25,272	29,396	28,288
	--- Average Annual Percentage Changes ---			
	1980 to 1990	1990 to 2000	2000 to 2003	
U.S.	2.0%	1.8%	0.1%	
Iowa	0.7%	1.6%	-0.4%	
Adams	0.0%	0.2%	-1.3%	
Clarke	1.2%	3.4%	-1.2%	
Decatur	-0.2%	0.9%	-0.3%	
Ringgold	-0.8%	0.7%	0.4%	
Taylor	-1.4%	1.0%	-1.9%	
Union	-0.3%	1.5%	-2.2%	
Region	-0.2%	1.5%	-1.3%	

Figure 4 clearly shows the pattern of change in total jobs realized by the region as a share of the state total. This pattern is also compared to the region's share of population. In 1980, the region had 1.8 percent of the state's population and 1.43 percent of all jobs. By 2003 those shares had declined to 1.57 percent of population and 1.3 percent of jobs. The region's share of jobs rose from 1996 to 2001, but have decline since.

There is another important point to this graphic. During the 1996 to 2001 period the regional job share rose quite noticeably, but the region's population stayed flat. A general expansion in jobs and growth for a period in excess of the state average could only stabilize the region's population for a time, not cause it to grow.

Figure 4

South Iowa's Share of State Jobs and Population

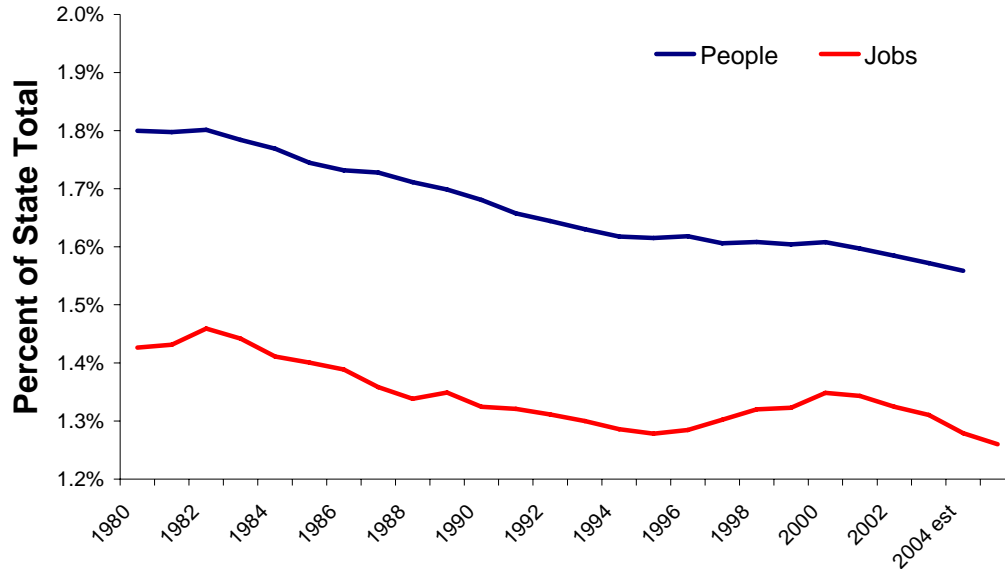
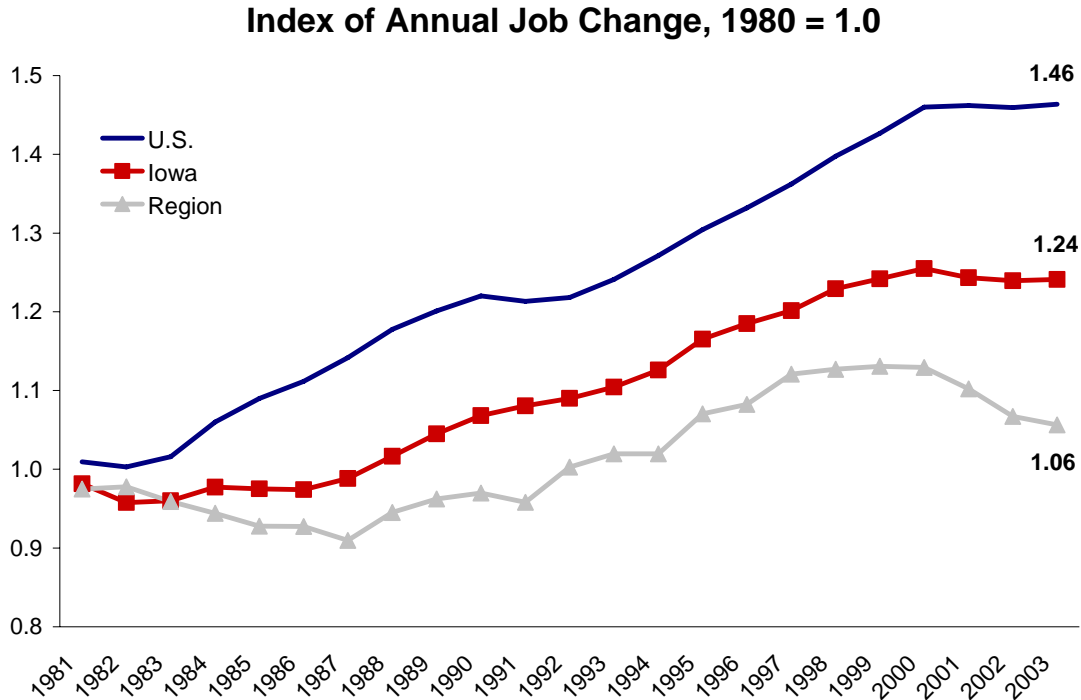


Figure 5 tracks the total rate of job growth for the U.S., Iowa, and the region over the past two decades. In this graph, 1980 values equal 1 (or 100%), and the plots track patterns of change since that origin. We can see that the region diverged from the state and the nation for much of the 1980s before tracking upward beginning 1987. Thereafter, the region rose at the same pace through about 1998 before turning downward. Over the measurement period, the U.S. realized a 46 percent expansion in jobs, the state half that at 23 percent, and the region was just a quarter of the state value at 6 percent.

Figure 5



Sources of Income and Worker Earnings

Figure 6 allows us to compare the derivation of income for our region as compared to the U.S. and to Iowa. In the U.S., in 2003, 69.3 percent of incomes were derived from earnings. Earnings are the payments that are made to workers and the normal returns to sole proprietors. The Iowa fraction from earnings was slightly less than the U.S. at 67.4 percent. The South Iowa region earnings percentage of income was a much smaller 59.5 percent.

Transfers include welfare payments, social security, federal payments for health care, and other income or food security payments. A portion of this increased dependence is attributable to the larger share of elderly persons in the state and in the region than the U.S. The region is much more dependent on transfers than the state 23.1 percent compared to 15.3 percent, and it derives about the same proportion of income from property incomes (dividends, interests, and rents – sometimes these are called investment incomes).

Figure 6

Derivation of Income, 2003

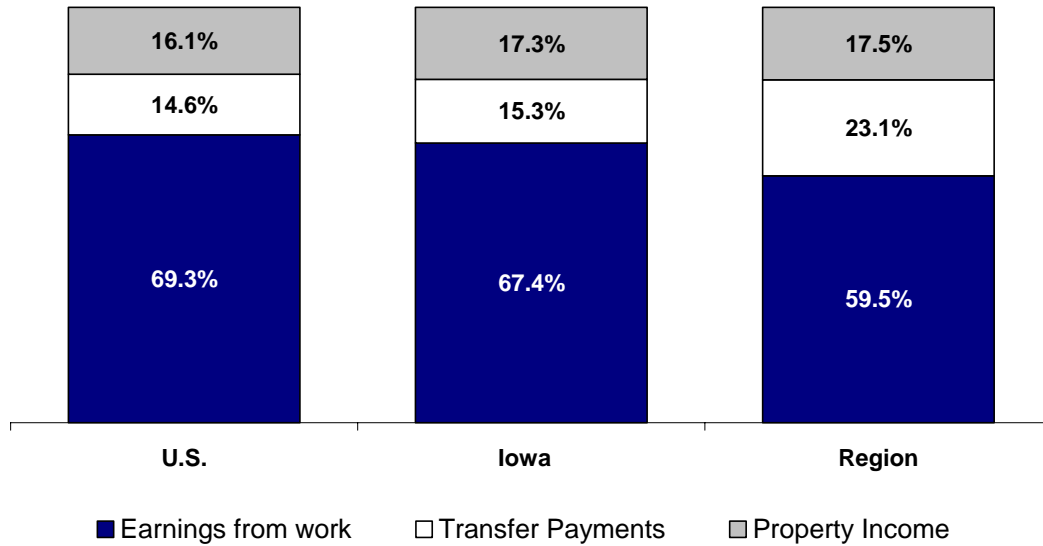
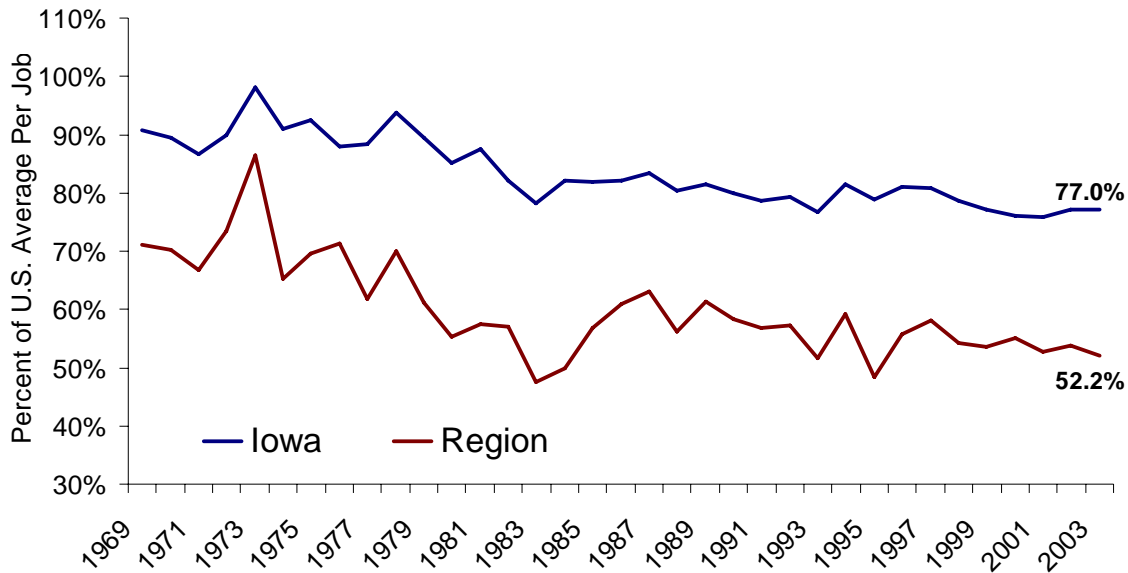


Figure 7 allows us to see what has happened to the average earnings of workers in Iowa and in the region when compared against the U.S. averages. In 1973, the average Iowa worker earned at about the U.S. average wage, and the average South Iowa worker earned 89 percent of the U.S. average. This was at the time of huge profits to grain farmers. Those comparative positions eroded persistently over the next three decades to the point in 2003 where Iowa workers earned per job 77 percent of the U.S. average and South Iowa workers earned 52.2 percent per job. This erosion in the earnings value of labor in the region is stark. It should be noted that in recent years the erosion appears to have abated. Historical lows were posted in 1983 at 47.5 percent and 1995 at 48.3 percent. The region's linkage to the fortunes of the agricultural economy are still very evident.

Figure 7

Per Job Earnings as Percentages of the U.S. Average



Last, a few words about small businesses and entrepreneurship. In recent years, the state of Iowa has posted the lowest rates of new firm startups in the nation. It also has posted the lowest rate of firm failures in the nation. The consensus among analysts is that the state, its people and investors, tend to be highly conservative and careful about starting new businesses.

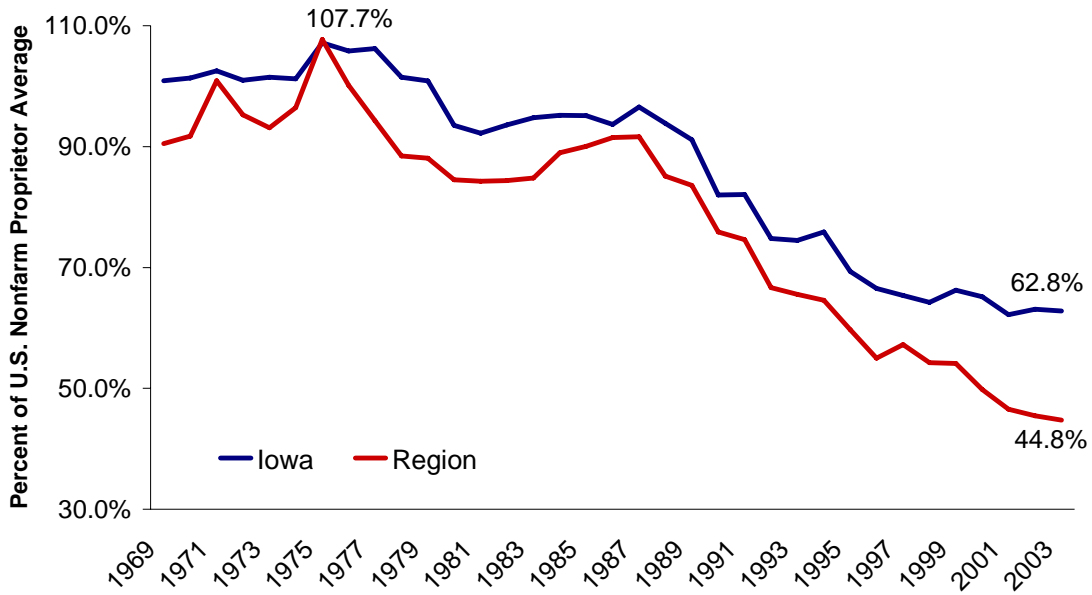
The overall returns to small business ownership can be measured in a number of ways, but the Bureau of Economic Analysis does measure both the incidence of nonfarm proprietors (either sole proprietors or simple partnerships) and the annual income that they generate. Those values are displayed in Figure 8 below. The findings are dramatic.

In 1975 in both the state of Iowa and in the South Iowa region, the average nonfarm proprietor's income was 108 percent of the U.S. average. Those values eroded through 1987 where the state average was still a respectable 96.5 percent of the U.S. amount and the region's was 91.6 percent. After that, however, the returns to nonfarm proprietors relative to the U.S. plummeted. By 2003 the state

average was just 63 percent and the percentage in the south region fell to just under 45 percent.

Figure 8

Income Per Nonfarm Proprietor as Percentages of the U.S. Average



III. Workforce Characteristics in South Iowa

Section Objectives

- *Identify areas of occupational specialization in the regional workforce.*
- *Assess the composition of the workforce by age and educational attainment to identify where the region exceeds or lags statewide averages, revealing possible areas of relative strength or weakness.*
- *Compare characteristics of self-employed workers, other private sector workers, and public sector workers to determine which types of jobs are attracting young, educated workers.*

Overview

- Older workers represent a larger share of the workforce in all major occupational categories and across employer types.
- Younger workers represent a smaller share of the workforce, particularly in the region's private sector firms.
- A relatively higher percentage of the region's workers are self-employed, regardless of age.
- The region has a relative deficit of college-educated workers. Private sector firms in particular employ relatively fewer college-educated workers than similar firms statewide.
- The region has relatively fewer workers with managerial, professional, technical, sales, and office-related occupations.
- The region has relatively higher concentrations of workers in production, farming, construction, and personal services occupations.

Workforce Composition

The composition of the South Iowa workforce may be examined across several dimensions to reveal areas of potential strength or weakness. The following charts illustrate three dimensions: age, educational attainment, and type of employer. For each combination of attributes, we compare the percentage of workers in South Iowa with average percentage values across the state. The differences between South Iowa's actual percentages and the statewide

percentages are converted to worker equivalents per 1,000 workforce members.¹ This standardization facilitates comparisons of worker characteristics and helps identify areas of comparative surplus or deficit in South Iowa's workforce.

The worker data in this section were obtained from the 2000 Census of Population. The educational characteristics describe workers ages 25 and older. All other characteristics describe workforce members ages 16 and older.

Age by Employer Type

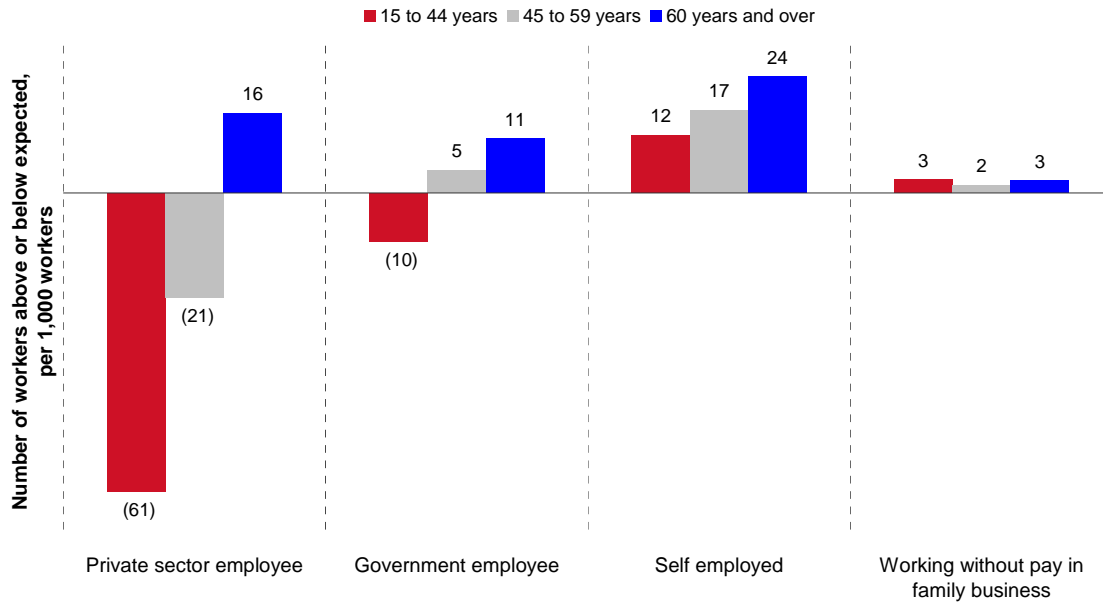
Compared to statewide averages, South Iowa's private sector firms employ a relatively lower fraction of the total workforce (Figure 9). Per 1,000 workers, the private sector firms employ 66 fewer workers than would be expected based on statewide averages. This deficit is most pronounced among younger workers, ages 15 to 44.

The region has comparatively higher concentrations of workers who are self-employed, who work for government, or who are working without pay in a family business. Per 1,000 workers, self-employment exceeds the expected values in all age groups for a net surplus of 53 workers. Government employs six more workers than expected in total, although the region's public sector employs fewer young workers than expected. Eight more workers per 1,000 toil without pay in family businesses.

¹ Values by category may sum to slightly different totals across the various charts. The set of counties used for each comparison vary slightly due to the availability of data for the particular combination of indicators.

Figure 9

**Workers by Type of Employer and Age:
Difference from Expected Values in the South Iowa Region***



* Union County excluded

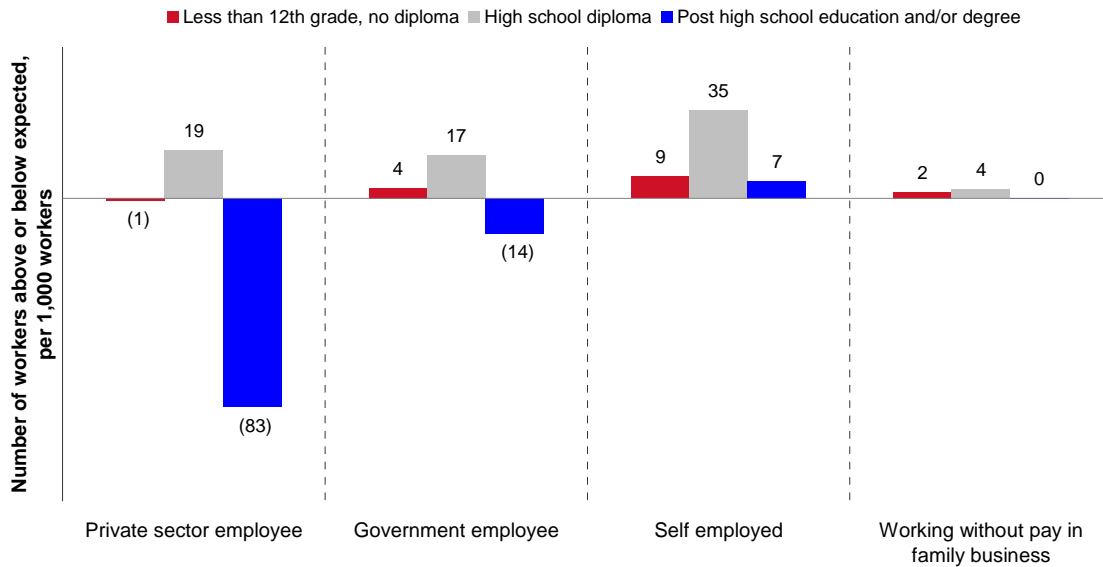
Educational Attainment by Employer Type

South Iowa's private sector firms employ a relatively fewer college-educated workers than similar firms statewide (Figure 10). Per 1,000 workers, the private sector firms employ 83 fewer workers than would be expected. The region's public sector also employs comparatively fewer college-educated workers than in the rest of the state, with 14 fewer workers per 1,000. In contrast, the region has 7 more college-educated workers (per 1,000 workers) who are self-employed than might be expected based on statewide averages.

The region's relative deficit in college-educated workers translates into a relative surplus in workers whose education ended with a high school diploma. The surplus is most pronounced in the self-employment category. In the region, 35 more workers per 1,000 are self-employed with a high school diploma as their terminal degree.

Figure 10

**Workers by Type of Employer and Educational Attainment:
Difference from Expected Values in the South Iowa Region***



* Excludes Adams and Union Counties

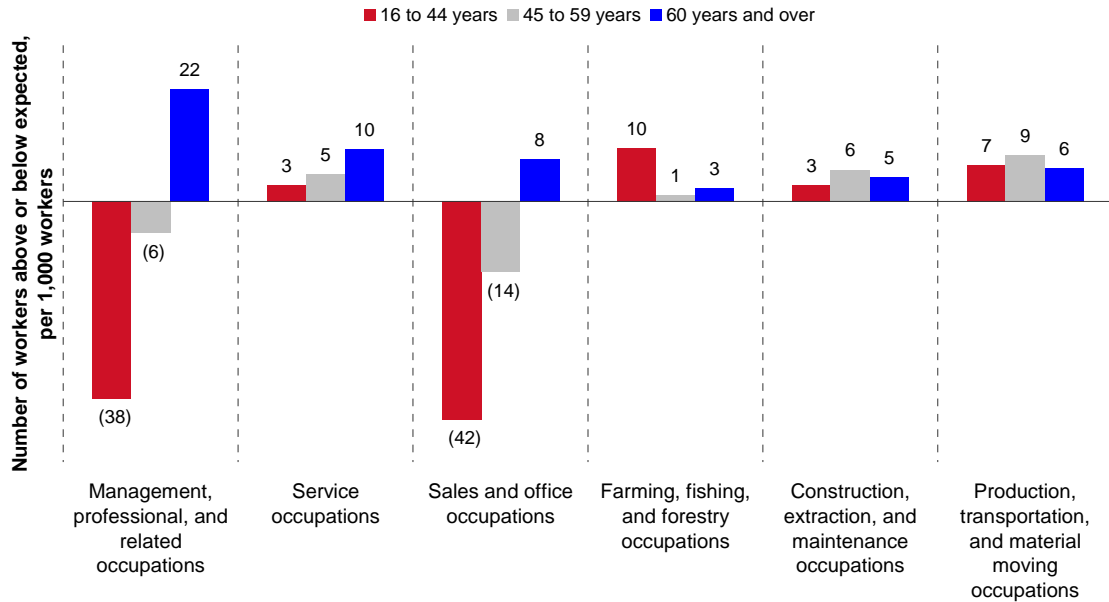
Age by Occupational Group

The South Iowa region has comparative deficits in management, professional and related occupations and sales and office occupations (Figure 11). Per thousand workers, the region has 22 fewer management, professional, and related workers than statewide averages would suggest. A surplus of these workers in the 60 and older age group slightly offset deficits of 38 workers under age 45 and six workers between 45 and 59 years of age. A similar pattern holds for the category of sales and office occupations. In total, the region has 47 fewer sales and office workers than expected, with workers in the 16 to 44 age group representing the bulk of the deficit.

For every thousand workers, the region has a net surplus of 22 workers in production, transportation, and material moving occupations. The region also has 18 more workers in service occupations, 14 workers in farming and related occupations, and 14 workers in construction and related occupations per 1,000 jobs.

Figure 11

**Workers by Occupation and Age:
Difference from Expected Values in the South Iowa Region***



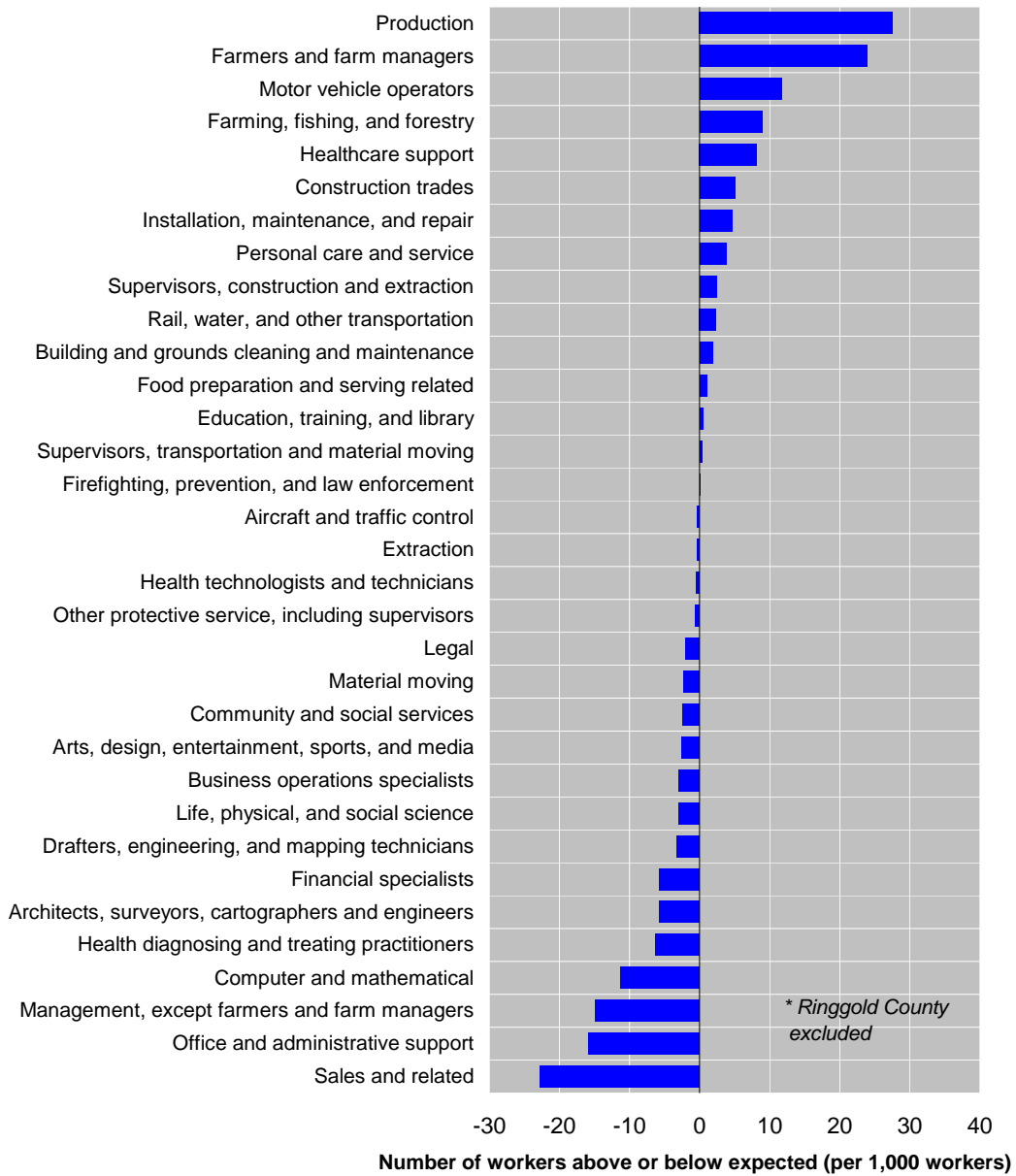
* Union County excluded

Composition by Detailed Occupation

The next chart (Figure 12) illustrates the relative surplus or deficit in the regional workforce by detailed occupation. The region’s specialization in agriculture, production, and transportation is evident in its occupational composition. In contrast, the region shows relative weakness in professional, technical, sales, and managerial occupations.

Figure 12

**Workforce Composition by Occupation
Difference from Expected Values in South Iowa***



Regional Commuting Patterns

The characteristics of worker commuting are an important consideration in describing a regional workforce, especially when the workforce is as geographically dispersed as that in South Iowa. Because workers are often

willing to or must commute long distances for employment opportunities, the potential labor pool for an employer is often much larger than the population size of the city in which they locate. Many cities in Iowa have commissioned “laborshed studies” which seek to define the size and geographic extent of the labor pool from which the city’s current and potential employers may draw. Laborshed studies are frequently conducted by surveying a city’s largest employers to determine where their workers live and other worker characteristics. These types of studies, while perhaps useful to local officials for marketing purposes, have important statistical weaknesses for regional analysis. Importantly, they rarely represent a scientifically random survey or are subject to standard statistical controls for determining confidence in the results. In addition, because they are conducted at different points in time, they are not additive across the individual cities to compile regional profiles.

We can use census data to determine and describe dominant commuting patterns in a region. The census data are much more reliably and readily obtained than laborshed snapshots, contain explicit assurances of statistical confidence, and they provide infinitely more detail and insight into commuting worker characteristics than is possible from the typical laborshed analysis conducted in Iowa.

Commuting characteristics of South Iowa’s workforce are chiefly influenced by the region’s low degree of urbanization. The chart below (Figure 13) illustrates comparative commuting behaviors in the region and the state.² More than one third of South Iowa’s workforce lives outside of a city. In contrast, just under one quarter of Iowa’s workers live outside of a city. South Iowa workers are slightly more likely to work at home (7 percent) than average Iowa workers (5 percent). South Iowa’s urban residents are slightly less mobile than their statewide counterparts. Among workers who live in a city in the South Iowa region, 60 percent work in their city of residence, compared to 55 percent statewide. The percentage of South Iowa workers commuting to an MSA (7 percent) is lower for South Iowa than for other Iowa workers who live outside a MSA region (11 percent).

² The percentage values measure the incidence, or likelihood, of different commuting behaviors among different worker groups within the regions illustrated. The values do not sum to 100, as some of the worker groups overlap one another.

Figure 13

Commuting Behaviors in South Iowa and the State of Iowa

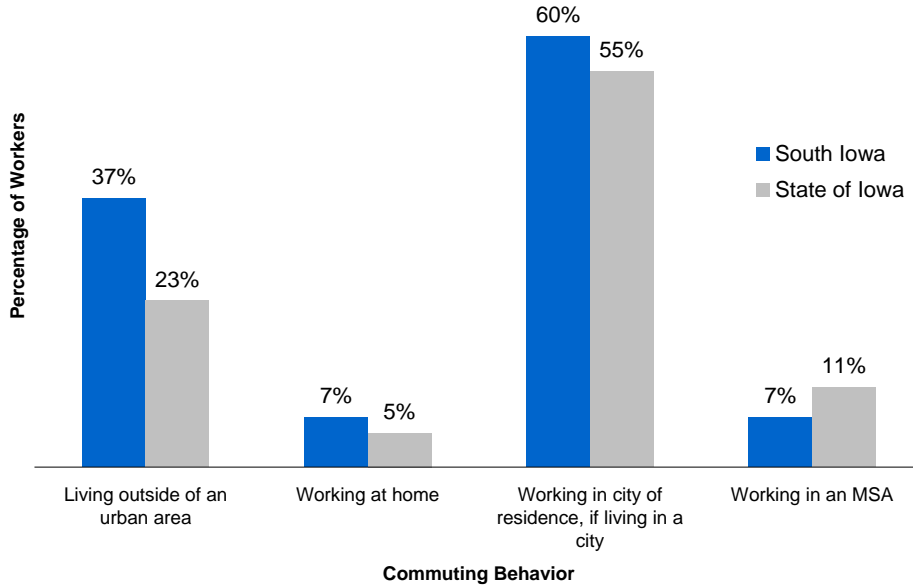
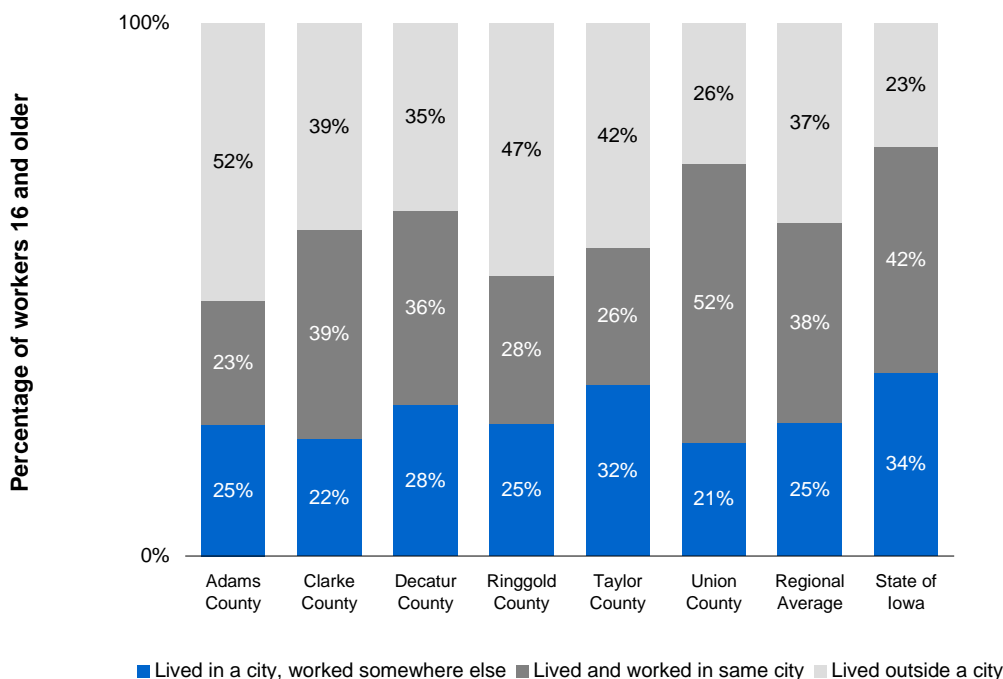


Figure 14 shows individual county commuting characteristics. The values illustrate the percentage of workers ages 16 and older by their place of residence and their place of work. The values for three different worker groups sum to 100 percent of workers by residence. Within the South Iowa region, Union County residents are most likely to live in a city and work in the same city (52 percent of workers), while Adams County workers are the least likely at 23 percent. Taylor County has the highest fraction of workers who live in a city, yet commute somewhere else for work (32 percent). Union County, at 21 percent, has the lowest percentage of workers who reside in a city and commute to a different city.

Figure 14

Percentage of Workers by Their Place of Residence and Place of Work

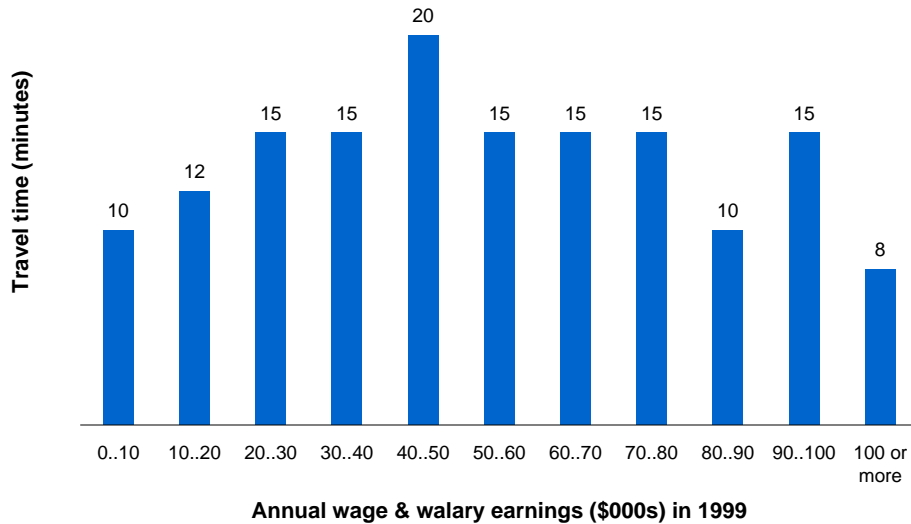


We can also characterize commuting behaviors by specific worker attributes using 2000 Census data for a region that includes 17 of Iowa’s southernmost counties, including the six counties in the South Iowa study region. The Census data include detailed information about workers, including their occupations, earnings levels, and commuting behaviors.

Figure 15 illustrates the association between willingness to commute and the earnings levels of workers. The median travel times indicate the point at which half of workers in the group have a longer commute time, and half have a shorter commute time. Workers earning less than \$10,000 per year in 1999 were less willing or able to commute longer distances. Their median travel time was 10 minutes. The median travel time increased to a high of 20 minutes for workers in the \$40,000 to \$49,999 earnings bracket. Commuting times tapered slightly as earnings levels increased. The median travel time for workers earning \$100,000 or more per year was 8 minutes.

Figure 15

Willingness to Commute: Median Travel Time for Workers by Earnings Level

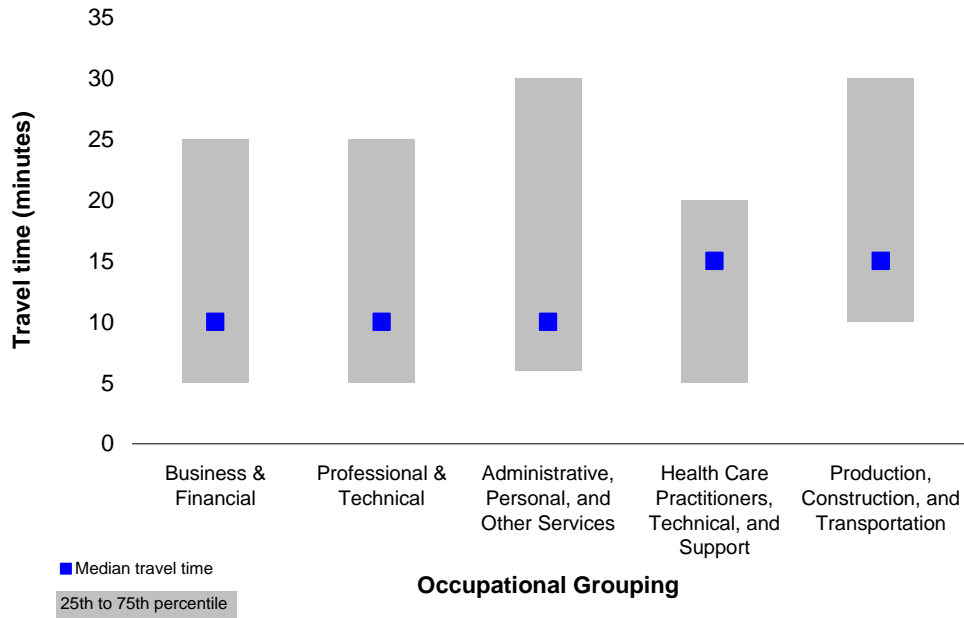


Commuting patterns vary by occupation of the worker. Figure 16 shows the median travel times for workers in five major occupational groupings. While the median value represents the 50th percentile, the chart also illustrates a range of commuting times for workers in the 25th to the 75th percentiles. For example, one fourth of regional workers in business and financial occupations travel fewer than 5 minutes to work. One fourth of workers travel between 5 and 10 minutes, and another fourth of workers travel between 10 and 25 minutes, and the last fourth travel 25 minutes or more.

Based on median values, workers in production, construction, and transportation occupations commute farther than workers in other occupations. One half of workers in production, construction, and transportation occupations commuted 15 minutes or longer to work, and one fourth of these workers commuted 30 minutes or more. While the median commute for health care occupations was 15 minutes, 75 percent of those workers commuted 20 minutes or fewer. Workers in the three remaining occupational groups had median commute times of 10 minutes. The range of commute times among workers in administrative, personal, and other services occupations was quite wide, and probably reflects longer commutes for more specialized occupations within this broad category.

Figure 16

**Willingness to Commute: Median Travel Time for Workers
by Major Occupational Grouping**



IV. Regional Industrial Summary

Section Objectives:

- *Introduce readers to the industrial structure of the Southeast Iowa region using measures of industrial output, jobs, and value added.*
- *Demonstrate pertinent comparative statistics in several economic categories to all for a characterization of industrial activity.*
- *Illustrate broad regional competitive strengths and weaknesses.*

Overview:

- In 2003, there were 25,623 jobs in the region producing \$2.15 billion in industrial output.
- The agriculture and manufacturing sectors dominate the regional economy.
- The region holds very strong statewide competitive positions in arts – entertainment and recreation, agriculture, transportation and warehousing, and educational services.
- The region is comparatively weak in output wholesale trade, finance and insurance, real estate, information services, professional services, and the management of companies.

This section profiles the comparable size and broad industrial composition of the South Iowa economy. Table 7 lists several measures of industrial activity. These data are derived from an input-output summary of the regional economy that was compiled by a non-governmental source.* The data are presented in concordance with the North American Industrial Classification schema at the “2-digit” level, which allows us to identify the major sectors of the regional economy.

In 2003, according to this summary, there were 25,623 jobs in the region producing \$2.15 billion in industrial output. Industrial output is, roughly, the sales value of all production by all industries and governments in the area. Payroll to workers in the region was \$527 million, returns to sole proprietors

* The data for this region were compiled by the Minnesota Implan Group, Inc. This company provides estimates of industrial data summarized down to the county level. These data are based largely on existing U.S. Bureau of Labor Statistics, Bureau of Economic Analysis, and Census Bureau data sets that are compiled annually or quinquennially by federal agencies. Gaps in data are filled using “clean and structure” techniques to estimate missing data by apportioning broad categorical remainders into categories where data were either missing or suppressed. As a consequence, some of the industrial details in more highly disaggregated tables are estimates.

were \$84.6 million, payments made to investors were \$341.2 million, indirect tax payments to governments was \$69.9 million, and total value added, the sum of the preceding four categories, was \$1.022 billion.** All manufacturing accounted for \$566 million of the region's output, followed by agriculture at \$419 million. All governments came in a very distant third in this category with \$256.2 million in output value. The top five sectors for jobs were agriculture at 4,495, all governments at 3,969, manufacturing at 2,525, retail trade at 2,517, and health and social services at 2,393.

Table 7

All financial amounts in millions

South Iowa	Total Industrial Output	Jobs	+				Indirect Business Taxes	= Value Added
			Employee Compensation	Proprietor Income	Other Income	Property Income		
Ag, Forestry, Fish & Hunting	419.19	4,495	11.306	20.72	87.28	10.812	130.12	
Mining	3.323	17	0.562	0.594	0.922	0.093	2.171	
Utilities	41.12	151	7.704	1.556	16.42	4.109	29.78	
Construction	80.15	927	13.87	12.664	3.7	0.374	30.61	
Manufacturing	566.84	2,525	93.44	3.616	37.45	3.188	137.70	
Wholesale Trade	43.55	539	17.84	0.727	7.40	7.16	33.12	
Transportation & Warehousing	148.22	1,504	54.27	8.77	24.963	1.491	89.49	
Retail trade	97.64	2,517	39.42	5.73	12.97	13.98	72.10	
Information	23.48	203	4.35	0.514	2.78	0.717	8.36	
Finance & insurance	71.16	648	16.25	3.307	28.31	1.038	48.91	
Real estate & rental	28.89	349	1.403	4.235	10.67	3.093	19.40	
Professional- scientific & tech svcs	24.97	374	6.06	5.442	1.82	0.32	13.64	
Management of companies	0.241	2	0.084	0	0.024	0.002	0.11	
Administrative & waste services	30.96	794	12.22	2.255	2.025	0.345	16.84	
Educational svcs	24.82	618	10.974	0.364	0.009	0.02	11.368	
Health & social services	109.31	2,393	52.84	6.732	8.348	0.891	68.81	
Arts- entertainment & recreation	71.51	1,004	24.884	0.489	14.313	5.522	45.208	
Accommodation & food services	41.38	1,124	10.67	0.622	3.327	1.718	16.34	
Other services	65.38	1,469	16.64	6.297	3.374	2.318	28.63	
Government & non NAICs	256.17	3,969	132.25	0	75.10	12.719	220.07	
Totals	2,148.31	25,623	527.03	84.64	341.20	69.91	1,022.78	

Table 8 shows just how dominant manufacturing and agriculture were in the South Iowa economy in 2003. Manufacturing was 26.4 percent of industrial output, and agriculture followed at 19.5 percent. Output, however, is a crude measure of industrial activity in a region. It is more appropriate to use either jobs or value added to gauge the overall value of industrial activity to a region and its communities.

Using these more standard measures, manufacturing produced 10 percent of the region's jobs and yielded 13.5 percent of the region's value added. Agriculture produced a higher percentage of the jobs, 17.5 percent, but accounted for a lower fraction of the value added, 17.7 percent. The highest share of value added was

** It is much preferred to compare value added because it is highly analogous to gross regional industrial product, which is the standard way in which we gauge state and national economic performance over time.

found in the government sector at 21.5 percent. Because the value added percentage is above the jobs percentage in manufacturing, the returns of these jobs to workers and to investors were comparatively higher than most of the remaining sectors of the regional economy (wages to workers and payments to investors are the bulk of value added). The same can be said for the governments sector. In contrast, the lower fraction of value added in the health and social services sector, 6.7 percent, compared to its job percentage, 9.3 percent, indicates that sector compensates much lower than the regional average.

Table 8

**Summary Industrial Accounts for the South Iowa Region,
2003, as Percentages of Regional Totals**

South Iowa	Total Industrial Output	Jobs	Value Added
Ag, Forestry, Fish & Hunting	19.5%	17.5%	12.7%
Mining	0.2%	0.1%	0.2%
Utilities	1.9%	0.6%	2.9%
Construction	3.7%	3.6%	3.0%
Manufacturing	26.4%	9.9%	13.5%
Wholesale Trade	2.0%	2.1%	3.2%
Transportation & Warehousing	6.9%	5.9%	8.7%
Retail trade	4.5%	9.8%	7.0%
Information	1.1%	0.8%	0.8%
Finance & insurance	3.3%	2.5%	4.8%
Real estate & rental	1.3%	1.4%	1.9%
Professional- scientific & tech svcs	1.2%	1.5%	1.3%
Management of companies	0.0%	0.0%	0.0%
Administrative & waste services	1.4%	3.1%	1.6%
Educational svcs	1.2%	2.4%	1.1%
Health & social services	5.1%	9.3%	6.7%
Arts- entertainment & recreation	3.3%	3.9%	4.4%
Accomodation & food services	1.9%	4.4%	1.6%
Other services	3.0%	5.7%	2.8%
Government & non NAICs	11.9%	15.5%	21.5%
Totals	100.0%	100.0%	100.0%

The preceding table allows us to gauge sectoral strength in the regional economy; Table 9 shows which counties accounted for which components of industrial activity in the region. Union County had 27 percent of the output, 27 percent of the jobs, and 29 percent of the value added. Clark County generated almost 30 percent of regional output, had 25.4 percent of all jobs, and made 28.2 percent of

the value added. Again, comparatively, areas where the value added share exceeds the jobs share are areas where productivity is higher per job and compensation is higher than the regional average. Only Union and Clarke Counties' shares of value added exceeded their jobs shares – hence, per job compensation and productivity are higher in those two counties.

Table 9

Industrial Summaries by County

Summary all Counties	Total Industrial Output	Jobs	Value Added
Adams	9.9%	10.1%	9.7%
Clarke	29.6%	25.4%	28.2%
Decatur	11.3%	15.0%	12.1%
Ringgold	10.7%	11.6%	10.1%
Taylor	11.6%	11.5%	11.1%
Union	26.8%	26.5%	28.8%
Region	100.0%	100.0%	100.0%

Table 10 compares the major industrial values found in South Iowa to those of the state of Iowa. This table is very instructive and gives a good idea of the region's comparative strengths and weaknesses vis à vis the state of Iowa. The first set of values to understand are the column totals. These are “expected” values. They represent the region's total shares of state activity in the categories measured. The region had 1.1 percent of the state's industrial output, 1.4 percent of jobs, and paid out 1.0 percent of the state's value added.

Now that we know the expected values, we can look to where the region has categorical strengths and weaknesses. Values in blue typeface are areas that were much higher than the expected values. Those in red typeface are much below the expected values.

In terms of the aggregated value of output, the region holds very strong statewide competitive positions in arts – entertainment and recreation at 4.6 percent of state output (this is primarily casino operations), agriculture at 3.1 percent, transportation and warehousing, and in educational services. The region is comparatively weak in output in wholesale trade, finance and insurance, real estate, information services, professional services, and the management of companies. The same categories of industrial strength and regional industrial weakness carry across to the jobs and to the value added measures. The share of value added exceeds the share of jobs in transportation and warehousing and in

arts – entertainment and recreation, indicating that returns to workers and investors are, on average, higher in these industries than the overall state experience. In all, the region’s share of state value added at 1.0 percent is significantly less than its share of jobs of 1.4 percent.

Table 10

Summary Industrial Accounts for the South Iowa Region, 2003, as Percentages of State Totals			
South Iowa	Total Industrial Output	Jobs	Value Added
Ag, Forestry, Fish & Hunting	3.1%	3.6%	2.6%
Mining	1.0%	0.9%	1.0%
Utilities	1.1%	1.8%	1.2%
Construction	0.8%	0.9%	0.7%
Manufacturing	0.8%	1.1%	0.8%
Wholesale Trade	0.6%	0.8%	0.6%
Transportation & Warehousing	2.1%	2.1%	2.3%
Retail trade	1.0%	1.1%	0.9%
Information	0.4%	0.6%	0.3%
Finance & insurance	0.5%	0.6%	0.6%
Real estate & rental	0.5%	0.8%	0.5%
Professional- scientific & tech svcs	0.4%	0.6%	0.4%
Management of companies	0.0%	0.0%	0.0%
Administrative & waste services	0.8%	1.0%	0.8%
Educational svcs	1.7%	1.7%	1.5%
Health & social services	0.9%	1.3%	1.0%
Arts- entertainment & recreation	4.6%	2.9%	4.8%
Accommodation & food services	0.9%	0.9%	0.8%
Other services	1.2%	1.4%	1.1%
Government & non NAICs	1.3%	1.6%	1.3%
Totals	1.1%	1.4%	1.0%

V. Identifying Industrial Targets

Section Objectives:

- *Introduce industrial targeting methodology and measures.*
- *Identify industries that historically prefer this region.*
- *Distinguish between regional base and support industries.*
- *Identify competitive, stable, or declining base industries.*
- *Identify regional emerging industries.*
- *Establish and demonstrate evaluation criteria to help planners understand characteristics of regional targeted industries.*

Findings Overview:

- Agriculture-related industries dominate the region's industrial structure.
- The region has four key competitive industries where locational advantages are very evident. Three of these are manufacturing industries, and the fourth is in the transportation and warehousing sector.
- The region has 16 additional key industries that could be classified as stable. This group includes 12 manufacturing industries, two industries in the utilities sector, and two transportation industries.
- The region has six key industries that are in decline, two of which are not in the manufacturing sector.
- The region has three industries that are growing substantially faster than the national average. These include one industry each in the manufacturing sector, the information sector, and the services sector.

An important objective of industrial targeting research is to help economic development planners to zero-in on an area's production, trade, and service strengths and to assist in identifying emerging industries. Some economic development planning is analogous to a personal investment strategy where investors attempt, via research and experience, to place their resources into investments that will balance their expectations for growth against their respective tolerances for risk. An investor would not seriously think about putting funds into a category that research indicated might not grow in the near future. Smart investors would be careful about fads and bandwagons. Finally, investors would move resources away from categories that were likely to decline. Economic developers must think along the same lines.

This analogy to economic development is apt, but only to a point. Regional economic development planners are not in charge of, nor do they have the power

to influence, the whole regional economy. To pretend so would be silly, if not arrogant. Instead, economic development practitioners have an opportunity to steer both public and private investment dollars and activities into areas that may accomplish one of several important economic development goals. For example, developers may wish to

- Encourage the diversification of industrial production in an area to offset historic patterns in order to try to move the regional industrial mix into the direction of the state or national economy,
- Capitalize on existing industrial strengths and use those strengths to leverage similar industries or industries that link well with that historical base,
- Nurture nascent industrial activity appearing to hold promise or further the development of regional or sectoral niche industries, or
- Search for new firms that allow for more efficient utilization of existing private and public infrastructure such as private and public transportation, storage, energy production capacity, and municipal utilities. Regional education capacity could also be considered in this instance.
- Enhance the average earnings potential of regional labor force members and the total incomes of the average regional household.

In all of these examples, the economic development planners ideally are using sound industrial, labor force, and other economic research to inform their decisions. They are not transforming the economy regionally, they are working to use scarce public resources in manners that are efficient and offer the potential for desirable economic and social outcomes.

The primary objectives of this portion of the analysis are three-fold:

- Clarify the region's overall industrial strengths
- Identify industries that have a higher potential for locating in the region.
- In so doing, we hope to help identify industries that have comparatively attractive economic development impacts to include,
 - Potential future growth
 - Wage values
 - Efficient utilization of existing private and public capacities
 - Ability to contribute to the regional tax base

The targeting methodology employed in this analysis looks at three main industry selection criteria

- Existing regional competitive advantages
- Growth potential
- Evidence of emerging industries

Organizing the Primary Data Sets

There are two primary sources of data for our analysis. We are employing Minnesota Implan data for our analysis of regional industrial structure and competitiveness. We buy this data set annually. Implan data have a high degree of detail and allow us to gain insights into regional industrial composition that is not available from governmental sources. The other major source for regional data is the Quarterly Census of Employment and Wages (QCEW) administered by the Iowa Department of Workforce Development. These data were known historically as ES 202 files. They are also highly detailed at the county level, and they provide valuable insights into industrial compositions. The data, however, must be managed carefully so as not to unintentionally reveal proprietary information about firms in an area.

The first steps in conducting the targeted industry assessments for the region involved setting two key analysis parameters: a reasonable time period for analysis and the level of industrial detail. For the time parameter, we are primarily, regionally, only looking at the 2000 to 20004 period as our era of contemporary change.

The selection of the appropriate level of industrial detail was influenced by structural limitations of the data sets used for analysis. We are relying on Minnesota Implan data as the foundation for our regional industrial social accounts. Those data were compiled using a 1997 North American Industry Classification System (NAICS) basis, which has minor differences from the 2002 NAICS coding structure currently in use by Iowa Workforce Development. Furthermore, the Implan data are organized at several different levels of industrial specification. Some industries are aggregated to the two-digit NAICS level. In other instances the data set contains four, five, and even six-digit industrial classifications. Importantly and beneficial for our purposes, Implan data are highly specific in the manufacturing sector.

Reconciling data set organizational structures required us to align IMPLAN data and the QCEW data sets. A complete set of Implan industrial accounts in the region was collapsed and aggregated at no greater than the NAICS five-digit level, although several industries were aggregated at a lower level. Next, the regional QCEW data sets for our measurement years, 2000 and 2004, were aligned so that they matched the final aggregations of the IMPLAN data set. These data reduction steps transformed Implan data detail from a 509 sector data set to a 267 sector data set. The trade off for a reduction in industrial detail is enhanced alignment with the QCEW data set, which allows us to compile counts of firms and the amount of employment change in the industries, an elimination of the likelihood that we are violating disclosure rules, and a workable and manageable list of industries in the region with which to work.

Targeted Industry Selection Process

With our resulting data sets, we looked at all industries in the region using the following potential targeted industry selection criteria:

1. Firm size: There were 25 or more jobs in the industry region-wide.
2. Regional specialization: The industries' location quotients, a measure of local industrial specialization, were greater than 1.50 in 2003.
3. Competitive position change: There was evidence of a positive "shift" in employment in an industry in excess of 25 jobs, regardless of its location quotient.*

Selection criteria 1 and 2 identify industries that have a significant presence in the region (both in size and in specialization). Job shifts calculated in Item 3 allow us to differentiate industries that are competitive, stable, declining, and emerging.

Location quotients are a standard measure of an area's industrial composition and degree of industrial specialization. Using the U.S. as a basis for comparison,

* As the entire region actually lost jobs over the period assessed, we are employing "shift" calculations instead of actual employment change to denote industrial categories within which the region may be increasing in competitiveness vis a vis the nation even though employment may not be growing regionally or nationally. A positive shift of 25 jobs means that considering the national experience in that industry, there were 25 or more jobs than would have been expected had the regional industry behaved like the industry did nationally. A negative shift of 25 jobs (or more) means that the regional industry performed less well than the same industries nationally.

an area's location quotient (LQ) for an industry is simply the percentage of jobs in that industry locally divided by the percentage of jobs in that industry nationally:

$$LQ = \frac{\frac{\text{Regional jobs in industry } i}{\text{Regional total jobs } t}}{\frac{\text{U.S. jobs in industry } I}{\text{U.S. total jobs } T}}$$

A LQ of 1.0 means that an area has the same percentage of jobs in an industry as the national average. A LQ < 1.0 means that there is a regional deficit of jobs in an industrial category, the region does not demonstrate production specialization in that instance. A LQ > 1.0 means that there is evidence of industrial specialization. Our cut-off is 1.50. That means, considering the national experience, industries in the region meeting this criterion have 50 percent or more jobs than the national average would have suggested. The higher the LQ in an industry in a region, the higher the assumed level of specialization.

We also use job shifts as a proxy indicator of LQ change. The LQs in our analysis were calculated from the transformed Implan data set for the regional and U.S. economies. We also, however, calculated industrial job shifts for the 2000 to 2004 period using QCEW data. We do not have a NAICS-compatible Implan data set for those two years for the region and the U.S. By definition, however, industries with positive job shifts over this period of time will have realized an increase in their LQs. Industries with a negative job shift will have realized a decrease in their LQs. For the short period assessed, the job shifts indicate changes in industrial competitiveness.

Initial Selection Results

There are six subsequent tables of industrial ratings resulting from our initial, targeted industry selection criteria:

- **Agricultural Industries.** Industries with 25 or more jobs and an LQ > 1.50. Employment shifts were not used to select or evaluate the region's agricultural base industries.
- **Competitive Industries.** Industries with 25 or more jobs, with an LQ > 1.50, and with a positive job shift between 2000 and 2004 of 25 or more.

- **Stable Industries.** Industries with 25 or more jobs, with an LQ > 1.50, but that had shifts of ± 24 jobs.
- **Declining Industries.** Industries with 25 or more jobs, with an LQ > 1.50, but that had job shift declines of 25 or more.
- **Emerging Industries.** These are industries that do not meet the above criteria, but simply had a positive job shift in the region of 25 or more and are, therefore, worthy of our scrutiny.
- **Support Industries.** These industries meet the criteria for minimum jobs, LQs, and job shifts, but are not considered to be traditional, base industries.

Table 11 lists the region's 7 agricultural base industries. These industries had at least 25 jobs in 2003* and LQs > 1.5. Indeed, the area's specialization in agricultural production is extremely pronounced.

Table 11

Agricultural Industries

2002 NAICS	Industry Description	Jobs	LQ
1122, 1124-9	Hog and Other Animal Production	1,469	905.2
1121	Cattle Ranching and Farming	1,062	564.2
11113-9	Grain Farming	1,058	615.7
11111-2	Oilseed Farming	649	1,044.7
11194,9	Hay and All Other Crop Farming	122	413.3
115	Support Activities for Agriculture and Forestry	97	46.1

Table 12 lists the region's four competitive industries. These industries had at least 25 jobs in 2003, LQs > 1.5, and positive job shifts of 25 or more between 2000 and 2004. The largest industries in this group, measured both by employment size and location quotients, are animal slaughtering and processing and warehousing and storage. The other two manufacturing industries included in this group have a more limited presence within the region.

* Job totals are from the 2003 Implan data set for this region.

Table 12

Regionally Competitive Industries

2002 NAICS	Industry Description	Jobs	LQ
31161	Animal Slaughtering and Processing	794	16.0
493	Warehousing and Storage	569	15.2
	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment		
33341	Manufacturing	80	2.0
3152	Cut and Sew Apparel Manufacturing	78	3.7

Table 13 lists the region's 16 competitive, but stable industries. These industries meet the same competitiveness criteria as the previous group but had job shifts that ranged from -24 to +24. The largest industry in this group is truck transportation. The highest LQs are other leather and allied product manufacturing and nonferrous metals foundries.

Table 13**Regionally Stable Industries**

2002 NAICS	Industry Description	Jobs	LQ
484	Truck Transportation	657	2.5
33152	Nonferrous Metal Foundries	185	21.5
2211	Electric Power Generation, Transmission and Distribution	123	1.8
482	Rail Transportation	78	5.5
33361	Engine, Turbine, and Power Transmission Equipment Manufacturing	75	3.9
33271	Machine Shops	72	2.3
3169	Other Leather and Allied Product Manufacturing	58	28.9
33313	Mining and Oil and Gas Field Machinery Manufacturing	48	7.3
32199	All Other Wood Product Manufacturing	43	4.8
33392	Material Handling Equipment Manufacturing	42	4.2
33621	Motor Vehicle Body and Trailer Manufacturing	40	1.9
32531	Fertilizer Manufacturing	37	12.3
33311	Agricultural Implement Manufacturing	34	5.7
33329	Other Industrial Machinery Manufacturing	31	2.2
32192	Wood Container and Pallet Manufacturing	28	5.9
2213	Water, Sewage and Other Systems	28	4.3

Table 14 lists the six industries that meet two of the selection criteria, jobs > 25 and LQ > 1.50, but which realized net declining shifts of 25 jobs or more between 2000 and 2004.

Table 14

Regionally Declining Industries

2002 NAICS	Industry Description	Jobs	LQ
713	Amusement, Gambling, and Recreation Industries	992	7.8
611	Educational Services	619	1.6
31134	Non-chocolate Confectionery Manufacturing	256	74.2
33531	Electrical Equipment Manufacturing	202	17.0
3363	Motor Vehicle Parts Manufacturing	166	1.7
33593	Wiring Device Manufacturing	58	6.8

Table 15 lists industries in the region that are emerging. Emerging industries gained a net shift of at least 25 jobs, although they did not meet minimum size and location quotient criteria. By definition, then, these industries' location quotients are increasing.

Table 15

Regionally Emerging Industries

2002 NAICS	Industry Description	Jobs	LQ
5111	Newspaper, Periodical, Book, and Directory Publishers	105	0.6
5616	Investigation and Security Services	86	0.6
33331	Commercial and Service Industry Machinery Manufacturing	20	0.5

Finally, Table 16 lists three additional industries with a strong presence in the region. These are service industries whose primary purpose is to support the existing population or industrial base, but which generally are not thought of as industrial prospects.

Table 16

Regional Support Industries

2002 NAICS	Industry Description	Jobs	LQ
623	Nursing and Residential Care Facilities	1,051	3.3
624	Social Assistance	700	1.9
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	97	1.5

Scoring Industrial Targets

The accompanying tables provide a detailed listing of the six categories of firms identified in Tables 11 through 16 along with an assessment of their relative rankings in several important categories. These relative rankings are color-coded to reflect generally positive, neutral, or negative considerations relative to the industry of scrutiny. We will list actual values in an appendix to the final report for readers who are statistically needy.

- Employment and location quotients – the first two columns show relative rankings for the number of jobs and location quotient measures used for the initial targeted industry screening criteria. Both are ordered by thirds: the higher third = blue, the next third = white, and the lower third = red.
- Job Shifts – this was another of the initial screening criterion employed to choose our targeted industries. It tells us, regardless of national industrial performance, whether the region is gaining or losing competitive job shares. Blue (high) industries realized a shift of 25 jobs or greater, white (medium) ± 24 jobs, and red (low) declined by 25.
- National employment growth, 2000 to 2004 – this indicator tells us whether this industry is, nationally, growing slower than the national average, at about the same pace, or faster than the national average during the current decade. Blues grew by at least a percentage point more

annually than the overall national average for all jobs, whites by ± 1 percentage point from the overall national average, and red by at least a percentage point less.

- Earnings index – earnings are assessed relative to the regional average labor earnings per job. Economic development planners normally pay close attention to the average wage value of new and retained jobs. The raw data are indexed to the regional average. These data, however, are ordered by thirds: the higher third = blue, the next third = white, and the lower third = red.
- Productivity: Output per job – firms with very high industrial output per job are normally capital or technology intensive firms. These data are ordered by thirds: the greater third = blue, the next third = white, and the lesser third = red.
- Region to U.S. output per jobs – this indicator compares regional output per job to the U.S. average for that industry. These data are not ordered by thirds; instead, those scoring a blue value (high) were more than 10 percent greater than the U.S. average (1.0), those within ± 10 percent of the U.S. average are white, and those 10 percent lower were scored red.
- Regional linkages, multiplier – this is what is called a Type I multiplier, and it was obtained from the Implan data set. Higher Type I multipliers indicate strong linkages to supplying firms in the region. Firms with higher Type I multipliers are generally more valuable to a regional economy. These data are ordered by thirds: the larger third = blue, the next third = white, and the bottom third = red.
- Regional linkages, regional input purchases per firm – this measure allows us to determine whether the firms that we are scrutinizing make large amounts of purchases from regional suppliers (irrespective of their Type I multiplier). These data are ordered by thirds: the greater third = green, the next third = yellow, and the lower third = red.
- Labor income multiplier – another measure of the value of labor in an industry is the assumed relationship of labor spending in that industry to other incomes in the region. If industry incomes are high, they create more household spending in the region and further stimulate jobs. These

data are ordered by thirds: the higher third = blue, the next third = white, and the bottom third = red.

- Education – using national industrial averages from the 2000 Census Public Use Micro Sample, the average years of schooling of all workers in the selected industries were scored to determine whether the industries have, comparatively, higher or lower educational demands. These data are ordered by thirds: the highest third = blue, the next third = white, and the lowest third = red.
- Average firm size, sales – all things equal, when it comes to firm recruiting and firm linkages with a regional economy, larger firms are more desirable. Average firm size rankings are provided for two types of firms: proprietor firms with no paid employees, and all other firms with paid employees. These data are ordered by thirds: the larger third = blue, the next third = white, and the bottom third = red.
- Average firm size, employees – data indicating the average number of employees per firm are ordered by thirds: the largest third of firms = blue, the next third = white, and the smallest third of firms = red.

Tables 17-22 display the color-coded assessments for the region's agricultural industries, regionally competitive industries, regionally stable industries, regionally declining industries, emerging industries, and regional support industries. In all of the tables, industries marked with an asterisk (*) have fewer than 3 firms present within the region.

Table 17

Agricultural Sector

	Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Oilseed Farming.....	■	■			●	●	■	●	■	■	●			
Grain Farming.....	■	■			●	●	■	■	■	■	●			
Hay and All Other Crop Farming.....	■	■			■	■	■	●	■	■	●			
Cattle Ranching and Farming.....	■	■			●	■	■	■	■	■	●			
Poultry and Egg Production.....	●	■			■	■	■	●	■	●	●			
Hog and Other Animal Production.....	■	■			●	●	■	■	■	■	●			
Support Activities for Agriculture and Forestry.....	■	■		■	●	●	■	●	●	●	●	●		

Key for values: ■ High ■ Moderate ● Low

Table 18

Regionally Competitive Industries

	Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Animal Slaughtering and Processing.....	■	■	■	■	■	■	■	■	■	■	●	■	■	■
HVAC and Commercial Refrigeration Equipment Mfg....	■	●	■	●	●	■	●	■	■	■	■	■	■	■
Cut and Sew Apparel Mfg. *.....	■	■	■	●	■	■	■	●	●	●	●	●	■	●
Warehousing and Storage *.....	■	■	■	■	■	■	■	●	●	■	■	■	●	■

Key for values: ■ High ■ Moderate ● Low

Table 19

Regionally Stable Industries

	Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Electric Power Generation and Distribution.....	■	●	■	●	■	■	●	●	●	■	■	■	■	■
All Other Wood Product Mfg.....	●	■	■	●	■	■	●	■	■	●	■	■	■	■
Machine Shops.....	●	■	■	●	■	■	●	■	■	●	■	■	■	■
Truck Transportation.....	■	●	■	■	●	■	●	■	■	■	■	■	■	■
Water, Sewage and Other Systems *.....	●	■	■	■	■	■	●	●	●	■	■	■	■	■
Other Leather and Allied Product Mfg. *.....	●	■	■	●	■	■	■	●	●	●	■	■	■	■
Wood Container and Pallet Mfg. *.....	●	■	■	●	■	■	■	●	●	●	■	■	■	■
Fertilizer Mfg. *.....	●	■	■	●	■	■	■	■	■	■	■	■	■	■
Nonferrous Metal Foundries *.....	■	■	■	●	■	■	■	●	●	■	■	■	■	■
Agricultural Implement Mfg. *.....	●	■	■	●	■	■	■	■	■	■	■	■	■	■
Mining and Oil and Gas Field Machinery Mfg. *.....	●	■	■	●	■	■	■	■	■	■	■	■	■	■
Other Industrial Machinery Mfg. *.....	●	●	■	●	■	■	■	■	■	●	■	■	■	■
Engine and Power Transmission Equip. Mfg. *.....	■	■	■	●	■	■	■	■	■	■	■	■	■	■
Material Handling Equipment Mfg. *.....	●	■	■	●	■	■	■	■	■	■	■	■	■	■
Motor Vehicle Body and Trailer Mfg. *.....	●	●	■	●	■	■	■	■	■	■	■	■	■	■
Rail Transportation *.....	■	■	■	■	■	■	■	■	●	■	■	■	■	■

Key for values: ■ High ■ Moderate ● Low

Table 20

Regionally Declining Industries

	Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Educational Services.....	■	●	●	■	●	●	●	■	●	■	■	●	●	●
Amusement, Gambling, and Recreation Industries.....	■	■	●	■	■	●	■	■	●	■	■	●	●	●
Nonchocolate Confectionery Mfg. *.....	■	■	●	●	■	■	●	■	■	■	●	●	■	■
Electrical Equipment Mfg. *.....	■	■	●	●	■	■	■	■	■	■	■	■	■	■
Wiring Device Mfg. *.....	●	■	●	●	■	■	■	■	■	●	■	■	■	■
Motor Vehicle Parts Mfg. *.....	■	●	●	●	■	■	■	■	■	■	■	■	■	■

Key for values: ■ High ■ Moderate ● Low

Table 21

Regionally Emerging Industries		Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Commercial and Service Industry Machinery Mfg.....		●	●	■	●	●	■	●	■	■	●	■	■	■	■
Newspaper, Periodical and Other Publishers.....		■	●	■	●	●	●	●	■	■	●	■	●	■	■
Investigation and Security Services.....		■	●	■	■	●	●	●	■	●	●	■	●	●	■

Key for values: ■ High ■ Moderate ● Low

Table 22

Regional Support Industries		Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Nursing and Residential Care Facilities.....		■	●	■	■	●	●	●	■	●	■	■	●	■	■
Social Assistance.....		■	●	■	■	●	●	●	■	●	■	■	●	●	●
Commercial and Industrial M&E Repair.....		■	●	■	■	●	●	●	■	■	●	■	■	●	●

Key for values: ■ High ■ Moderate ● Low

Isolating Cluster Industry Candidates

We are interested in identifying industries that meet industrial cluster criteria because there is evidence that these kinds of industrial configurations are generally more beneficial for economic growth provided:

- (a) beneficial external scale economies are in evidence in the region to which the industries can avail,
- (b) there is the potential for these industries to coordinate product development and other common industrial activities, and
- (c) the firms either have or have the potential for supply linkages in the current region.

Items (a) and (b) are the characteristics of horizontal cluster relationships, and (c) represents the important vertical linkages that are important in economic development and regional income support.

For our first pass through the data to determine potential regional industrial clusters, our existing key or emerging industries must have at least 5 firms. The 5 firm minimum simply assumes that these industries are of sufficient numbers to indicate the potential for inter-firm communication and, potential, economic planning. By so doing, we pare our original list of key regional or emerging industries sharply. Those listings are contained in Table 26.

In Table 23 we have listed all of the firms that meet the 5 firm screening by category of potential industrial targets or concern: competitive industries, stable industries, declining industries, and emerging industries. We have also retained their overall color-coded scorings.

Table 23

Industries with Cluster Characteristics	Jobs 2003	Location Quotient 2003	Regional Job Shift 2000-2004	US Job Change 2000-2004	Earnings Index	Output per Job (\$mil)	Output per Job Ratio	Output Multiplier	Labor Income Multiplier	Gross Regional Inputs (\$mil)	Average Education (years)	Firm size (sales), non-employers	Firm size (sales), employer firms	Firm size (employees)
Oilseed Farming.....	■	■			●	●	■	●	■	■	●			
Grain Farming.....	■	■			●	●	■	■	■	■	●			
Hay and All Other Crop Farming.....	■	■			■	■	■	●	■	■	●			
Cattle Ranching and Farming.....	■	■			●	■	■	■	■	■	●			
Poultry and Egg Production.....	●	■			■	■	■	●	■	●	●			
Hog and Other Animal Production.....	■	■			●	●	■	■	■	■	●			
Support Activities for Agriculture and Forestry.....	■	■		■	●	●	■	●	●	●	●	●		
Animal Slaughtering and Processing.....	■	■	■	■	■	■	■	■	■	■	●		■	■
Machine Shops.....	●	●	■	●	■	●	■	■	■	●	■		●	●

This table identifies precious little about the region’s economic strengths that were not already known. This region has extensive specializations in agriculture and industries affiliated with agriculture. The only non-agricultural specialty is in the incidence of machine shops, although in each evaluative measurement instance, that sector scored either medium or low.

There are additional points that need to be made here. The identification of a cluster or set of industrial clusters in a region, *a priori*, means very little. Planners must assess the characteristics of each industry in each group more thoroughly to determine if there is a reasonable potential for growth. In each agri-business category, regardless of the grouping and configuration, long term patterns of change indicate reduced jobs in agriculture, reduced regional economic product per agriculture job, and very slow growth in other agriculture related industries.

It should be evident to most people that the region has extensive horizontal and vertical linkages among its agricultural sector. It should also be evident that those industries have not demonstrated robust growth over the past two decades. There are times when the categorization and identification of industrial clusters does little to inform regional development potential and policies.

VI. Import Substitution

Section Objectives

- *Illustrate how industrial growth opportunities are enhanced through import substitution*
- *Identify major regional imports*
- *Determine which commodity categories present possibilities for economic development*

Overview

- The top 5 imported commodities or manufactured products were animal slaughtering and processing products at \$43.2 million, animal food products at \$32.1 million, petroleum refinery products at \$26.4 million, pesticide and other agricultural chemical products at \$21 million, and food and feed grain at \$14.8 million.
- The top 5 imported services were real estate at \$66.5 million, wholesale trade at \$45.4 million, management of companies and enterprises at \$37 million, credit intermediation and related activities at \$17.8 million, and insurance carriers at \$11.8 million.
- Several of these industries are not good candidates for regional industrial recruitment because they represent highly specialized products or services, some of which must always be purchased outside the region.
- Industries with high new firm equivalent scores included support activities for agriculture and forestry at 9; credit intermediation and related activities at 6; architectural, engineering and related services at 6; and management, scientific, and technical consulting services at 6.

When we analyze industrial growth opportunities for a region, it is important to assess all components of the regional economy. Thus far, we've looked primarily at regional industrial specialization – areas where the economy is producing goods for exports. There are two other important components to normal market activity in a region: overall regional consumption of goods and services (by households, institutions, and private industry), and the amount of imports that flow into a region.

It is instructive to think of an economy as a set of plusses and minuses. One of the ways that we can configure our thinking about regional dynamics is to describe how money accrues to the regional economy. In a very simplified vein,

Regional Income	=	All regional consumption (households, industries, and institutions)
	+	All export sales
	-	All import purchase
	±	Other factors (investments, taxation, government transfers in, etc)

Regional economic development planners primarily work at stimulating (or replacing lost) export sales. They generally can do very little about overall regional household consumption patterns, but there are opportunities for an economy to increase regional industrial consumption.

The mechanism for that possible enhancement is through the investigation of potential import substitution by new local industrial production. Imports, according to the simple table above, take income out of an area. By decreasing imports in (a minus) and enhancing production of that commodity locally, you increase regional consumption (a plus).*

There are a variety of reasons that commodities are imported. For one, Iowa farmers like to believe that they the world, the vast majority of our household foodstuffs are imported – other parts of the U.S. are much more efficient and specialized in producing many of the necessary fruits, vegetables, and meat products upon which we rely. A second reason is that there simply is not enough

* There have been regional efforts to jump start local incomes by encouraging a “buy local” preference among industries and households. The cities of Omaha and Des Moines both launched buy local campaigns designed primarily to encourage local industries to seek local suppliers before shopping outside of their metropolitan areas for commodity inputs. The idea is that by enhancing local intermediate commodity demand, spending is retained locally and the area gets the added benefit of enhanced multiplier activity as a consequence. The success of these initiatives is, however, very difficult to measure as there truly is no baseline value to compare one period (before the initiative) with some future values. Most of the successes are anecdotal. For additional information about some of these efforts in Iowa see David Swenson, *Buying Local in Union County and Creston: An Economic Impact Assessment*, available electronically at www.econ.iastate.edu/research/webpapers/paper_12298.pdf .

demand density, either by industry or by households, to warrant the location of a production facility in the region. As a third consideration, the region may not possess requisite natural resources or other raw materials necessary to produce the commodity. A good example of this would be petroleum or lumber products. Lastly, there may be labor, infrastructure, or other market factors that rule out an area from producing a commodity.

Still, it may be possible to expand industrial targeting in an area by investigating industries that might have the potential to locate in a region. If import substitutes can be identified, they have the potential to decrease sales leakages, add jobs, and enhance regional income and job multipliers.

Criteria for Selecting Potential Substitutes

We are estimating the region's imports of manufactured goods using the data produced by our Implan model of the region. That aggregated data set identifies all the commodities expected to be used by all industries in South Iowa. It also estimates how much of that commodity demand is expected to be met by local producers. The difference between total commodity demand and the regional commodity supply is the commodity import value. We use following criteria to screen and evaluate our data:

1. Total regional imports: We list regional inputs for which estimated imports exceeded \$4 million in the most recent year for which data are available.
2. New firm equivalents: We determine the number of firms of average national size that might be supported by the region's total demand for the given input. This value is obtained by dividing the total national sales for the industry producing the input by the number of firms in that industry nationally. If the average firm has sales of \$20 million, then it would take \$20 million of local commodity imports to even consider attracting a new firm. In the accompanying table they are labeled "new firm equivalents."
3. Production potential: There are two configurations to consider for import substitution: expanding local sales by existing firms or attracting new firms to supply local industrial demand. In the first instance, production potential is indicated by evidence of firms already present in the region. In the accompanying table, we identify whether there are firms in the region producing that commodity with the idea that if there are, it is easier to work to stimulate a possible expansion in sales of existing firms rather than recruit

new firms to the area. Absent local firms, the industries would require further assessment to ascertain whether they, in fact, can reasonably exist in the area.

4. **Competitive strength:** Where a local presence is evident for the candidate industry, we also include the region's location quotient to indicate if it has a local competitive advantage or disadvantage in the industry. The scoring for location quotients are "low" if the value is below 0.5, "moderate" for values between 0.5 and 1.5, and "high" for values of 1.5 and above.
5. **Occupational suitability:** This measure indicates if the industrial category has occupational requirements compatible with the region's labor force. Occupational suitability score were calculated for each industry as follows. First, we compared the South Iowa region's occupational structure with average for Midwestern states. Occupations with a lower than expected share of total employment in South Iowa (a comparison akin to location quotients) were flagged as "weak" occupational categories. Next, we prepared an industry-by-occupation employment matrix for the Midwest. For each industry, we calculated the Midwestern average percentage of employment falling within South Iowa's weak occupational categories. This percentage was used to develop an "occupational suitability" score. For industries rated as "low" in occupational suitability, the region's existing occupational mix is unfavorable to the import substitute candidate firm. A "moderate" rating indicates an average presence of occupational suitability in the region. A "high" rating means the existing labor force is relatively well-suited to work in the candidate industry. This scoring simply assigned low, medium, or high values to each third of the data.
6. **Job growth:** This measure indicates if the industrial category demonstrates comparatively favorable employment characteristics over the 2000 to 2004 period. These data were each ranked from lowest to highest among the group. Industries that declined by more than 1 percentage points below the overall, national average rate of growth during the period of scrutiny were graded "low"; those ranging from one percentage points above and below the national average were graded "moderate"; and those whose rate of change was at least one percentage points better than the national average were graded "high".
7. **Targeted industry candidates:** We also indicate whether the import substitute candidates have already been identified as regional targeted firms.

Import Substitution Candidates

The top 5 imported commodities or manufactured products were animal slaughtering and processing products at \$43.2 million, animal food products at \$32.1 million, petroleum refinery products at \$26.4 million, pesticide and other agricultural chemical products at \$21 million, and food and feed grain at \$14.8 million.

The top 5 imported services were real estate at \$66.5 million, wholesale trade at \$45.4 million, management of companies and enterprises at \$37 million, credit intermediation and related activities at \$17.8 million, and insurance carriers at \$11.8 million.

It would be a stretch to assume that these commodities and services might automatically be candidates for industrial recruitment. Several of these industries simply do not fit the South Iowa regional economy. For example,

- Some industries may be undesirable or unlikely candidates in light of existing national and international production locations and shifts in production locations in recent years.
- Resource-dependent industries such as petroleum refineries require capital-intensive production facilities located near input sources that are not present within the South Iowa region.
- Some of the region's import flows represent highly specialized financial and real estate services that are offered only in large, urban financial centers and could not reasonably be produced within the region.
- Other regional import flows through the wholesale trade sector represent highly specialized goods that are demanded in insufficient quantities to merit a local wholesaler.

Industries with high new firm equivalent scores included support activities for agriculture and forestry at nine firm equivalents. Three industries scored six new firm equivalents, including credit intermediation and related activities; architectural, engineering and related services; and management, scientific, and technical consulting services.

Among the region's "base competitive" industries, only one intersected with the import substitute list. Animal slaughtering and processing represented \$43.1 million of the region's total imports, but the new firm equivalent score for this

industry was very low. Two of the region's "base stable" industries produce identified import substitute commodities; however, only truck transportation indicates room for new firm equivalents. Two "base declining" industries intersected with the list and neither had import levels sufficient to justify a new firm. Last, four agricultural production industries represented regional imports in excess of the \$4 million cutoff.

Some of the more poorly-performing industries in terms of employment growth at the national level include telecommunications; motor vehicle parts manufacturing; internet service providers, web search portals, and data processing services; semiconductor and other electronic component manufacturing; paperboard container manufacturing; iron and steel mills and ferroalloy manufacturing; electrical equipment manufacturing; paper bag and coated and treated paper manufacturing; and alumina and aluminum production and processing.

Faster-growing industries include credit intermediation and related activities; management, scientific, and technical consulting services; other professional, scientific, and technical services; and legal services.

Table 24

Import Substitution Candidates	Imports (\$ millions)	U.S. average sales per firm (\$ millions)	New firm equivalents	Local firms 2004	Location quotient 2003	Occupational suitability	National job change, 2000-04	South Iowa target candidate
Real Estate.....	66.47	3.1	21	Y	●	●	■	N
Wholesale Trade.....	45.44	1.6	28	Y	■	■	■	N
Animal Slaughtering and Processing.....	43.18	36.3	1	Y	■	■	■	Base Competitive
Management of Companies and Enterprises.....	36.99	6.8	5	Y	●	●	■	N
Animal Food Manufacturing.....	32.11	20.2	2	Y	●	■	●	N
Credit Intermediation and Related Activities.....	17.77	3.1	6	Y	■	●	■	N
Grain Farming.....	14.81	na	Y	■	■	■	■	Agriculture
Poultry and Egg Production.....	13.55	na	Y	■	■	■	■	Agriculture
Plastics Product Manufacturing.....	13.22	10.6	1	Y	●	■	●	N
Insurance Carriers.....	11.85	9.1	1	Y	●	■	■	N
Telecommunications.....	11.55	10.9	1	Y	●	■	●	N
Other Professional, Scientific, and Technical Services.....	10.65	2.2	5	Y	■	●	■	N
Architectural, Engineering, and Related Services.....	9.72	1.7	6	Y	●	●	■	N
Fertilizer Manufacturing.....	9.26	21.0	0	Y	■	■	●	Base Stable
Truck Transportation.....	7.29	1.8	4	Y	■	■	■	Base Stable
Securities, Commodity Contracts, and Other Financial Investments and Related Activities.....	6.85	3.1	2	Y	●	●	●	N
Management, Scientific, and Technical Consulting Services.....	6.85	1.1	6	Y	●	●	■	N
Rental and Leasing Services.....	6.59	1.9	3	Y	■	■	■	N
Legal Services.....	6.48	1.2	5	Y	●	●	■	N
Scientific Research and Development Services.....	5.66	5.8	1	Y	●	●	■	N
Motor Vehicle Parts Manufacturing.....	5.28	35.0	0	Y	■	■	■	Base Declining
Construction.....	4.72	1.5	3	Y	■	■	■	N
Accounting, Tax Preparation, Bookkeeping, and Payroll Services.....	4.67	0.9	5	Y	●	●	■	N
Internet Service Providers, Web Search Portals, and Data Processing Services.....	4.57	3.0	2	Y	●	●	●	N
Computer Systems Design and Related Services.....	4.31	2.0	2	Y	●	●	●	N
Hay and All Other Crop Farming.....	4.10	na	Y	■	■	●	■	Agriculture
Petroleum Refineries.....	26.37	549.1	0	N	●	■	●	N
Pesticide and Other Agricultural Chemical Manufacturing.....	20.97	72.5	0	N	●	■	●	N
Oil and Gas Extraction.....	13.18	20.7	1	N	●	■	■	N
Semiconductor and Other Electronic Component Manufacturing.....	12.96	32.3	0	N	●	■	●	N
Support Activities for Agriculture and Forestry.....	10.10	1.1	9	N	■	■	■	Agriculture
Paperboard Container Manufacturing.....	8.93	18.6	0	N	●	■	●	N
Advertising and Related Services.....	8.79	1.9	5	N	●	●	●	N
Iron and Steel Mills and Ferroalloy Manufacturing.....	8.23	52.8	0	N	■	■	●	N
Starch and Vegetable Fats and Oils Manufacturing.....	7.58	120.5	0	N	■	■	●	N
Electrical Equipment Manufacturing.....	5.25	13.7	0	N	■	■	●	Base Declining
Air Transportation.....	4.85	20.4	0	N	●	●	●	N
Paper Bag and Coated and Treated Paper Manufacturing.....	4.20	20.8	0	N	●	■	●	N
Alumina and Aluminum Production and Processing.....	4.17	49.5	0	N	●	■	●	N

Key for values: ■ High
 ■ Moderate
 ● Low

VII. Regional Export Potential

Section Objectives

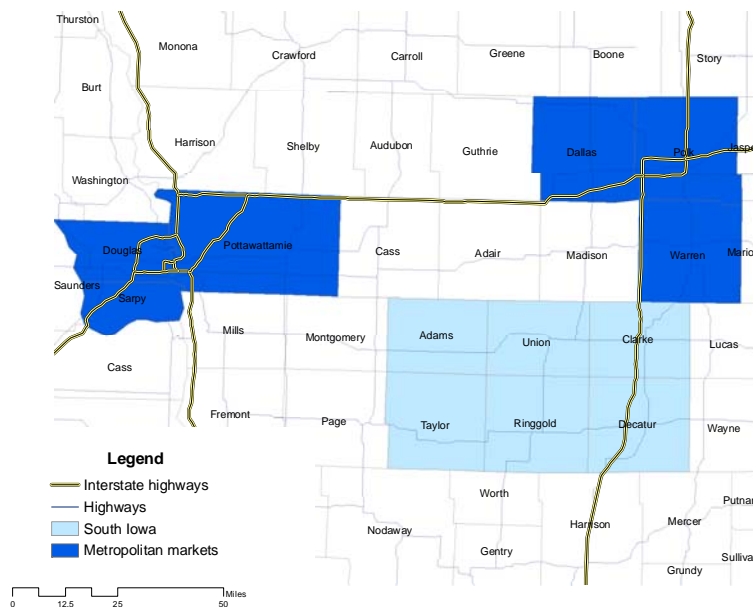
- *Identify commodity demands of nearby metropolitan markets*
- *Assess commodity demand to determine its intersection with SE Iowa industries*

Overview

- There were 97 commodities or services that fit the screening criteria and were candidates for regional export sales development.
- Of these commodities and services, 51 were produced by South Iowa industries.

While South Iowa must be attentive to a national and a global market, this section focuses on potential trade opportunities with nearby metropolitan markets. A map of the region is illustrated below. We constructed models that contained constituent counties for the Des Moines and Omaha-Council Bluffs metropolitan statistical areas. Those model aggregates were then assessed with regard to their respective collective demands for commodity imports. Those commodity types were matched with the list of all firms in South Iowa to identify whether those firms were candidates for additional regional export sales.

Figure 17



A caution: the data we analyze cannot identify the source of commodity imports, only that the commodity imports must come from outside of the designated study area. As a result, it is possible that meaningful fractions of the commodity inputs we might identify are already addressed by existing linkages with South Iowa firms. That noted however, Table 25 allows us to identify reasonably proximate candidates for export activity. We have used the same scoring criteria as in the import substitution candidate analysis. Only our threshold is different: we used aggregate regional external imports of at least \$50 million as our cut-off.

The top three commodity categories imported by the neighboring metropolitan regions were cattle ranching and farming products, hog and other animal production, and plastics products. Combined, these three commodities accounted for nearly \$1.7 billion in imports by these external economies.

The top three service categories imported by the nearby metropolitan regions included agencies, brokerages, and other insurance related activities, real estate, and telecommunications services. Together, the Des Moines and Omaha-Council Bluffs regions purchased nearly \$3.5 billion in these services from external markets.

At the outset we can exclude industries with a minimum firm threshold size exceeding the combined imports of the selected metropolitan market areas or whose firm threshold sizes indicate support for only one or two firms. Nine industries fall into this group, including petrochemical manufacturing, petroleum refining, three chemical manufacturing industries, two food manufacturing industries, and two other manufacturing industries.

There were several industries with low firm threshold size and high metropolitan import values. The top five included agencies, brokerages, and other insurance related activities; real estate; credit intermediation and related activities; advertising and related services; and management, scientific, and technical consulting services. The import activity in the selected metropolitan markets would support 100 or more average-sized firms producing these services.

Among all 97 candidates for regional export industry development, 15 also appear on the South Iowa region's targeted, or base, industry list. Four of those are classified as stable key industries. Two are classified as competitive base industries. Three are declining base industries, and one is an emerging industry

in the South Iowa region. In addition four agricultural industries and one support industry appear on the list for export industry development.

Industries not appearing on the South Iowa region's targeted industry list, but that have a local presence and/or a high occupational suitability rating include ready mix and other concrete product manufacturing; several fabricated metals industries; plastics product manufacturing; sawmills and wood preservation; veneer, plywood, and engineered wood product manufacturing; all other textile product mills; services to buildings and dwellings; couriers and messengers; and construction.

Industries present in the region, but with low occupational suitability and not appearing on the targeted industry list include credit intermediation and related activities; internet service providers, web search portals, and data processing services; computer systems design and related services; management, scientific, and technical consulting services; architectural, engineering, and related services; and securities, commodity contracts, and other financial investments and related activities.

Industries not present in the region (Table 26) and with a relatively low occupational suitability rating include advertising and related services; computer and peripheral equipment manufacturing; air transportation; and other information services.

From a growth standpoint, the worst-performing industries over the 2000-2004 time period include computer and peripheral equipment manufacturing; semiconductor and other electronic component manufacturing; electrical equipment manufacturing; and wiring device manufacturing.

Table 25

Candidates Present in South Iowa	Imports (\$ millions)	U.S. average sales per firm (\$ millions)	New firm equivalents	Local firms 2004	Location quotient 2003	Occupational suitability	National job change, 2000-04	South Iowa target candidate
Agencies, Brokerages, and Other Insurance Related Activities.....	2,002.73	1.0	2,054	Y	■	●	■	N
Cattle Ranching and Farming.....	997.50	na		Y	■	■	■	Agriculture
Real Estate.....	843.19	3.1	269	Y	●	●	■	N
Telecommunications.....	616.55	10.9	57	Y	●	●	●	N
Credit Intermediation and Related Activities.....	534.53	3.1	174	Y	■	●	■	N
Management of Companies and Enterprises.....	442.83	6.8	65	Y	●	●	■	N
Insurance Carriers.....	403.14	9.1	44	Y	●	●	■	N
Hog and Other Animal Production.....	379.24	na		Y	■	■	■	Agriculture
Plastics Product Manufacturing.....	327.56	10.6	31	Y	●	■	●	N
Motor Vehicle Parts Manufacturing.....	325.90	35.0	9	Y	■	■	●	Base Declining
Securities, Commodity Contracts, and Other Financial Investments and Related Activities.....	312.52	3.1	102	Y	●	●	●	N
Management, Scientific, and Technical Consulting Services.....	304.88	1.1	283	Y	●	●	■	N
Legal Services.....	215.83	1.2	178	Y	●	●	■	N
Internet Service Providers, Web Search Portals, and Data Processing Services.....	211.26	3.0	70	Y	●	●	●	N
Architectural, Engineering, and Related Services.....	208.02	1.7	120	Y	●	●	■	N
Employment Services.....	202.72	1.9	107	Y	■	■	●	N
Other Professional, Scientific, and Technical Services.....	197.90	2.2	90	Y	■	■	■	N
Computer Systems Design and Related Services.....	186.37	2.0	95	Y	●	●	●	N
Grain Farming.....	175.84	na		Y	■	■	■	Agriculture
Services to Buildings and Dwellings.....	163.21	0.6	256	Y	■	■	■	N
Pharmaceutical and Medicine Manufacturing.....	162.86	85.2	2	Y	●	●	■	N
Accounting, Tax Preparation, Bookkeeping, and Payroll Services.....	161.00	0.9	170	Y	●	●	■	N
Support Activities for Transportation.....	159.69	1.4	115	Y	■	■	■	N
Ready-Mix Concrete Manufacturing.....	142.50	5.1	28	Y	■	■	■	N
Wholesale Trade.....	141.05	1.6	87	Y	■	●	■	N
Couriers and Messengers.....	139.16	3.7	38	Y	■	■	●	N
Rental and Leasing Services.....	133.11	1.9	70	Y	■	●	■	N
Truck Transportation.....	125.08	1.8	71	Y	■	■	■	Base Stable
Newspaper, Periodical, Book, and Directory Publishers.....	124.09	5.8	21	Y	■	●	●	Emerging
Animal Slaughtering and Processing.....	122.92	36.3	3	Y	■	■	■	Base Competitive
Motion Picture and Video Industries.....	121.16	3.5	34	Y	●	●	■	N
Business Support Services.....	118.80	1.6	75	Y	■	■	■	N
Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing...	116.87	19.4	6	Y	■	■	●	Base Competitive
Office Administrative Services.....	112.20	2.3	49	Y	■	●	■	N
Commercial and Industrial M&E (except Automotive and Electronic) Repair and Maintenance.....	110.76	1.9	58	Y	■	■	■	Support
Other Support Services.....	109.11	1.8	60	Y	●	●	■	N
Veneer, Plywood, and Engineered Wood Product Manufacturing.....	107.00	11.3	9	Y	●	■	■	N
Printing.....	104.73	1.6	64	Y	●	●	●	N
Oilseed Farming.....	101.31	na		Y	■	■	■	Agriculture
Electric Power Generation, Transmission and Distribution.....	94.60	27.5	3	Y	■	■	●	Base Stable
Engine, Turbine, and Power Transmission Equipment Manufacturing.....	90.29	47.1	2	Y	■	■	●	Base Stable
All Other Fabricated Metal Product Manufacturing.....	83.35	7.2	12	Y	●	■	●	N
Performing Arts, Spectator Sports, and Related Industries.....	68.90	1.7	41	Y	●	■	■	N
Scientific Research and Development Services.....	61.64	5.8	11	Y	●	●	■	N
All Other Nonmetallic Mineral Product Manufacturing.....	59.95	4.8	13	Y	●	■	■	N
Animal Food Manufacturing.....	58.82	20.2	3	Y	●	■	●	N
Metal Can, Box, and Other Metal Container (Light Gauge) Manufacturing.....	57.98	25.3	2	Y	●	■	●	N
Waste Management and Remediation Services.....	57.05	2.8	21	Y	●	■	■	N
Other Concrete Product Manufacturing.....	56.37	3.7	15	Y	■	■	●	N
Construction.....	55.25	1.5	36	Y	■	■	■	N
Machine Shops.....	50.90	1.1	45	Y	■	■	●	Base Stable

Key for values: ■ High
 ■ Moderate
 ● Low

Table 26

Candidates Not Present in South Iowa		Imports (\$ millions)	U.S. average sales per firm (\$ millions)	New firm equivalents	Local firms 2004	Location quotient 2003	Occupational suitability	National job change, 2000-04	South Iowa target candidate
Oil and Gas Extraction.....	966.03	20.7	47	N	●	●	■	N	
Semiconductor and Other Electronic Component Manufacturing.....	646.96	32.3	20	N	●	●	●	N	
Petroleum Refineries.....	641.03	549.1	1	N	●	■	●	N	
Advertising and Related Services.....	472.11	1.9	248	N	●	●	●	N	
Pulp, Paper, and Paperboard Mills.....	274.53	96.3	3	N	■	●	●	N	
Starch and Vegetable Fats and Oils Manufacturing.....	248.99	120.5	2	N	■	■	●	N	
Resin and Synthetic Rubber Manufacturing.....	237.31	58.6	4	N	●	■	●	N	
Paperboard Container Manufacturing.....	228.86	18.6	12	N	●	■	●	N	
Iron and Steel Mills and Ferroalloy Manufacturing.....	203.02	52.8	4	N	■	■	●	N	
Computer and Peripheral Equipment Manufacturing.....	198.20	72.0	3	N	●	●	●	N	
Air Transportation.....	192.30	20.4	9	N	●	●	●	N	
Pipeline Transportation.....	188.15	10.9	17	N	●	■	●	N	
Coal Mining.....	172.96	18.5	9	N	●	●	■	N	
Ornamental and Architectural Metal Products Manufacturing.....	158.14	4.0	39	N	●	■	●	N	
Other Information Services.....	141.10	9.1	16	N	●	●	■	N	
Flavoring Syrup and Concentrate Manufacturing.....	127.59	131.4	1	N	●	●	●	N	
Plate Work and Fabricated Structural Product Manufacturing.....	116.94	5.3	22	N	●	■	●	N	
Paper Bag and Coated and Treated Paper Manufacturing.....	113.87	20.8	5	N	●	■	●	N	
Medical Equipment and Supplies Manufacturing.....	102.02	5.2	20	N	●	■	■	N	
Sawmills and Wood Preservation.....	99.70	6.7	15	N	●	■	●	N	
Electrical Equipment Manufacturing.....	97.76	13.7	7	N	■	■	●	Base Declining	
Tire Manufacturing.....	95.96	25.5	4	N	●	■	●	N	
Other Basic Organic Chemical Manufacturing.....	95.04	45.1	2	N	●	■	●	N	
Metal Valve Manufacturing.....	94.71	15.9	6	N	●	■	●	N	
Paint and Coating Manufacturing.....	89.32	16.0	6	N	●	■	●	N	
Dairy Product (except Frozen) Manufacturing.....	79.25	54.9	1	N	●	■	■	N	
All Other Chemical Product and Preparation Manufacturing.....	77.21	15.8	5	N	■	■	●	N	
Lessors of Nonfinancial Intangible Assets (except Copyrighted Works).....	75.87	34.4	2	N	●	●	●	N	
Postal Service.....	74.77	na							
Millwork.....	69.88	5.5	13	N	●	■	■	N	
Asphalt Paving, Roofing, and Saturated Materials Manufacturing.....	69.30	11.9	6	N	●	■	■	N	
Flour Milling and Malt Manufacturing.....	65.56	30.4	2	N	●	●	●	N	
Fruit and Vegetable Canning, Pickling, and Drying.....	64.60	31.5	2	N	●	■	●	N	
Forging and Stamping.....	63.87	7.3	9	N	●	■	●	N	
All Other Textile Product Mills.....	61.77	2.5	25	N	●	■	●	N	
Coating, Engraving, Heat Treating, and Allied Activities.....	59.95	3.0	20	N	●	■	●	N	
Alumina and Aluminum Production and Processing.....	57.81	49.5	1	N	●	■	●	N	
Ferrous Metal Foundries.....	57.80	15.3	4	N	●	■	●	N	
Lighting Fixture Manufacturing.....	53.42	8.6	6	N	●	■	●	N	
Petrochemical Manufacturing.....	53.10	810.0	0	N	●	■	●	N	
Other Basic Inorganic Chemical Manufacturing.....	53.01	26.7	2	N	●	■	●	N	
All Other General Purpose Machinery Manufacturing.....	52.11	7.1	7	N	●	■	●	N	
Pesticide and Other Agricultural Chemical Manufacturing.....	51.63	72.5	1	N	●	■	●	N	
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing.....	51.25	18.1	3	N	●	■	●	N	
Wiring Device Manufacturing.....	51.04	17.5	3	N	■	■	●	Base Declining	
Other Communications Equipment Manufacturing.....	50.26	13.5	4	N	●	●	●	N	

Key for values: ■ High
 ■ Moderate
 ● Low

VII. Major Industrial Changes in the U.S. – An Overview

Section Objectives:

- *Introduce readers to national industrial changes.*
- *Encourage local officials to make sure that economic development planning is conducted in light of U.S. economic conditions.*

Overview:

- Financial and service jobs had the greatest numerical gains between 2000 and 2004.
- Manufacturing and telecommunications jobs had the greatest numerical losses.
- In the U.S., jobs shifted into the real estate sector, food services, and administrative and support services.
- Jobs shifted away from computer and equipment manufacturing, telecommunications, and machinery manufacturing.
- In alignment with South Iowa's industrial strengths, the national industries of gaming, amusement, and recreation; nursing care; and social services all demonstrated positive shifts.

This section isolates major industrial changes occurring in the U.S. in recent years. An awareness of national changes is fundamental to regional economic development efforts: regardless of regional industrial configurations, the dominant patterns of economic change occurring nationally are the most dominant predictors of local change and local economic development potential. South Iowa officials, via the sets of tables that we will present, can easily discern how specific industries rank in terms of percentage changes or actual changes in the number of jobs during two distinct time periods. We profile 2001 to 2004 period, the last year for which we have data.

National Numerical and Percentage Gains

The U.S. economy grew by 1.8 percent between 2001 and 2004, or by about 3.07 million jobs. The farm sector, in contrast declined by 2.8 percent, or by 87,000 jobs. Table 27 displays the major U.S. industries that posted either strong numerical or percentage gains in employment. Owing to a very robust housing market nationally, the U.S. real estate industry added 782,700 jobs over this period, followed by food services, administrative and support services, and

ambulatory health care all adding in excess of 500,000 jobs to the national economy. Of the top 20 numerical gainers, none were in manufacturing or any other form of commodity or primary goods production. They split among health care, retail, personal services, and entertainment activities.

The fastest gainer in percentage terms other information services (most likely linked to internet activity) at 24.3 percent; in turn, real estate, education services, support activities for mining, credit services, services to private households, and ambulatory health care all grew by 10 percent or more. Again, most rapid gainers are divided among retail, health care, entertainment and amusement activities, and services. Owing to incremental gains in all energy related costs, there were also strong increases in jobs in oil and gas extraction and services that support them.

Table 27

National Job Changes, 2001 to 2004, Top 20 Gaining Industries

Sorted by Jobs	Jobs	Sorted by Rate	Rate
Real estate	782,700	Other information services	24.3%
Food services and drinking places	662,800	Real estate	16.7%
Administrative and support services	657,400	Educational services	12.4%
Ambulatory health care services	576,800	Support activities for mining	11.7%
Local government	449,000	Credit intermediation and related activities	11.6%
Educational services	379,600	Private households	10.5%
Specialty trade contractors	375,400	Ambulatory health care services	10.3%
Credit intermediation and related activities	316,900	Membership associations and organizations	9.0%
Membership associations and organizations	268,100	Warehousing and storage	8.7%
Social assistance	261,000	Nonstore retailers	8.4%
Hospitals	252,800	Performing arts and spectator sports	8.2%
Professional and technical services	227,300	Social assistance	8.1%
Private households	202,500	Building material and garden supply stores	8.1%
Nursing and residential care facilities	182,400	Oil and gas extraction	7.6%
Nonstore retailers	137,700	Food services and drinking places	7.5%
Performing arts and spectator sports	123,000	Administrative and support services	7.1%
Building material and garden supply stores	99,800	Nursing and residential care facilities	6.6%
Personal and laundry services	96,800	Hospitals	6.2%
Insurance carriers and related activities	91,300	Furniture and home furnishings stores	6.2%
Amusement, gambling, and recreation	88,900	Transit and ground passenger transportation	5.9%

National Numerical and Percentage Losses

Table 28 identifies the 20 U.S. industries with the largest numerical and percentage losses in jobs over the 2001 to 2004 period. High quality, high value manufacturing and technology jobs led the losses. Computer and electronics shed 440,600 jobs, followed by telecommunications, machinery manufacturing, and fabricated metal products all losing more than 200,000 jobs each. Nine of the 20 industries were durable manufacturing, and 3 were nondurable

manufacturing industries. The remainder were divided among information, transportation, technology, and publishing activities.

The most percentage losses were realized in apparel at 31.7 percent, and then by internet publishing and broadcasting, textile mills, computer and electronic products, leathers, and telecommunications all declining by at least 20 percent. Again several of the strongest percentage decliners were in manufacturing, as well as telecommunications, transportation, and financial sectors.

Table 28

National Job Changes, 2001 to 2004, Top 20 Declining Industries

Sorted by Jobs	Jobs	Sorted by Rate	Rate
Other transportation equipment manufacturing	(76,500)	Funds, trusts, and other financial vehicles	-10.7%
Furniture and related product manufacturing	(77,800)	Furniture and related product manufacturing	-11.4%
Wholesale trade	(80,800)	Fabricated metal product manufacturing	-11.7%
Paper manufacturing	(81,700)	Forestry and logging	-11.9%
Textile mills	(91,400)	Fishing, hunting, and trapping	-12.4%
Plastics and rubber products manufacturing	(94,600)	Printing and related support activities	-12.8%
Motor vehicles, bodies and trailers, and parts	(97,700)	Lessors of nonfinancial intangible assets	-14.0%
Air transportation	(100,500)	Paper manufacturing	-14.1%
ISPs, search portals, and data processing	(102,700)	Machinery manufacturing	-15.0%
Primary metal manufacturing	(104,200)	Pipeline transportation	-15.5%
Printing and related support activities	(106,600)	Air transportation	-15.9%
Publishing industries, except Internet	(108,100)	Primary metal manufacturing	-18.1%
Electrical equipment and appliance	(109,300)	ISPs, search portals, and data processing	-18.8%
Food and beverage stores	(139,200)	Electrical equipment and appliance	-19.3%
Apparel manufacturing	(148,800)	Telecommunications	-20.4%
Securities, commodity contracts, investments	(163,600)	Leather and allied product manufacturing	-23.7%
Fabricated metal product manufacturing	(203,500)	Computer and electronic product	-24.9%
Machinery manufacturing	(211,200)	Textile mills	-27.3%
Telecommunications	(292,900)	Internet publishing and broadcasting	-31.3%
Computer and electronic product manufacturing	(440,600)	Apparel manufacturing	-31.7%

National Job Shifts

Table 29 involves a slightly different compilation of the value of numerical changes, both positive and negative, in the U.S. economy over the 2001 to 2004 period than is found in the previous two tables. It calculates the amount of job shifting that accrued in different sectors of the economy. A positive shift occurs when an industry produces more jobs than it would have had it grown at the national rate. A negative shift occurs when an industry grows slower than the national rate (or has a negative rate); hence, jobs shift out of that sector into the gaining sectors. A sum of all shifts in the economy among all of the industries that are measured always equals zero. A shift analysis lets us assess not only who is performing better or worse than the national average, but also by the numerical value of that performance. At any given time, were we assessing our industrial base in a region or recruiting industries to come into our region, we would want

to dedicate more resources into industries demonstrating positive shifts and fewer resources into industries indicating negative shifts.

The greatest gains were in real estate, just like in Table 27, where the sector realized a shift of 696,305 jobs. This means that a very large fraction of the growth identified in Table 27 is attributable to an increase in this sector's overall competitive position in the U.S. economy, especially given the sustained strong performance of the housing sector. Food and drinking places, administrative services, ambulatory health care, and educational services each realized positive shifts in excess of 300,000 jobs.

Again, the computer and electronic product sector led the negative shifts at 473,185 jobs. This is more jobs than are listed in Table 28 because, on a shifting basis, this sector lost ground as part of the overall economy. Telecommunications, machinery manufacturing, fabricated metals, and securities and investments all realized negative shifts of 200,000 jobs or more.

It is very evident that positive shifts nationally are concentrated in the services and financial sectors, to include some retail. Negative shifts are concentrated in manufacturing, telecommunications, printing and publishing, and transportation.

Table 29

National Job Shifts, 2001 to 2004, Top 20 Gaining & Declining

Positive Shifts	Jobs	Negative Shifts	Jobs
Real estate	696,305	Computer and electronic product manufacturing	(473,185)
Food services and drinking places	499,468	Telecommunications	(319,299)
Administrative and support services	486,614	Machinery manufacturing	(237,118)
Ambulatory health care services	473,733	Fabricated metal product manufacturing	(235,455)
Educational services	323,259	Securities, commodity contracts, investments	(201,508)
Credit intermediation and related activities	266,683	Food and beverage stores	(197,991)
Specialty trade contractors	255,824	Wholesale trade	(196,371)
Membership associations and organizations	212,932	Apparel manufacturing	(157,435)
Local government	203,578	Publishing industries, except Internet	(129,006)
Social assistance	201,778	Printing and related support activities	(121,924)
Hospitals	178,254	Motor vehicles, bodies and trailers, and parts manufacturing	(120,043)
Private households	167,087	Electrical equipment and appliance manufacturing	(119,731)
Nursing and residential care facilities	131,637	Primary metal manufacturing	(114,798)
Nonstore retailers	107,559	ISPs, search portals, and data processing	(112,757)
Performing arts and spectator sports	95,396	Air transportation	(112,158)
Building material and garden supply stores	77,063	Plastics and rubber products manufacturing	(111,622)
Personal and laundry services	60,646	Textile mills	(97,575)
Amusement, gambling, and recreation	58,988	Paper manufacturing	(92,337)
Clothing and clothing accessories stores	43,125	Furniture and related product manufacturing	(90,353)
Insurance carriers and related activities	40,493	Food manufacturing	(90,244)