

Nonfarm Employment Change in Iowa from 1987 to 1997

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Introduction

The pace and patterns of growth in Iowa's economy have produced distinct groups of winners and losers during the past decade. Drastic differences are evident in both the geographic location and industrial mix of employment growth. New groups of industries are gaining importance to the state's economy, mirroring trends in the national economy. In other industries, Iowa is out of step with the rest of the nation. Some industries in decline nationally are growing in Iowa, and in still other industries, Iowa's growth lags behind national rates. These industrial strengths and weaknesses are distributed unevenly across the state and among its workforce. As we begin a new decade, it is useful to review recent changes in the Iowa economy, identify its strengths, and assess opportunities for future growth. This report describes the nature of nonfarm employment growth from 1987 to 1997 and discusses possible implications for Iowa's future economy.

Employment Data and Terminology

Employment growth is the goal of most community leaders who believe it will lower unemployment, attract new residents, increase local property values, and raise personal income levels in their communities. We often use employment data to measure and describe the success of local communities in their efforts to attract new jobs. Throughout the report, the terms "employment" and "jobs" are used interchangeably. Measures of employment include part-time as well as full-time positions, and should not be interpreted to represent employed *persons*. The data sources for this report include the Iowa Workforce Development Department, the U.S. Bureau of Labor Statistics, and the U.S. Bureau of Economic Analysis.

As local economic conditions such as the size and composition of the labor force, average wages, income levels and property values change over time, these changes may be more or less favorable to certain kinds of firms. We can study industrial-level employment data to find out which kinds of firms are locating where. The industrial classifications of Iowa's business firms are based on their principal product or activity, according to descriptions in the 1987 U.S. Standard Industrial Classification (SIC)

System. The SIC system hierarchy has four levels, beginning with broad industry "Divisions" such as Manufacturing, Retail Trade, Services, etc. Level two in the hierarchy breaks the divisions into "Major Groups," and the third level further specifies "Industry Groups." The fourth and lowest level of the hierarchy identifies the "Industry" classification. For example, a firm that manufactures frozen chicken sticks would be assigned to the Poultry Slaughtering and Processing Industry, which belongs to the Meat Products Industry Group, which is part of the Food & Kindred Products Major Group, which in turn belongs in the Manufacturing Division. Most of the data in this report describe employment changes at the broad division level and the slightly more detailed major group level.

The Department of Economics has prepared this report for use by state and local decision-makers, community planners, economic development groups, and other organizations and individuals with an interest in Iowa's changing economy. The first sections of the report cover statewide changes in total nonfarm employment and employment by industrial division. We discuss spatial patterns of employment change within the state in later sections. We have categorized the data on the basis of metropolitan, urban, and rural categories to help identify the kinds of changes that are occurring within the state of Iowa.

Statewide Nonfarm Employment Growth, 1987-97

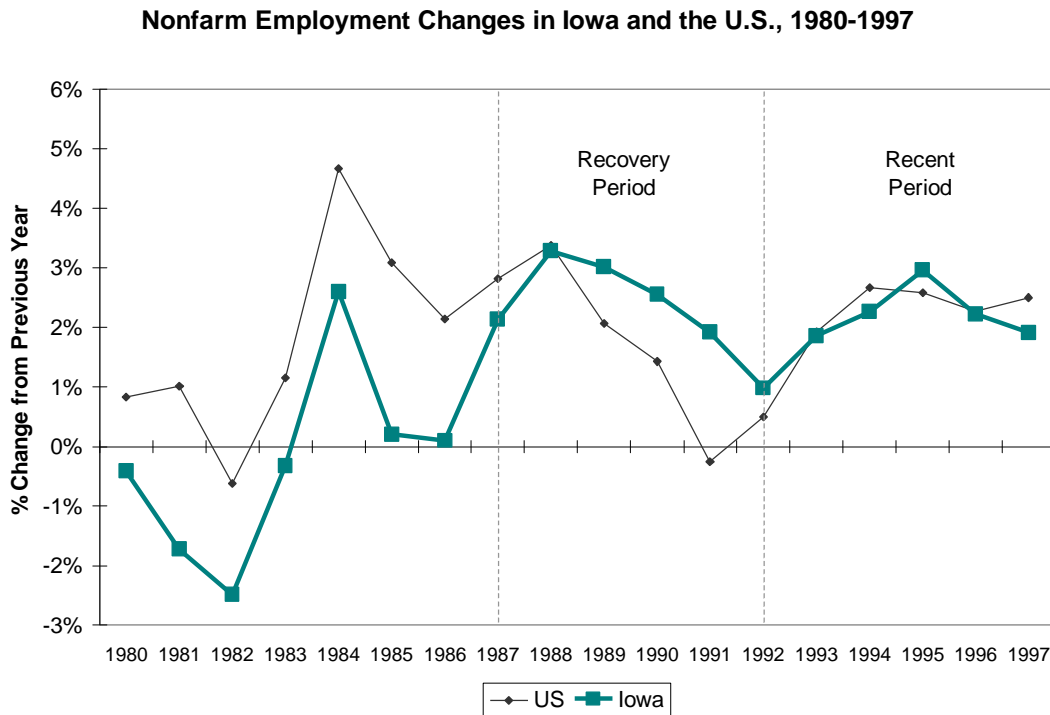
During the decade of the 1980s, Iowa endured, along with the rest of the nation, a recession and a major farm crisis. Iowa's manufacturing, agricultural, and agricultural finance sectors were hit particularly hard, and the state's population dropped by nearly 150,000. Iowa's small counties were especially vulnerable as their rates of population decline were much higher than the state's urban and metropolitan areas.

There were additional factors at work in the changing economic landscape of Iowa. One of the most important changes was the persistent and systematic consolidation of retailing and service delivery out of rural places and into regional trade centers. In contrast to the 1980s, the decade that followed was a period of slow but steady growth for Iowa. In this report, we focus on changes from 1987 through 1997. This period spans two distinct phases: the "Recovery" period (1987-1992), and the "Recent" period (1992-1997).

After declining during the Farm Crisis of the early 1980s, Iowa's nonfarm employment began to grow again in 1984. Still, by 1987, the state had yet to recover all of the employment losses suffered during the Farm Crisis. During the 1987-1992 Recovery period, the rate of nonfarm employment growth accelerated. The annual rate of growth peaked above 3 percent in 1988, then slowed gradually to a low of 1 percent in 1992. The pace picked up again after 1992, and has averaged above 2 percent per year since. The ups and downs in Iowa's employment growth rates from 1987-97 followed

national patterns quite closely. Figure 1 shows employment growth rates in Iowa and the U.S. during the Farm Crisis years, the Recovery period, and the Recent period.

Figure 1



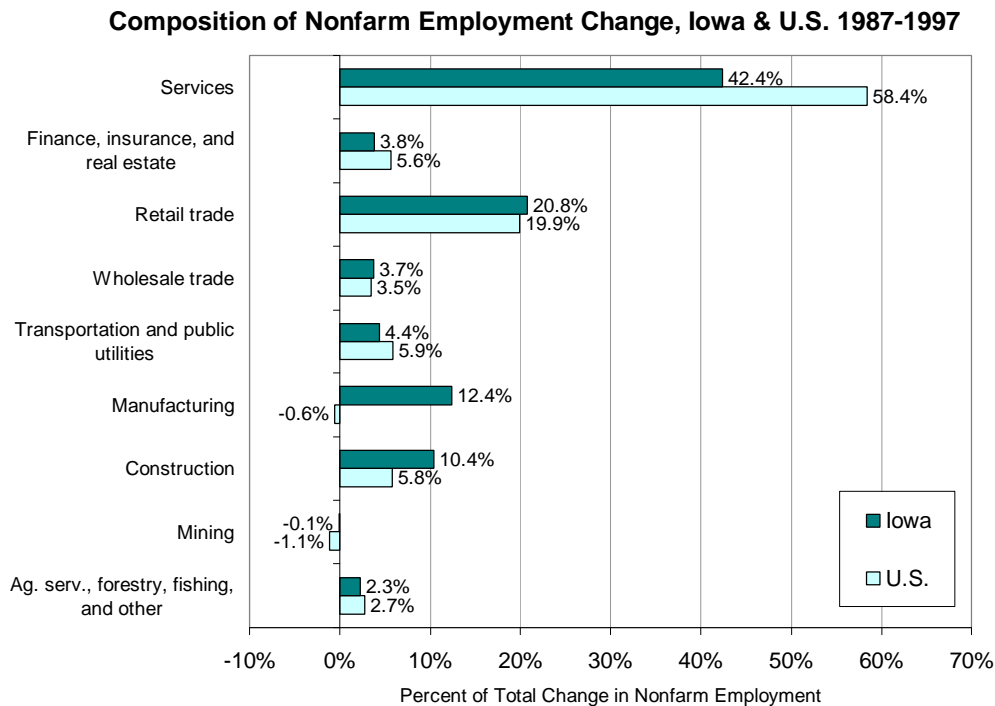
Overall, Iowa's rate of nonfarm employment growth from 1987-1997 exceeded the national average rate. During this period, nonfarm employment in Iowa increased by 25.5 percent, while nonfarm employment in the U.S. increased by 20.7 percent. If we expected Iowa to grow at the national rate, this better-than-average performance would suggest that Iowa's share of the nation's nonfarm jobs has increased since 1987.

Employment growth rates can vary considerably from one group of states to the next, so we can also compare Iowa's growth to a regional, rather than national, rate. The Bureau of Economic Analysis has identified a group of seven Midwestern states including Iowa that share similar geographic, economic, and demographic characteristics. This group, labeled the "Plains" region, includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. Nonfarm employment in the Plains region grew by 23.7 percent, which was faster than the national average. Iowa's growth rate of 25.5 percent was slightly ahead of its peer group average. Job growth is considered good news, and on the surface Iowa's performance from 1987-97 looks encouraging.

Iowa's Job Growth by Industry Division

Growth rate comparisons tell us little about the kind and quality of job growth in the state, however. Although Iowa exceeded national and regional growth rates in total nonfarm employment, its performance by industry sector was mixed. Total nonfarm employment in Iowa increased by nearly 353,000 jobs from 1987-97, with most of the growth occurring in the services, retail trade, and manufacturing industries. Of these new jobs in Iowa, 42 percent were in service industries, 21 percent were in retail trade, and 12 percent were in manufacturing. With notable exceptions in the service and manufacturing sectors, the composition of employment change in Iowa was similar to the rest of the United States (see Figure 2). In the U.S., service jobs accounted for 58 percent of net employment growth, representing a much larger percentage than was realized in Iowa (42 percent). The offset to this difference appears to be growth in Iowa's manufacturing sector (12 percent), where U.S. employment actually declined (-.6 percent).

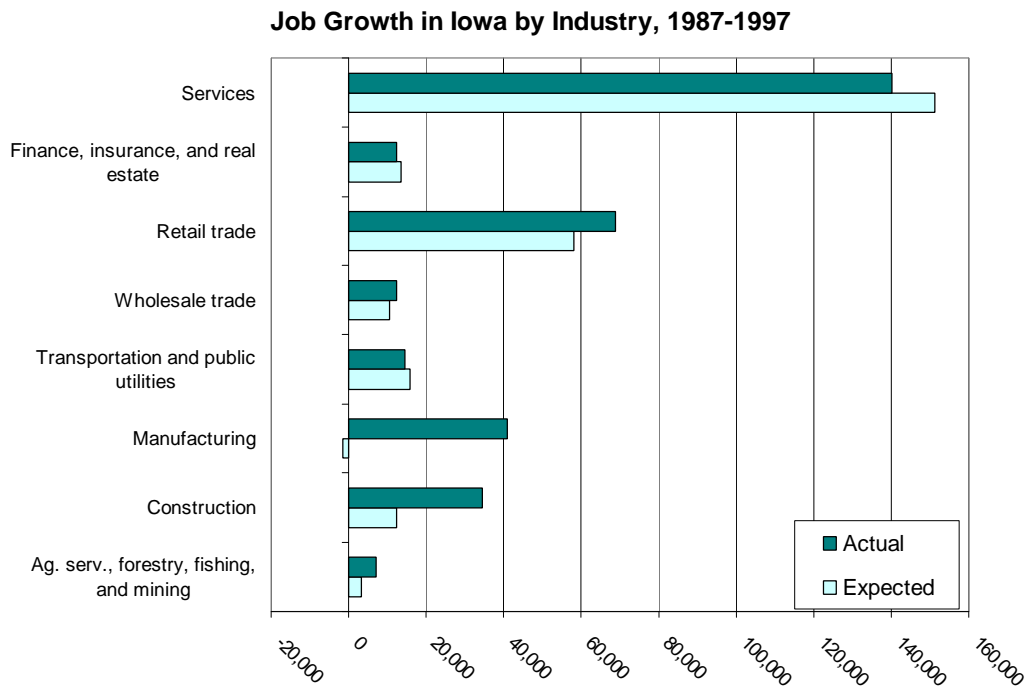
Figure 2



A competitive share analysis for the 1987-97 period highlights the sectors where employment growth in Iowa differed most from national patterns. Competitive share analysis measures differences between state and national growth rates by industry and translates these differences into jobs. If we expect Iowa to grow at national average rates in each industry, a comparison of this expected growth and actual growth suggests

where the state gained or lost ground in the competition for new jobs with all other states. Figure 3 shows that Iowa's performance was close to expected in the Finance, Insurance & Real Estate (F.I.R.E.); Wholesale Trade; Transportation, Communications & Public Utilities (T.C.P.U.); and Agricultural Services sectors. There were, however, notable differences in the Services, Retail Trade, Manufacturing, and Construction sectors.

Figure 3



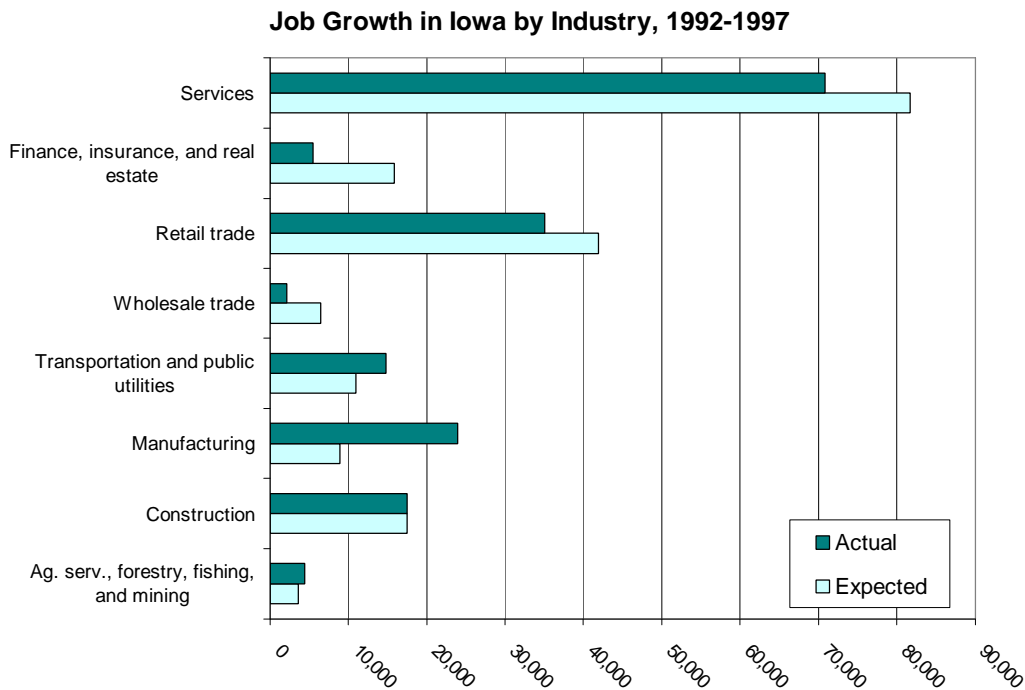
Iowa's only meaningful competitive loss occurred in the Service division, where it gained about 11,000 fewer jobs than would have been expected. Because demand for many services is closely tied to growth in the local population, Iowa's slow performance in the service sector may be explained in part by its very slow population recovery and anemic growth from 1987-97. Statewide population losses that began during the Farm Crisis continued until 1987. Iowa's population increased by only 3.1 percent during the next 10 years, while population in the U.S. increased by 10.5 percent.

Iowa's most notable competitive gains included 10,000 jobs in the Retail division, 42,000 jobs in the Manufacturing division, and 22,000 jobs in the Construction division. The apparent gains in Iowa's retail sector accrued as the state regained shares of national employment that it lost during the Farm Crisis years. Residual effects of the Farm Crisis may also explain some of Iowa's strong manufacturing growth because farm

job losses freed a portion of the workforce that was relatively productive, skilled, and immobile. Growth in Iowa's construction sector may be explained by pent-up construction demand that carried over from the 1980s, when construction employment fell by more than 24,000 jobs. Heavy state investments in transportation infrastructure, farm facility construction, along with housing construction booms in some of the state's growth centers, also have contributed to construction employment growth.

Iowa's recent employment growth is less impressive without the influence of high Recovery Period growth rates. During the Recent Period from 1992-97, Iowa's only significant competitive gains appear in the Manufacturing and T.C.P.U. divisions. The competitive loss of 10,000 jobs in the Service division during 1992-97 represents nearly all of the entire shortfall for the 1987-97 period. Iowa also appears to be losing competitive share in the Finance, Insurance & Real Estate sector despite that sector's prominence in central Iowa. Figure 4 shows actual and expected growth by industry for the Recent Period.

Figure 4



Competitive share analysis is a way to measure in jobs, rather than percentage points, which local sectors are growing faster or slower than national averages. Iowa's strong growth in the Manufacturing division and slower growth in the Service division

diverge from national trends. This may signal a weakness in Iowa's economy if dependence on agriculture is being replaced by dependence on manufacturing -- especially if the new manufacturing jobs do not pay high wages or the firms do not stay. After the harsh lessons of the Farm Crisis, state economic development experts emphasized the importance of diversifying the state's economy to buffer it from downturns in one particular industry. The next section of this report describes employment change at a finer level of detail, and it paints a more positive picture of Iowa's efforts to diversify its economy.

Job Growth by Industry Group

Iowa's recent manufacturing employment growth shows significant diversification among several major industry groups that have been growing at the national level. Ranked by the number of new jobs from 1992 to 1997, just more than 85 percent of Iowa's new manufacturing jobs were added in the following five major industry groups:

- Industrial Machinery & Equipment (26 percent)
- Transportation Equipment (21 percent)
- Lumber & Wood Products (16 percent)
- Fabricated Metal Products (14 percent)
- Rubber and Miscellaneous Plastics Products (9 percent)

At the national level all but the Transportation Equipment group ranked in the top five in growth, based on the number of new jobs and percentage increase from 1992-97.

Within Iowa's Service division, five industry groups accounted for about 82 percent of new jobs:

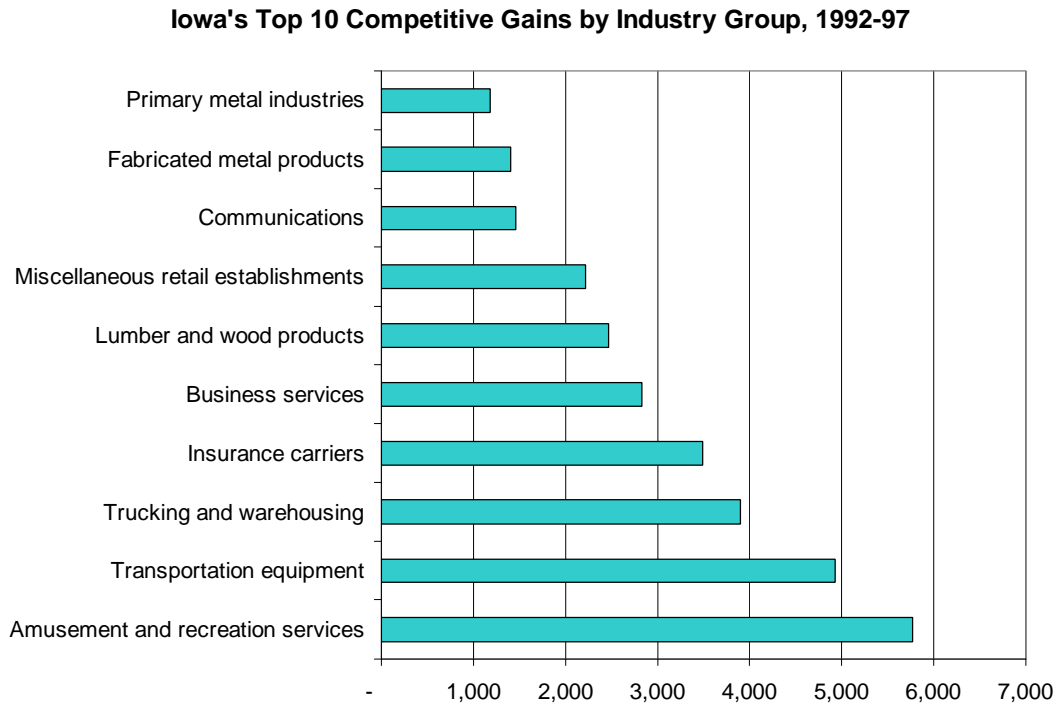
- Business Services (38 percent)
- Amusement & Recreation Services (16 percent)
- Health Services (14 percent)
- Social Services (9 percent)
- Auto Repair, Services & Parking (5 percent)

The first four service industries listed also ranked among the nation's top five in terms of the number of new jobs created from 1992 to 1997. In both the service and the manufacturing sectors, the leaders of growth mirror substantially national patterns.

Several industry groups in Iowa are growing at faster rates than national averages. In terms of competitive gains from 1992 to 1997, Iowa's top 10 industry groups represent a diverse mix from the Manufacturing, T.C.P.U., Retail, F.I.R.E. and

Service divisions. The industry group with the largest competitive gain from 1992-97 was the Amusement & Recreation Services group, which includes golf courses, physical fitness facilities, amusement parks, and casinos. The ten industry groups with the largest competitive gains, calculated as difference between actual and expected new jobs, are shown in Figure 5.

Figure 5



Changes in Average Earnings

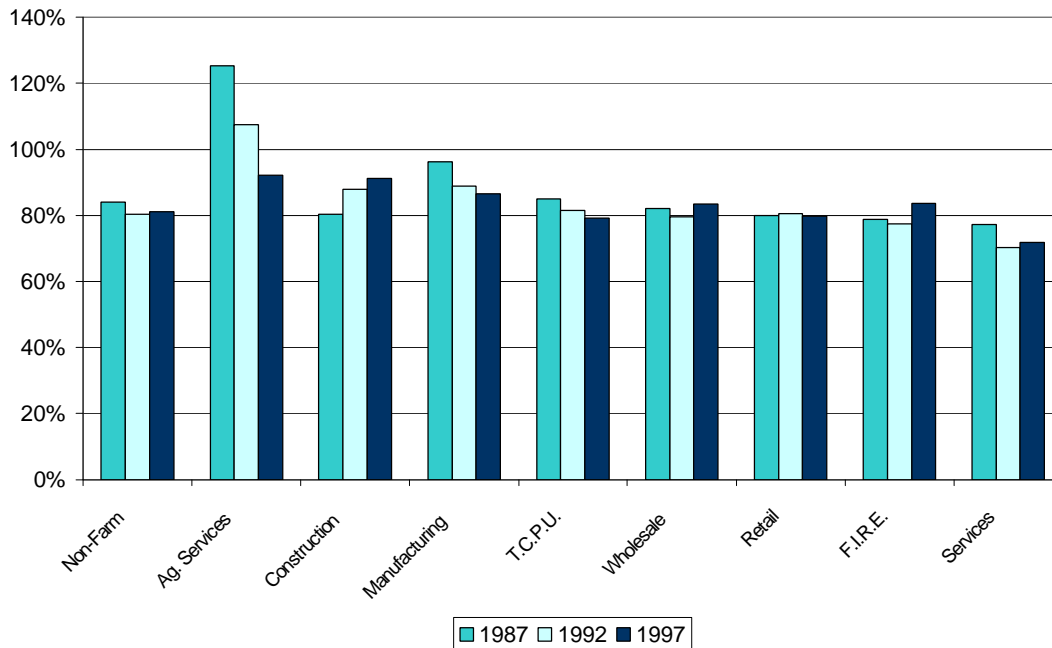
During the period from 1987 to 1997, Iowa's total population increased by 87,000, and total employment increased by 333,000 jobs. This tells us that a majority of the state's new jobs were filled by current residents who (a) recently joined the workforce, (b) previously held farm or farm-related jobs, (c) were previously unemployed or under-employed, or (d) persons who had left but re-entered the workforce. While it seems clear that more Iowans are joining the nonfarm workforce and more Iowans are holding multiple jobs, whether they are doing so by choice or necessity is less clear. Changes in the state's average earnings per job since 1987 do not suggest that they have been enticed into the workforce by high wages. In fact, the earnings outlook in much of Iowa is not good.

In 1997, Iowa's average earnings per nonfarm job was \$25,300. Adjusted for inflation, this buys about \$80 more groceries than it would have in 1987. While average earnings per job have increased slightly in the state, Iowa's position relative to the rest of the U.S. has eroded. Nonfarm jobs in Iowa earned just 81 percent of U.S. averages in 1997, compared to 84 percent in 1987. Even in some of its most rapidly growing industry sectors, Iowa is losing ground in average wage comparisons with other states. In 1997, Iowa came closest to U.S. averages in the Agricultural Services and Construction sectors at 92 percent and 91 percent respectively. However, at just \$14,100 per job in 1997, workers in the Agricultural Services sector had the second lowest average earnings per job in the state. The Retail sector had the lowest average earnings per job in 1997. Manufacturing ranked first.

Despite ranking number one among all sectors, Iowa's manufacturing earnings per job in 1997 were lower than 1987 earnings after adjustment for inflation. Earnings tumbled relative to U.S. averages from 96 percent to 87 percent, which means that the newer manufacturing jobs were not paying at the rate of the older, established manufacturing jobs. Iowa's position also deteriorated slightly in the Service and T.C.P.U. sectors. In 1997, service workers in Iowa earned just 72 percent of the national average compared with 83 percent in 1987. Iowa's average earnings position improved relative to U.S. averages in Construction, Wholesale Trade, and Finance, Insurance & Real Estate. These changes are summarized in Figure 6.

Figure 6

Iowa Average Earnings per Job, Relative to U.S. Averages, 1987-1997



The recent changes in statewide nonfarm employment and earnings send mixed signals about Iowa's opportunities for future growth. The state has posted strong job growth in several industrial categories, including a competitive gain in manufacturing jobs. Notwithstanding this strong nonfarm job growth, average earnings have lagged. This indicates that the newer jobs require lower skills or that many of the jobs are part-time positions. Consequently, because of wage stagnation in much of the state, we cannot expect anticipated earnings to entice migration into many counties even though the number of nonfarm jobs is increasing. Indeed, recent employment and population shifts among Iowa's counties indicate that gains and losses were unevenly distributed across Iowa from 1987 to 1997. The remainder of this report will discuss changes in employment and earnings within Iowa's borders.

Employment Change within the State

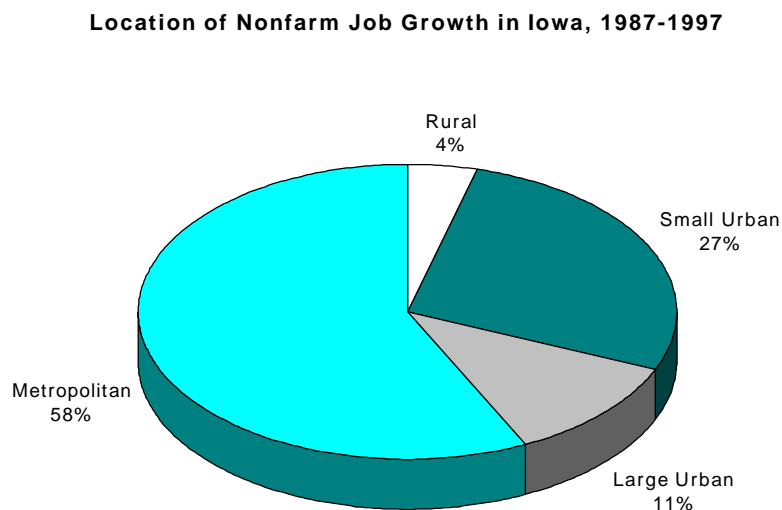
Iowa has 10 metropolitan counties, nine large urban counties, 60 small urban counties, and 20 rural counties. Metropolitan counties contain a central city of at least 50,000. Large urban counties are smaller than metropolitan counties, but have a central city of 20,000 or more. Rural counties are those without a city of 2,500 or more. The remaining counties are the small urban counties. The appendix to this report lists Iowa's 99 counties and their classifications by county group.

We group Iowa counties by population size to help understand the different kinds of growth that occur in large, medium, and small counties. There are distinct urbanization pressures on many businesses, and the location and size of many kinds of firms have evolved significantly over time. These groupings help organize the information to better identify similarities within the groups and differences across the groups. Otherwise, many of the differences may get lost in the analysis or go unnoticed.

Almost 49 percent of the state's jobs and 44 percent of its population are concentrated in the metropolitan counties. The large urban counties have 14 percent of both jobs and population. The small urban counties have 31 percent of the state's jobs and 34 percent of its population. The rural counties have just 7 percent of the state's population and 6 percent of its jobs. During the period from 1987 to 1997, employment and population shares in the small urban and rural county groups declined, following a pattern of gradual urbanization that began long before the Farm Crisis of the 1980s.

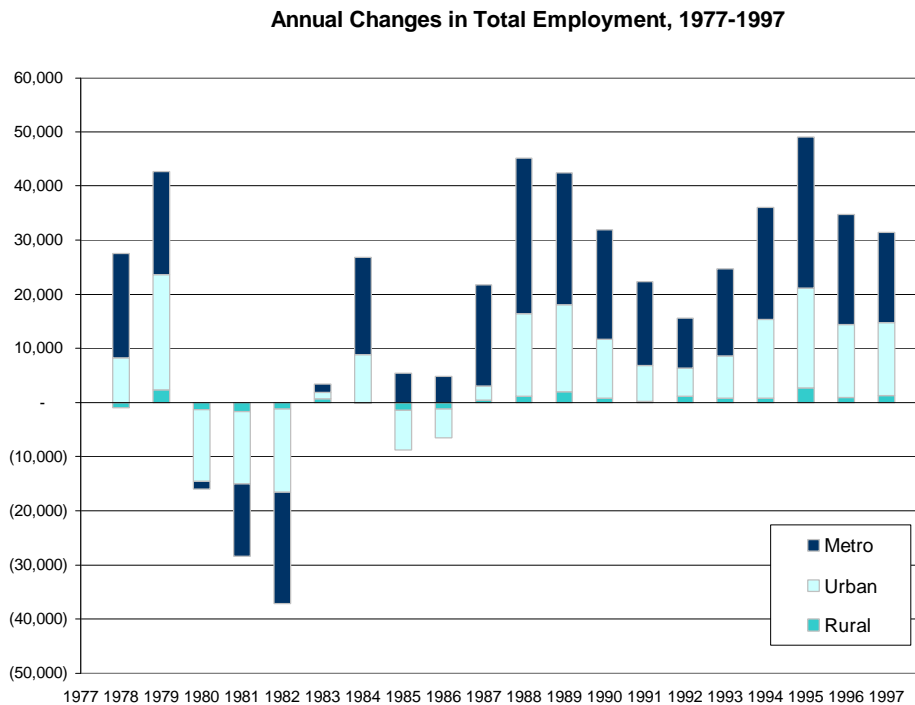
The size and diversity of their local economies give Iowa's metropolitan counties a natural advantage over smaller counties in attracting new jobs and people. An urban preference was clearly expressed during the years from 1987 through 1997 when more than two out of three new jobs in the state were created in metropolitan or in large urban counties. Figure 7 illustrates the distribution of nonfarm job growth by county group.

Figure 7



Although attracting a smaller share of Iowa's new jobs than the metropolitan counties, the urban and rural county groups have sustained employment growth since 1987. By 1992, all three county groups had recovered the employment losses suffered during the early 1980s, as measured by total jobs. Figure 8 shows the amount and distribution of annual changes in Iowa's total employment since 1977. Numerically, the greatest job losses were located in the state's urban and metropolitan counties. Rural and urban counties continued to lose jobs through the mid 1980s before slowly rebounding. Since then, all county groups have posted average gains, with the strongest in metropolitan counties. Urban counties have held their own, and are posting persistent annual increases in jobs.

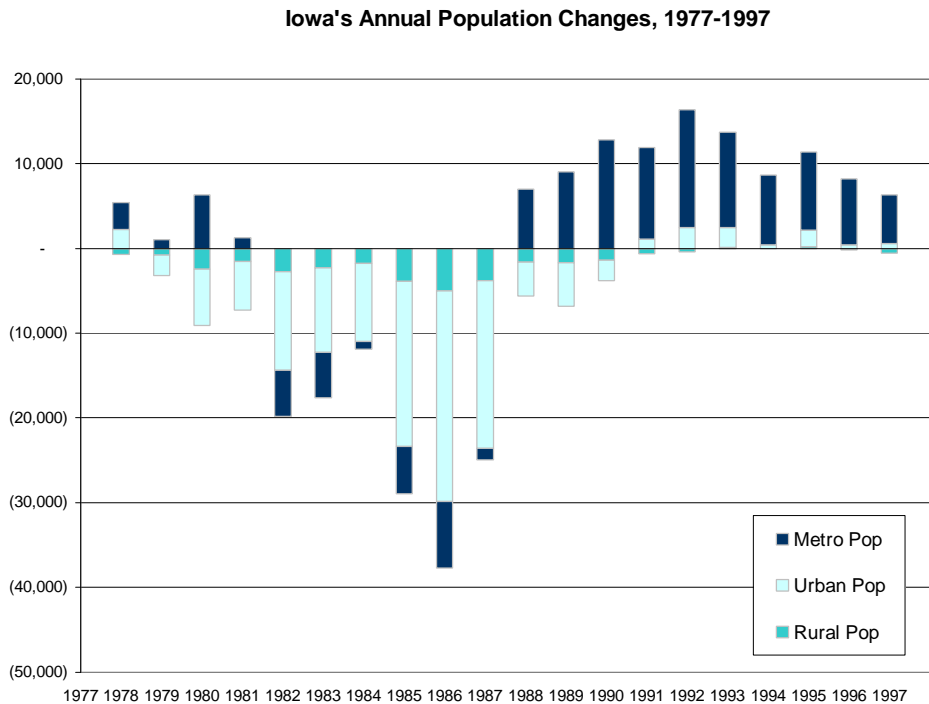
Figure 8



Employment growth is outpacing population growth across the entire state. This pattern is most pronounced in the non-metropolitan counties. Figure 9 shows the amount and location of annual changes in Iowa's population since 1977. During the early-to-mid 1980s the state's population plummeted. On a percentage decline basis, rural areas suffered disproportionately. Numerically, however, most of those losses were realized in the state's urban and metropolitan counties. After 1987, Iowa's metropolitan counties posted increases, but its urban and rural counties continued declining, virtually nullifying the metro gains. After 1991, however, urban counties as a

group posted some growth and the state began to grow again. Since 1993, almost all population growth has been in the state's 10 metropolitan counties.

Figure 9



This imbalance between employment and population gains in the urban and rural counties is problematic for decision-makers, economic development experts, and planners. The simple assumption is that x number of jobs will create y new residents to a county or a community. The relationship between the two variables has, however, become less easy to predict in recent years. Where people live and where people work are not as predictable as had once been presumed. We know that larger numbers of Iowans are commuting farther to their jobs. We have a dozen counties or so in the state in which nonfarm job growth during the 1990s exceeded 18 percent, but their populations barely grew, if at all. We also know that workforce participation rates have continued to climb steadily in Iowa, and that the rate of increase is higher than in the rest of the nation. This may be counter-intuitive to many when you consider that Iowa has one of the highest percentages of elderly in the nation.

The next section breaks out the different kinds of industrial growth by the different types of counties. There are definite growth patterns attributable to metropolitan, urban, and rural county types. These growth patterns help to inform us about the kinds of industrial preferences that are present in Iowa, the kinds of earnings

(or job quality) that we can expect from the growth, and to a degree, the kind of workers attracted to these positions.

Employment Change by Industry Division and County Type

During the period from 1987 to 1997, Iowa's metropolitan counties had the largest share of new jobs in every industry division except Manufacturing. Their advantage was most evident in Finance, Insurance & Real Estate, where they gained 97 percent of Iowa's new jobs in this division. Six percent of the F.I.R.E. gains were found in the small urban counties, and a 3 percent loss was borne by the rural and the large urban counties. In all, there is a decided concentration of finance-related job growth in the metropolitan counties, with only very small amounts occurring elsewhere in the state. Iowa's largest numerical employment gains came in the Service and Retail divisions, and the metropolitan counties attracted 66 percent of Iowa's new service jobs and 56 percent of new retail jobs. In contrast, the metropolitan counties attracted only 17 percent of Iowa's new manufacturing jobs.

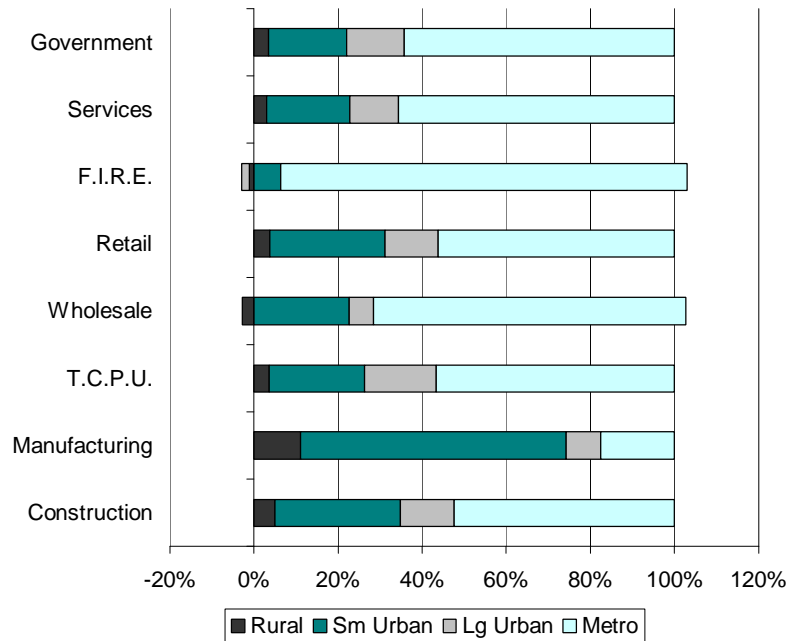
Iowa's 60 small urban counties attracted the largest share of Iowa's new manufacturing jobs (63 percent), as a group, and the second largest share in every other industry division. The small urban counties' share of new service jobs was 20 percent. Their share of new retail jobs was 23 percent.

The large urban county group was fourth behind the rural counties in the number of new jobs in Manufacturing and third in every other category. Measured by the percentage of new jobs in the state, the large urban counties had their greatest success in the Transportation, Communications, & Public Utilities division. This group of nine counties attracted 17 percent of Iowa's new T.C.P.U. jobs.

The group of 20 rural counties attracted 11 percent of Iowa's new manufacturing jobs. In every other industry division this group attracted 5 percent or less of the state's new jobs. They had employment losses in the Wholesale and F.I.R.E. divisions. The shares of new nonfarm jobs by industry division for all four county groups are summarized in Figure 10.

Figure 10

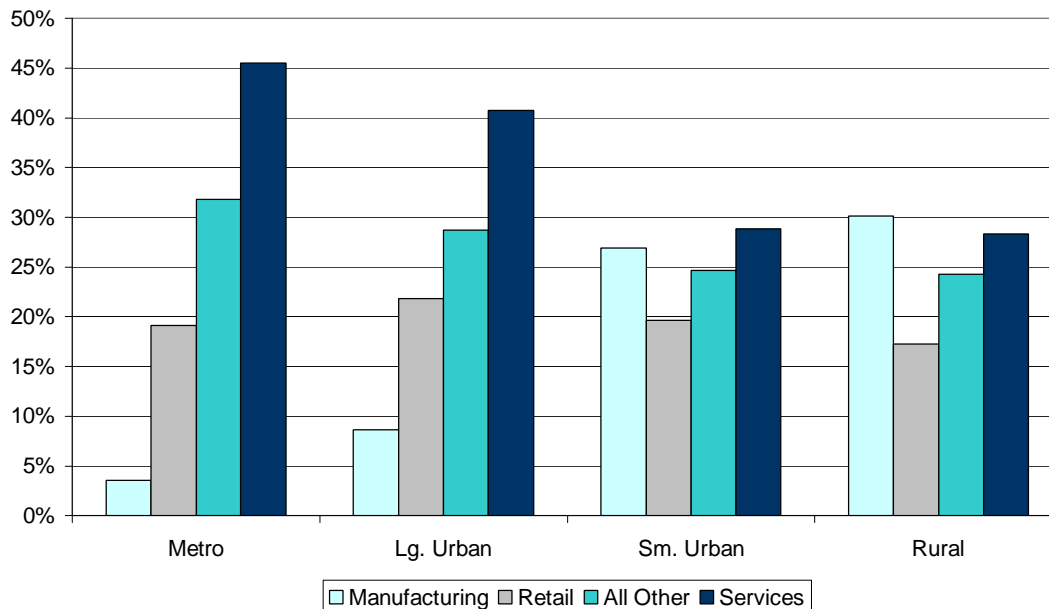
Percent of Iowa's Employment Growth by County Type, 1987-1997



Although the majority of Iowa's new manufacturing jobs appeared in the small urban counties, manufacturing was not their most significant source of job growth. As a percent of all new nonfarm jobs, service jobs slightly edged out the manufacturing jobs in the small urban counties. Overall, their employment growth was closely balanced among manufacturing, retail, and service jobs. In contrast, service job growth overwhelmed manufacturing growth in the metropolitan and large urban counties. In the metro counties, 46 percent of all new nonfarm jobs were in service industries and less than 4 percent were in manufacturing industries. In the large urban counties, service jobs represented 41 percent and manufacturing jobs represented 9 percent of new nonfarm jobs. The rural county group was the only one to gain more manufacturing than service jobs. Of all four county groups, rural counties had the lowest percentage of new nonfarm jobs in retail industries. Figure 11 shows the percentage of new nonfarm jobs in Manufacturing, Retail, Service and All Other Industry divisions by county group from 1987-97.

Figure 11

Composition of Nonfarm Employment Change by Industry and County Type, 1987-1997



The industrial composition and location of Iowa's recent employment changes have deepened the distinctions among the metro, urban and rural economies. In particular, shifts from farm employment to manufacturing employment and manufacturing employment to service employment have made notable differences in the employment structures of Iowa's metro, urban, and rural economies.

The two big stories in Iowa are its high rate of manufacturing job growth, and like the rest of the nation, the continued expansion of its service sector. The following sections provide some insights into the character and quality of changes in these two important divisions.

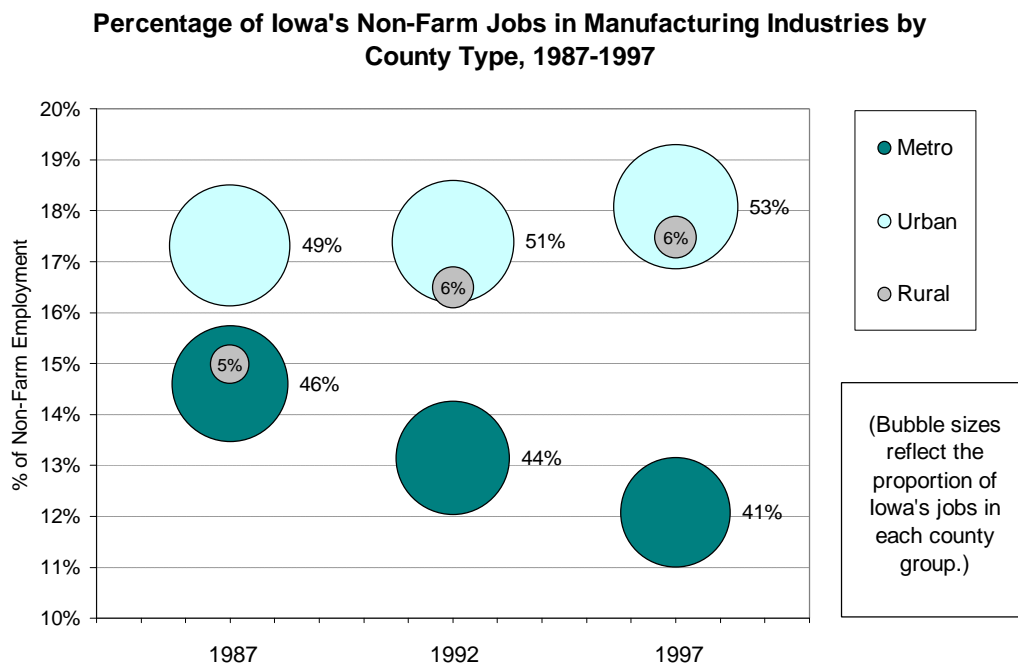
Manufacturing Employment Change

In the metropolitan counties, historical strengths in manufacturing are decreasing over time as their economies shift into producing more service jobs. Manufacturing employment in the metro counties fell from about 14.5 percent to 12 percent of all nonfarm jobs from 1987 to 1997. These 10 counties still retain more than 41 percent of the state's manufacturing jobs, but their share has been declining. Increasing numbers of Iowa's manufacturing jobs are located in the small urban counties. From 1987 to 1997, the small urban counties' shares of Iowa's manufacturing

jobs increased from 49 to 53 percent. These jobs account for 18 percent of all nonfarm jobs in the small urban counties.

Recent manufacturing employment gains have been touted as a success story for the rural counties. Manufacturing employment has risen from 15 percent to 17.5 percent of their nonfarm employment. Their overall share of Iowa's manufacturing jobs has increased slightly from 5 percent to 6 percent. Figure 12 puts the rural county manufacturing gains into statewide perspective. Reading from left to right, Figure 12 provides a snapshot of manufacturing employment by county group in 1987, 1992, and 1997. The vertical position of the bubbles indicates the percentage of nonfarm employment in manufacturing industries. The size of the bubbles represents each county group's share of Iowa's total manufacturing employment. If these bubbles were planets, the rural county group would be Pluto.

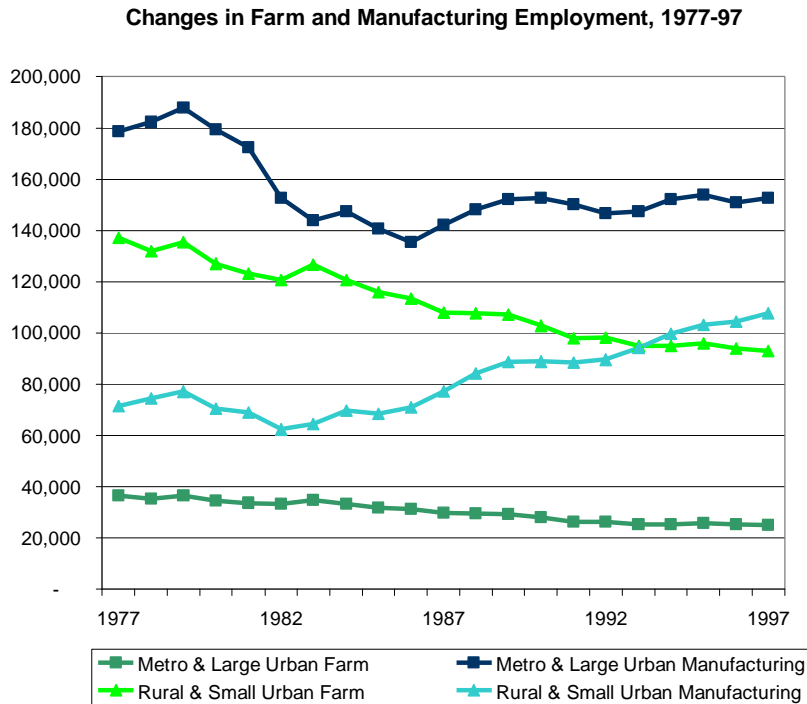
Figure 12



Although Iowa's manufacturing employment growth is shifting out of the metro counties, this doesn't mean that existing metropolitan county manufacturing firms are leaving for rural destinations. Manufacturing growth in small urban and rural counties seems more closely related to their own declining farm employment than to declining manufacturing employment in the metro and large urban counties. Figure 13 shows

how farm and manufacturing employment levels have changed in Iowa from 1977 to 1997.

Figure 13



In Figure 13 we have regrouped the counties to highlight the relationship between manufacturing job change and farm employment. The metropolitan and the large urban counties are combined into one group. The small urban counties and the rural counties are combined into the other. During the early part of the 1980s, there appeared to be a slight shifting of manufacturing jobs from the large counties to the smaller ones. Between 1985 and 1989, both groups of counties posted manufacturing job gains. Since then, manufacturing jobs in the large counties have remained relatively stable, and manufacturing jobs have continued to grow in the smaller counties.

A more intriguing comparison is found if you focus on the middle two lines in the figure. One depicts the change in farm employment in the rural and small urban counties and the other shows manufacturing jobs for the same group. The two patterns mirror each other strongly, especially since 1983. Manufacturing employment jobs have increased nearly equal to the decline in farm jobs. This pattern continues to the present. There is evidence that the labor force freed from the farm sector was able to accommodate the needs of new manufacturers.

Although manufacturing jobs are generally highly sought after, it is also instructive to look at the kinds of manufacturing jobs that have sprung up across Iowa. By doing so, we can make some conclusions about the character and quality of the new manufacturing jobs. The five manufacturing industry groups already identified as contributing the most new jobs to Iowa's economy from 1992 to 1997 were:

- Industrial Machinery & Equipment
- Transportation Equipment
- Lumber & Wood Products
- Fabricated Metal Products
- Rubber and Miscellaneous Plastics Products.

Between 1992 and 1997, many of Iowa's manufacturing jobs were reclassified to new SIC codes. Therefore, in compiling county group shares of employment change in Iowa's fastest-growing manufacturing industry groups, we have combined several industries to reduce distortions in the data from these reclassifications. Industrial Machinery & Equipment has been combined with Electronic & Other Electrical Equipment and Measuring, Analyzing & Controlling Instruments. Together with the Transportation Equipment, Lumber & Wood, Fabricated Metal, and Rubber & Miscellaneous Plastics Products groups, these industries added about 20,000 new jobs to the state's economy, or about 85 percent of the net growth in manufacturing jobs, from 1992 to 1997.

Overall, the small urban counties gained 58 percent of the 20,000 jobs, and the metropolitan counties took the next largest slice with 30 percent. The rural counties followed with 8 percent, and the large urban counties trailed all the groups with just 3 percent.

While the metropolitan county shares of Iowa's manufacturing jobs are gradually declining, these counties retain large shares of jobs manufacturing higher-technology goods such as computers and computer peripheral goods, communications equipment, electrical controls, and scientific and medical instruments. These are industries that demand ever-increasing levels of high-quality technical inputs, such as engineering, research and development, software development, and investment in communications infrastructure. Accordingly, wages in these industries tend to be higher than average, and the jobs that are linked to these kinds of production tend to demand high skill levels.

In 1997, metropolitan counties had 39 percent of these high-technology manufacturing jobs. The small urban counties had another 35 percent of these jobs, and the large urban counties and the rural counties each had about 13 percent.

Service Industries

Service jobs have increased in importance for all of Iowa's counties, but the average amount of growth varies by type of county. Within the metropolitan counties, service jobs represented 27 percent of nonfarm employment in 1987, but by 1997 this percentage had increased to 32 percent. Service jobs were slightly less prevalent in the urban county economies, representing 24 percent of nonfarm employment in 1987 and 26 percent in 1997. Service jobs in the rural counties increased from just under to just over 24 percent of all nonfarm jobs.

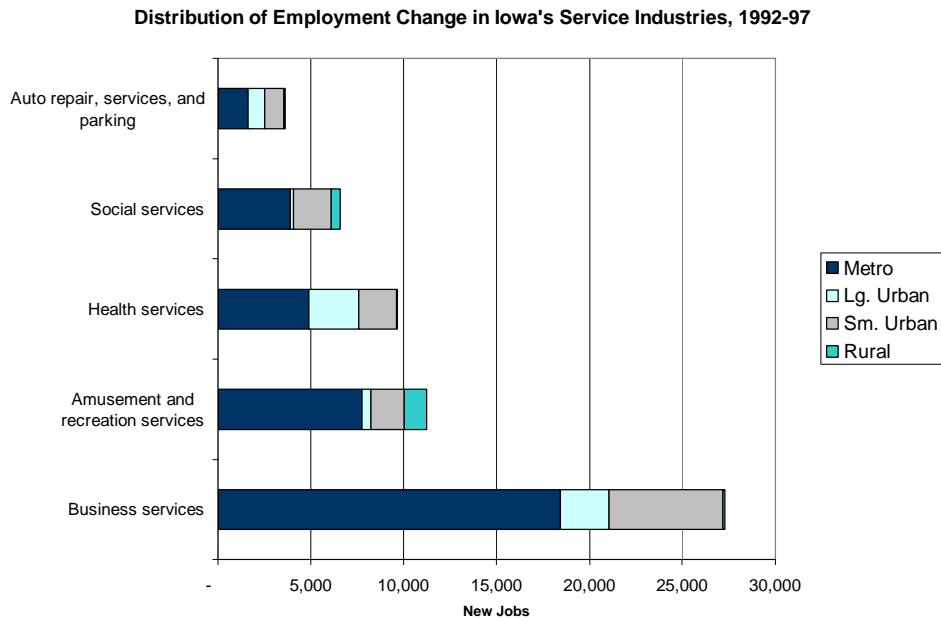
Iowa's recent service sector growth has favored metropolitan counties over urban and rural counties. In 1987, the metro counties already had the majority of Iowa's service jobs. By 1997, the balance had shifted even farther in their favor, as their share of statewide jobs increased from 52 to 56 percent. At the same time their share of population increased from 42 to 44 percent, so their concentration in service jobs is exceeding their growth in population. The urban counties' share of service jobs decreased from 42 to 39 percent, and the share of service jobs in rural counties stayed between 4 and 5 percent, while their population share stayed around 7 percent. Accordingly, there is evidence of a persistent shift in the location of service sector jobs towards metropolitan counties.

The degree of urban preference expressed within the service sector varies by kind of service. This variation is evident among Iowa's fastest-growing service industries. As identified earlier, the five service industry groups that contributed the most new jobs to Iowa's economy from 1992 to 1997 were:

- Business Services
- Amusement & Recreation Services
- Health Services
- Social Services
- Auto Repair, Services and Parking

These five major industry groups added about 58,000 new jobs to the economy during this time, and contributed 82 percent of Iowa's net growth in the service sector as a whole. Figure 14 shows the amount and distribution of the new jobs in these five major industry groups. The metro counties received 62 percent of the new jobs. The large urban counties had 12 percent, the small urban counties had 22 percent, and the rural counties had 3 percent.

Figure 14



Metropolitan counties realized strong majorities of growth in all categories except Auto Repair. Small urban counties also had strong numerical growth in all of the categories. Large urban counties had the most growth in business and health services. Rural counties had very few job gains in four of the five groups. They did realize 11 percent of the state's new jobs in Amusement and Recreation, however, which was the second most rapidly growing service category.

While over half of Health Service employment growth occurred in the metropolitan counties, both the large urban and the small urban counties grew as well. There is, however, a qualitative difference in the kinds of health service growth occurring in Iowa. Metropolitan health service employment tends to be linked to specialty and outpatient clinics -- health services that demand more higher trained medical and allied health personnel. Much of the growth in large and small urban counties is located in regional hospitals, residential care health services, and in home health care services. Because nonmetropolitan counties have higher percentages of elderly residents, a large fraction of this growth is likely focused on the health care needs of elderly residents in these two county groups.

Almost 70 percent of Iowa's employment growth in Amusement and Recreation Services occurred in the metropolitan counties. This industry group includes dance studios, sports and fitness facilities, golf courses, amusement parks, carnivals, martial arts, stables for riding, sports and recreational camps, and coin-operated operations.

About 72 out of every 100 new jobs in Amusement and Recreation Services were associated with coin-operated amusements. This is due to the growth of the gaming industry in Iowa, which began with pari-mutuel dog and horse racing about a decade ago and expanded to multiple casino-type gaming operations across the state. Over 80 percent of Iowa's gaming industry growth was located in the metropolitan counties.

Among all the major industry groups in Iowa's economy, the Business Services group contributed the largest number of new jobs from 1992-97. This group comprises a rather broad range of industry descriptions, and it deserves additional scrutiny. The distribution of the growth in the category is displayed in Figure 15. Most of the job growth was in Personnel Supply Services and Miscellaneous Business Services. The Personnel Supply Services category includes employment agencies such as executive placement services and professional registries and other services that provide temporary or continuing help on a contract or fee basis. Miscellaneous Business Services is a catchall category that includes dozens of commission or fee-based services such as arbitration, auctioning, fundraising, and telemarketing services. Both of these categories produce, predominantly, part-time and seasonal jobs whose earnings levels tend to be significantly lower than the nonfarm average in Iowa.

Figure 15

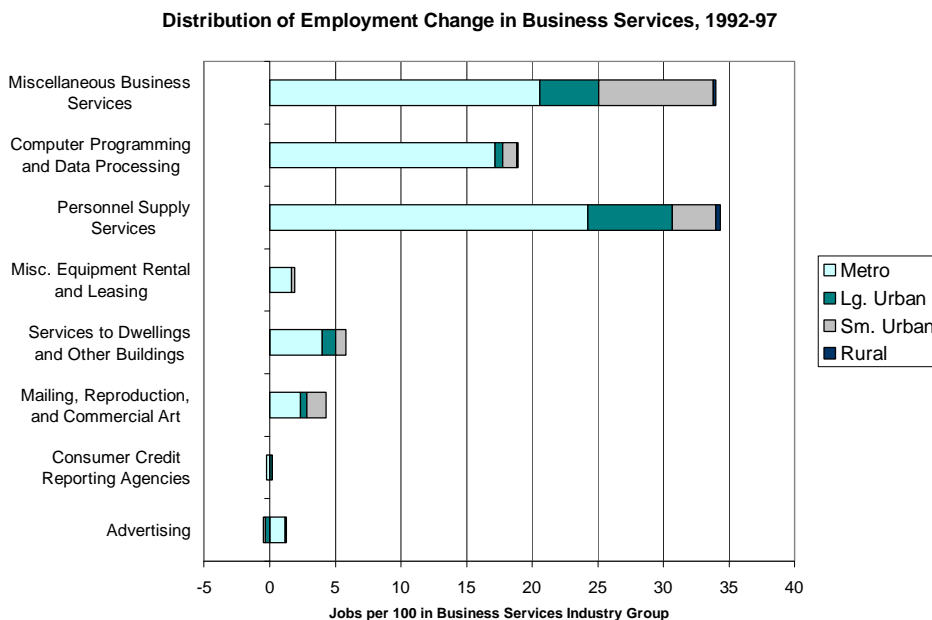


Figure 15 illustrates how every 100 new Business Services jobs in Iowa from 1992 to 1997 were distributed among the various county groups and industries. The metropolitan counties had the largest share of new jobs in all eight Business Services industry groups. The urban counties had their best showing in Personnel Services and

Miscellaneous Business Services. The rural counties were almost completely shut out of the growth in all Business Services industries. About 18 percent of the business service total growth was in Computer Programming and Data Processing. Metropolitan counties garnered the lion's share of jobs in this category. This concentration is important to note. These jobs tend to command higher skills, pay higher wages, and have significant linkages to other industrial activities in metropolitan counties including Electrical Equipment manufacturing along with Finance and Insurance industry growth.

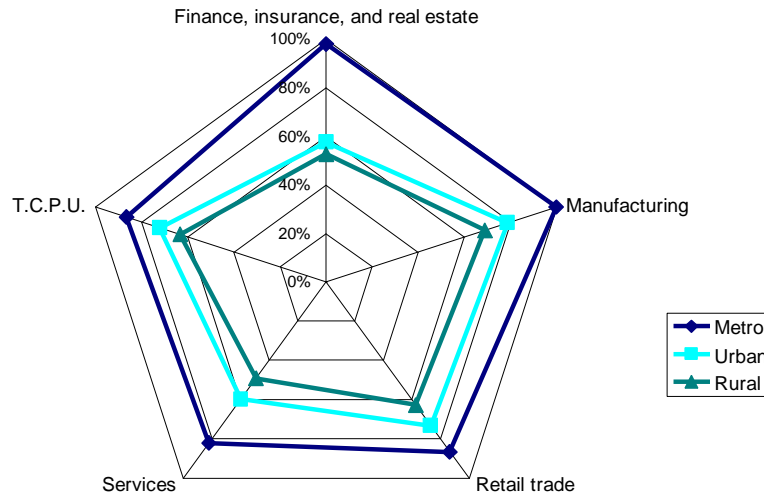
Changes in Average Earnings by Industry and County Type

Earlier we noted that average nonfarm earnings in Iowa have lost ground to the U.S. average. This erosion has occurred in all three county groups since 1987. In 1997, metropolitan county average earnings were the highest in the state at 111 percent of the statewide average, and rural county earnings were the lowest at 79 percent of the statewide average.

Figure 16 shows average earnings for the rural, urban combined, and the metropolitan county groups as a percentage of national averages for five industry divisions in 1997. Compared to the rest of the nation, the earnings per job in Iowa's metro counties were slightly lower than average in the Retail Trade, Services, and T.C.P.U. divisions. Metro county average earnings from F.I.R.E. and Manufacturing jobs were close to national averages. Urban county average earnings did not exceed 80 percent of national averages in any major industry division, and they were below 60 percent in F.I.R.E. jobs. Average earnings in this sector are substantially lower, too, than in the metropolitan counties. Rural counties had their best showing in the Manufacturing division, but were still just 68 percent of the national average. Despite relatively strong job growth in this category, average earnings are much below average urban manufacturing levels, and significantly below the earnings commanded in the metro counties. The poorest showing for rural counties came in the Services division where average earnings were just 49 percent of the U.S. average.

Figure 16

Average Earnings by Industry Relative to U.S. Averages in 1997



Employment, Population, and Average Earnings Changes at the County Level

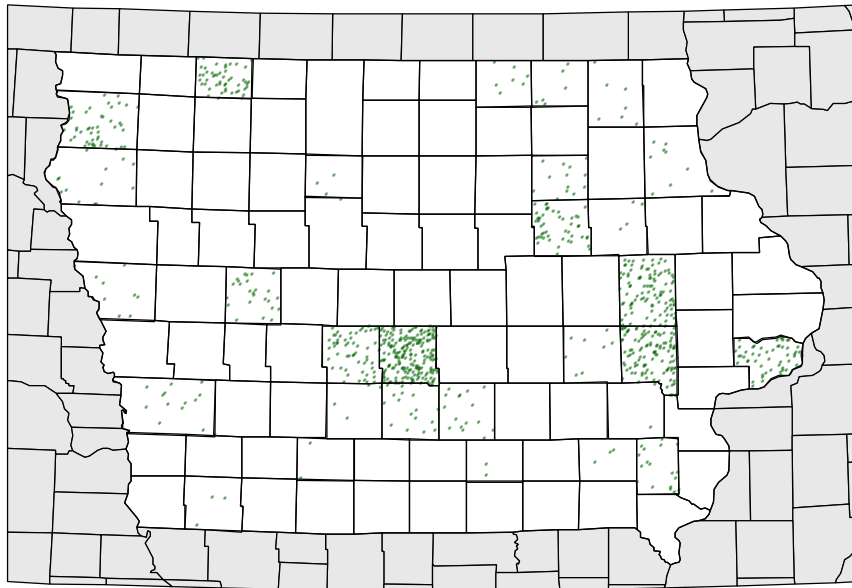
The employment and population changes described in this report may have given the impression that all of Iowa's metropolitan counties are growing more rapidly than all of its urban and rural counties. This is not the case. When employment changes are measured by rates of growth rather than number of new jobs, there are some urban and rural counties that are growing at a pace that is more rapid than some of the metro counties. This is particularly true for urban and rural counties that are adjacent to the most rapidly growing metro counties.

Figures 17 and 18 illustrate distributional shifts in total nonfarm employment from 1987 to 1997 and population shifts from 1990 to 1998. These maps represent growth in excess of the state average, translated into jobs and people. Each dot represents a net gain of 50 jobs in Figure 17 or 50 people in Figure 18. The counties with no dots experienced a competitive loss of employment or population -- their population or their nonfarm growth rates did not keep pace with the state average. These maps help illustrate the flow of jobs and people from one portion of the state to another.

The net employment gains were more widespread than the population gains, but both maps dramatically illustrate how most of Iowa's recent nonfarm employment growth and population growth have been localized around the Des Moines, Cedar Rapids, and Iowa City regions. Strong net growth is also evident in Black Hawk and Scott counties. Pottawattamie is another metropolitan county that posted mild comparative gains, but Woodbury did not. Plymouth County and Dickinson County also posted gains, as did Henry County.

Figure 17

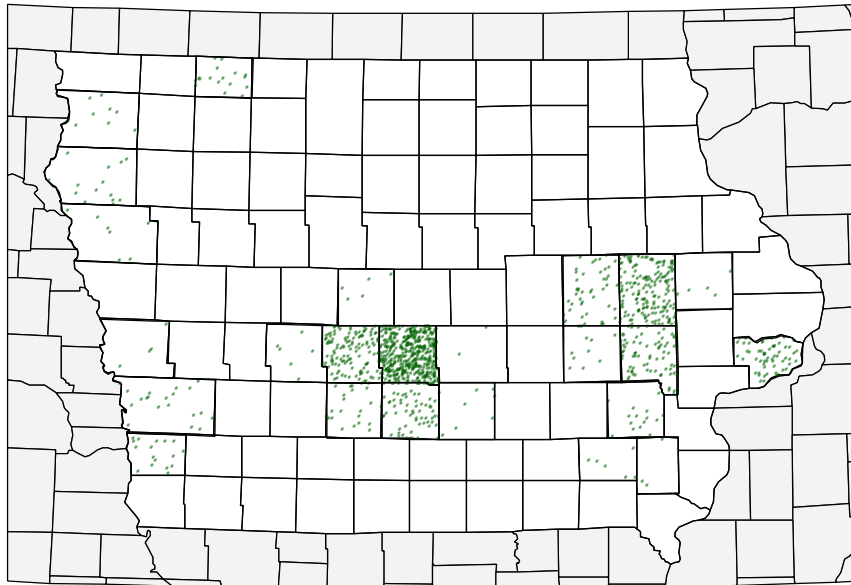
County Nonfarm Employment Shifts, Net of Statewide Growth, 1990-1997



Each dot represents a net gain of 50 jobs

Figure 18

County Population Shifts, Net of Statewide Growth, 1990-1998



Each dot represents a net gain of 50 people

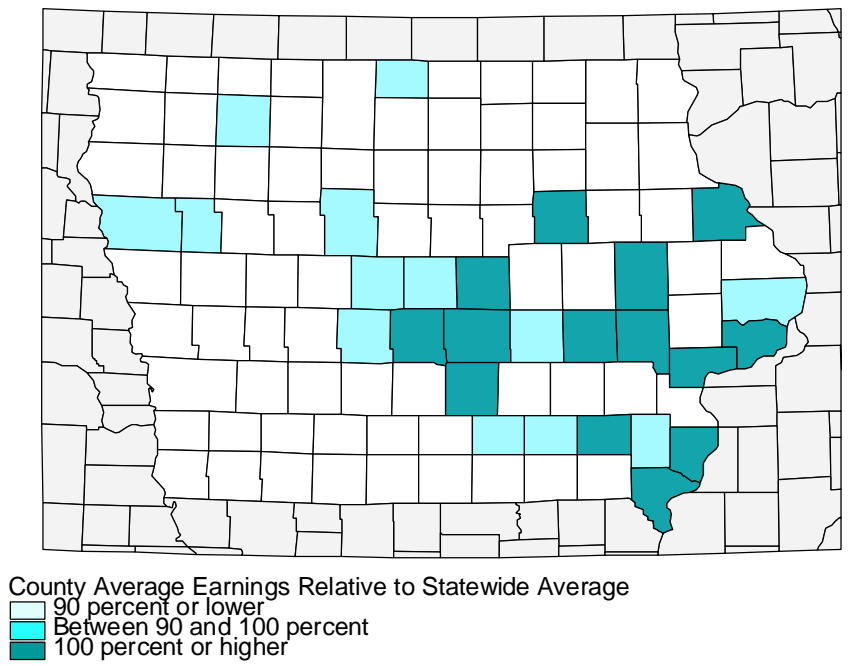
The density of net population growth mirrors many of the changes in employment. The metropolitan counties, especially Polk, Dallas, Warren, Linn, Johnson, and Scott indicate very strong population growth. It is also apparent that many counties are demonstrating employment growth but are not getting new residents. Thirteen counties fell into this group with Carroll County and Black Hawk County, for example, benefiting from net gains in jobs that did not translate into net population growth.

As with employment and population growth rates, county-level average earnings per job vary significantly across the state. Some urban and rural counties have improved their average earnings relative to state averages during the 1987-97 period. Average earnings in some of the metropolitan counties have eroded relative to state averages during this time. The appendix to this report lists each county's average earnings in 1987 and 1997 as a percentage of the state average. The appendix also ranks the counties on the basis of population change and nonfarm employment change, with a rank of 1 indicating the greatest gain, and 99 the smallest gain or greatest loss.

Figure 19 displays average nonfarm earnings for Iowa's counties as percentages of the statewide average in 1997. Fourteen counties had average nonfarm earnings that were greater than the statewide average, six of which were metropolitan counties. Thirteen counties, nearly all of which are urban counties, enjoyed average earnings that were between 90 and 100 percent of the statewide average. The remaining 72 counties in Iowa, however, had average earnings that were below 90 percent of the statewide average. The lowest counties were Decatur (63 percent), Guthrie (64 percent), and Taylor (66 percent).

Figure 19

Average Earnings per Job in 1997, Relative to Statewide Average



Summary, Conclusions & Outlook

Nonfarm employment has grown steadily statewide over the period measured and in nearly all counties; however, selected areas of the state are posting substantially stronger gains in new jobs and in population. Consequently, the benefits of job growth have been uneven.

When we look at job growth across the state and in particular kinds of counties, it is evident there is a continued concentration of higher valued manufacturing jobs and

higher skilled service jobs in the state's metropolitan counties. At the same time, small urban and rural counties, though posting substantial gains in employment, found their gains to be in traditional manufacturing and in lower valued service jobs. An important consideration regarding the eroding value of manufacturing earnings in the state is that these jobs, although new to an area, may not be paying enough to induce migration.

There is a discernible qualitative difference in many of the kinds of jobs that are being created across the state. Higher-quality manufacturing and professional service jobs are concentrated in the state's metropolitan counties. In addition, these counties are realizing strong job gains in the insurance industry. In all, jobs that require college degrees or professional certification are increasingly concentrated in these growth centers. As a result there is a widening gap between the aggregate skills found in the metropolitan areas compared to the remainder of the state.

Perhaps the most disturbing and perplexing trend is the persistent erosion in the value of labor when measured against the U.S. average. The average nonfarm job in Iowa pays 82 percent of the national average. In small urban and in rural areas, the percentages are profoundly worse. In all, there is evidence that the earnings gap between growth centers and smaller counties is widening. This trend is even more perplexing given the state's high and growing workforce participation rates and very low unemployment rates. Through the period studied, a tight labor supply has not bid up average earnings.

Iowa's relatively tight labor markets plus its high historic participation rates are expected to yield real income growth. If so, the potential exists for slowed rates of out-migration if not outright in-migration. These earnings gains would have to be substantial regionally, however, because all surrounding states in the Plains region have had strong nonfarm growth, growing participation rates, and declining unemployment.

A corollary to the previous point concerns the relationship of industrial investment in technology and in labor. An argument can be made that a significant portion of Iowa's nonfarm job growth has been in labor-intensive sectors. A dwindling labor supply can also induce industrial investment in labor saving technologies, thus increasing skill demands and, ultimately, compensations received by workers.

Policymakers' desires notwithstanding, Iowa will continue to become more urban as the years progress. The technical, economic, social, and cultural efficiencies and advantages of urban areas are strong and growing. Regional trade and service activities in the state have shifted strongly into regional centers in the past decade. Metropolitan counties are accumulating retail and service sector jobs at a pace significantly in excess of population growth. This indicates that more and more people are choosing to purchase goods and services in the state's largest trade centers.

Although the preponderance of growth will reside in the state's metropolitan counties, many of its medium-sized urban counties will continue to diversify their nonfarm employment structures and gain in size and economic importance regionally. Communities and counties that are adjacent to or otherwise linked with growth centers stand to gain both economically and in population. Rural areas may derive benefits from regionally based development strategies in addition to local development strategies.

Appendix 1

County Name	FIPS	County Group	Population Change 1987-97	Population Change Rank	Employment Change 1987-97	Employment Change Rank	Average Earnings as % of State Average in 1987	Average Earnings as % of State Average in 1997
Adair	19001	Rural	(398)	66	441	87	71%	76%
Adams	19003	Rural	(807)	83	(13)	99	74%	80%
Allamakee	19005	Small Urban	(152)	50	1,105	64	78%	75%
Appanoose	19007	Small Urban	(584)	73	1,062	65	81%	79%
Audubon	19009	Small Urban	(787)	82	240	95	73%	77%
Benton	19011	Small Urban	2,787	8	1,500	48	75%	75%
Black Hawk	19013	Metro	(2,224)	98	18,864	5	110%	105%
Boone	19015	Small Urban	1,036	21	1,757	40	92%	91%
Bremer	19017	Small Urban	585	26	3,071	24	83%	84%
Buchanan	19019	Small Urban	396	30	1,860	37	83%	87%
Buena Vista	19021	Small Urban	(561)	72	1,972	36	82%	81%
Butler	19023	Rural	(249)	54	1,143	58	77%	71%
Calhoun	19025	Rural	(362)	61	576	80	74%	70%
Carroll	19027	Small Urban	(109)	44	3,893	17	89%	82%
Cass	19029	Small Urban	(663)	78	876	72	82%	82%
Cedar	19031	Small Urban	516	28	1,274	56	74%	73%
Cerro Gordo	19033	Large Urban	(949)	89	5,242	12	93%	90%
Cherokee	19035	Small Urban	(1,165)	94	1,131	60	90%	83%
Chickasaw	19037	Small Urban	(292)	57	1,288	53	98%	86%
Clarke	19039	Small Urban	(118)	46	587	79	81%	76%
Clay	19041	Small Urban	296	32	2,093	33	88%	91%
Clayton	19043	Rural	(624)	75	2,294	31	75%	78%
Clinton	19045	Large Urban	(1,647)	97	4,660	14	100%	95%
Crawford	19047	Small Urban	(1,147)	93	716	76	90%	84%
Dallas	19049	Metro	6,991	4	5,378	11	85%	92%
Davis	19051	Small Urban	(113)	45	604	78	78%	80%
Decatur	19053	Rural	(373)	63	438	89	76%	63%
Delaware	19055	Small Urban	537	27	1,541	47	82%	85%
Des Moines	19057	Large Urban	(840)	84	4,591	15	114%	105%
Dickinson	19059	Small Urban	1,401	13	4,342	16	80%	79%
Dubuque	19061	Metro	1,020	22	10,573	7	110%	106%
Emmet	19063	Small Urban	(677)	79	840	74	84%	82%
Fayette	19065	Small Urban	(73)	42	2,019	35	82%	75%
Floyd	19067	Small Urban	(1,035)	91	227	96	82%	79%
Franklin	19069	Small Urban	(886)	87	165	98	77%	83%
Fremont	19071	Rural	(875)	85	421	90	96%	88%
Greene	19073	Small Urban	(446)	69	481	86	78%	74%
Grundy	19075	Rural	(132)	48	687	77	71%	79%
Guthrie	19077	Rural	423	29	864	73	66%	64%

County Name	FIPS	County Group	Population Change 1987-97	Population Change Rank	Employment Change 1987-97	Employment Change Rank	Average Earnings as % of State Average in 1987	Average Earnings as % of State Average in 1997
Hamilton	19079	Small Urban	(537)	71	1,688	41	89%	90%
Hancock	19081	Small Urban	(878)	86	517	83	75%	71%
Hardin	19083	Small Urban	(1,063)	92	1,372	50	83%	81%
Harrison	19085	Small Urban	123	36	1,123	61	74%	71%
Henry	19087	Small Urban	803	23	3,418	18	87%	91%
Howard	19089	Small Urban	(423)	68	1,287	54	77%	82%
Humboldt	19091	Small Urban	(594)	74	1,308	52	82%	80%
Ida	19093	Rural	(372)	62	882	71	89%	91%
Iowa	19095	Rural	788	24	2,733	29	91%	108%
Jackson	19097	Small Urban	(757)	81	1,605	44	76%	70%
Jasper	19099	Small Urban	1,205	19	2,741	28	105%	105%
Jefferson	19101	Small Urban	778	25	2,407	30	91%	106%
Johnson	19103	Metro	11,432	3	20,044	4	101%	103%
Jones	19105	Small Urban	1,243	18	1,554	45	83%	81%
Keokuk	19107	Rural	(381)	64	493	85	82%	78%
Kossuth	19109	Small Urban	(1,247)	96	1,132	59	82%	76%
Lee	19111	Large Urban	(988)	90	3,035	25	111%	104%
Linn	19113	Metro	16,957	2	31,082	2	118%	120%
Louisa	19115	Rural	250	33	940	68	89%	79%
Lucas	19117	Small Urban	(267)	55	303	94	97%	80%
Lyon	19119	Small Urban	82	37	956	67	78%	75%
Madison	19121	Small Urban	1,483	11	1,209	57	72%	72%
Mahaska	19123	Small Urban	314	31	1,846	38	82%	80%
Marion	19125	Small Urban	1,629	9	4,762	13	108%	104%
Marshall	19127	Large Urban	55	38	3,409	19	108%	101%
Mills	19129	Small Urban	1,138	20	364	92	85%	81%
Mitchell	19131	Small Urban	(68)	41	1,325	51	92%	82%
Monona	19133	Small Urban	(212)	52	1,376	49	75%	72%
Monroe	19135	Small Urban	(162)	51	896	70	95%	93%
Montgomery	19137	Small Urban	(218)	53	1,280	55	91%	87%
Muscatine	19139	Large Urban	1,399	14	3,288	21	113%	116%
O'Brien	19141	Small Urban	(624)	76	1,634	43	81%	76%
Osceola	19143	Small Urban	(296)	58	538	81	74%	74%
Page	19145	Small Urban	181	35	2,020	34	83%	89%
Palo Alto	19147	Small Urban	(907)	88	1,029	66	76%	71%
Plymouth	19149	Small Urban	1,326	17	2,891	26	92%	87%
Pocahontas	19151	Rural	(1,185)	95	498	84	81%	78%
Polk	19153	Metro	43,286	1	68,370	1	115%	123%
Pottawattamie	19155	Metro	1,499	10	9,457	8	92%	88%
Poweshiek	19157	Small Urban	194	34	1,542	46	95%	95%
Ringgold	19159	Rural	(73)	43	398	91	77%	73%
Sac	19161	Rural	(624)	77	771	75	72%	73%

County Name	FIPS	County Group	Population Change 1987-97	Population Change Rank	Employment Change 1987-97	Employment Change Rank	Average Earnings as % of State Average in 1987	Average Earnings as % of State Average in 1997
Scott	19163	Metro	6,939	5	22,825	3	114%	108%
Shelby	19165	Small Urban	(390)	65	1,110	63	74%	76%
Sioux	19167	Small Urban	1,428	12	5,728	10	81%	82%
Story	19169	Large Urban	1,354	16	9,153	9	93%	99%
Tama	19171	Small Urban	(137)	49	930	69	77%	76%
Taylor	19173	Rural	(278)	56	339	93	68%	66%
Union	19175	Small Urban	(334)	60	1,648	42	89%	82%
Van Buren	19177	Rural	(37)	40	537	82	74%	72%
Wapello	19179	Large Urban	(714)	80	3,101	23	107%	94%
Warren	19181	Metro	4,730	7	3,250	22	73%	73%
Washington	19183	Small Urban	1,382	15	2,129	32	80%	79%
Wayne	19185	Rural	(463)	70	185	97	79%	70%
Webster	19187	Large Urban	(2,466)	99	3,291	20	91%	94%
Winnebago	19189	Small Urban	(16)	39	1,837	39	95%	91%
Winneshiek	19191	Small Urban	(126)	47	2,829	27	81%	83%
Woodbury	19193	Metro	5,161	6	12,186	6	105%	98%
Worth	19195	Rural	(399)	67	439	88	68%	71%
Wright	19197	Small Urban	(299)	59	1,111	62	85%	84%