

# Regional Impacts

of Nine Construction Options

## Infrastructure Modernization Upper Mississippi River Illinois Waterway



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## **Executive Summary**

The U.S. Army Corps of Engineers (USACE) initially embarked on a study to address the feasibility and impacts of possible improvements to 29 locks on the Upper Mississippi River and 8 locks on the Illinois Waterway. USACE entered into this study because of a concern that significant traffic delays could develop on the system within the 50-year planning horizon (2000–2050), causing economic losses to the nation. The feasibility study attempts to determine whether navigation improvements are justifiable. And if so, what are the appropriate navigation improvements, sites, and sequencing for the 50-year planning horizon. The feasibility study also includes preparing an Environmental Impact Statement (EIS) which is required by National Environmental Policy Act (NEPA).

Due to the high cost of making large-scale navigation improvements and the limitations of funding for waterway capital projects, USACE embarked on the task of identifying and screening large- and small-scale efficiency measures at multiple sites on the waterway. Large-scale measures are navigation improvements involving extending the existing lock or providing a second lock at an existing lock and dam. Small-scale measures are navigation improvements of smaller scope such as mooring cells and power-level guidewalls, for example. The alternatives that have passed through the screening process now totals nine combinations of large- and small-scale navigation improvements at various sites.

This report catalogs the regional benefits that would be expected to accrue to study-area states and larger regions proximate to the Upper Mississippi River and Illinois Waterway given nine separate construction options. The analysis considers the impact of more favorable water-compelled rates, greater transportation-rate savings, and the direct and indirect impact of construction expenditures. In the analysis, these three sources of regional income are combined and then compared with infrastructure-construction cost for ease in evaluating the nine construction options.

A summary of the regional benefits and national construction costs is shown in Table E-1. To facilitate comparisons, all data are expressed in 1998 dollars and discounted to 2001. Each option is represented by a letter designation, Option A through Option J and excluding Option I, which is defined in Table 3. While Options B through Option J return considerable regional benefits, Options D through Option J all return over \$1 billion over the cost of the projects. It is interesting that Option F returns a net sum of \$1.4 billion which is equivalent to Option J, but also has the highest regional benefit to cost ratio among the projects, excluding Option A. Option A is a very small project with a very high ratio of regional benefits to cost. But due to its limited scope, its net benefits are small. Under any of the alternatives, Illinois would receive the largest benefits of the five-state study area due to its heavy use of the waterway and because all the alternatives involve construction in that state.

**Table E-1. Present Value of Total Regional Benefits by State for Nine Construction Options**  
(Millions of 1998 Dollars Discounted to 2001 at 6.375 Percent)

State	Option								
	A	B	C	D	E	F	G	H	J
Illinois	\$4.77	\$140.83	\$246.41	\$319.40	\$324.62	\$376.65	\$445.07	\$492.62	\$495.16
Iowa	\$0.15	\$23.79	\$29.18	\$71.30	\$73.25	\$78.64	\$153.42	\$78.02	\$78.17
Minnesota	\$4.04	\$48.07	\$58.96	\$80.91	\$83.13	\$96.64	\$84.62	\$95.77	\$97.85
Missouri	\$3.16	\$92.88	\$182.71	\$197.51	\$200.96	\$207.95	\$264.80	\$218.06	\$219.76
Wisconsin	\$0.01	\$8.72	\$12.42	\$16.00	\$16.94	\$19.24	\$24.26	\$20.68	\$20.69
Lower Mississippi	\$8.69	\$209.99	\$257.97	\$347.31	\$359.22	\$401.48	\$246.18	\$388.88	\$393.35
Eastern United States	\$6.23	\$150.53	\$209.74	\$279.35	\$286.18	\$324.08	\$299.70	\$334.44	\$337.70
Western United States	\$8.46	\$181.47	\$237.62	\$318.28	\$329.84	\$383.27	\$342.36	\$391.83	\$396.22
National Total	\$35.51	\$856.28	\$1,235.02	\$1,630.05	\$1,674.13	\$1,887.97	\$1,860.40	\$2,020.30	\$2,038.90
Present Value of Cost	\$0.649	\$150.948	\$342.445	\$438.233	\$438.882	\$467.673	\$617.667	\$618.316	\$618.317
Regional Benefits Per Cost	54.71	5.67	3.60	3.71	3.81	4.04	2.96	3.26	3.30
<b>Net Benefits</b>	<b>\$34.86</b>	<b>\$705.332</b>	<b>\$892.575</b>	<b>\$1191.83</b>	<b>\$1235.25</b>	<b>\$1420.30</b>	<b>\$1245.77</b>	<b>\$1401.98</b>	<b>\$1420.58</b>

## **Introduction**

The Upper Mississippi River and Illinois Waterway have proven to be an efficient and cost-effective means of transporting a variety of goods and are vital to our national economy. The locks and dams that allow waterway traffic to move from one pool to another are integral parts of a regional, national, and international transportation network that is significant for certain key American exports, but are also significant in the movement of many other commodities. Almost half of our exports of corn are shipped on these waterways, with transportation costs being less than half that of a unit train movement to Baton Rouge (\$9.50 versus \$22.00).

The importance of the Upper Mississippi River and Illinois River Waterway as shipping arteries is reflected in the continual increase in tonnage shipped there. On the Upper Mississippi River, tonnage has increased from 27-million tons in 1960 to 91-million tons in 1990. Illinois Waterway traffic has grown from 23-million tons in 1960 to 46-million tons in 1990. Viewed as a system, combined Illinois Waterway and Upper Mississippi River traffic grew to 143.8-million tons in 1998 or about 23 percent of total domestic internal barge traffic.

Many of the locks were designed to accommodate only a fraction of the traffic that currently transits the system today. For example, most of the locks on the system measure 600-feet long. Whereas, many of the tows using the river today measure 1,200-feet long. Tows of 15 barges or larger in the smaller lock must lock through in two steps which takes approximately 1.5 to 2 hours. In contrast, a same-size tow can lock through a 1,200-foot lock in approximately a half hour. On the Upper Mississippi River, 8 of the 29 locks and 3 of the 8 Illinois Waterway locks were identified by the USACE as having the highest average delays of all locks in 1987. The *Inland Navigation Needs Assessment* identified 11 Upper Mississippi River locks as the highest-priority-for-improvement locks on the inland waterway system. With growing usage, these delays will increase and result in higher costs in both time and dollars.

Due to the needs assessment and the increasing delays on the Upper Mississippi River and Illinois Waterway, USACE embarked on a feasibility study which addressed the feasibility and impacts of providing improvements<sup>1</sup> to 29 locks on the Upper Mississippi River and 8 locks on the Illinois Waterway. Specifically, the principal problem addressed in the feasibility study is the potential for economic losses to the nation resulting from significant traffic delays on the system during the 50-year planning horizon (2000–2050). This study attempts to determine whether navigation improvements are justified. If the improvements are justifiable, what are the appropriate navigation improvements, sites, and sequencing for the 50-year planning horizon. The feasibility study also includes the preparation of an Environmental Impact Statement (EIS) required by National Environmental Policy Act (NEPA).

Due to the high cost of making large-scale navigation improvements and the limitations of funding for waterway capital projects, the USACE embarked on the task of identifying and screening large- and small-scale efficiency measures at various projects. Large-scale measures are navigation improvements involving extending an existing lock or providing a second lock at an existing lock and dam<sup>2</sup>. Small-scale measures are navigation improvements of smaller scope such as mooring cells and powered keel guidewalls<sup>3</sup>. The alternatives that have passed through the screening process now total 9 combinations of large- and small-scale navigation improvements.

For each alternative, the USACE will estimate the net benefits, which are the transportation-cost savings that would accrue to each improved navigation infrastructure option as compared to the cost of making the improvements. This methodology was determined by the U. S. Water Resources Council in 1983. The USACE will consider the magnitude of the net benefits and the benefit-cost ratios in determining the recommended alternative<sup>4</sup>. Regional benefits will not be considered in the estimation of net benefits.

However, regional benefits are certainly relevant to the decision-making process at the state, local, and Congressional levels of government due to the impacts that federal expenditures have on local, regional, and state economies. First, increased employment at construction sites brings spending to the area and certainly increases local income. In many cases, these same workers also bring their families to the construction sites stressing the school systems and other local infrastructure<sup>5</sup>. To minimize the negative regional impacts of USACE construction projects, the USACE can mitigate damages. For example, the USACE New Orleans District has hired a team to help implement a \$33 million Community Impact Mitigation Plan for the Industrial Canal Lock replacement in New Orleans. The mitigation plan is part of the \$568-million replacement of the obsolete navigation lock on the Industrial Canal in New Orleans<sup>6</sup>.

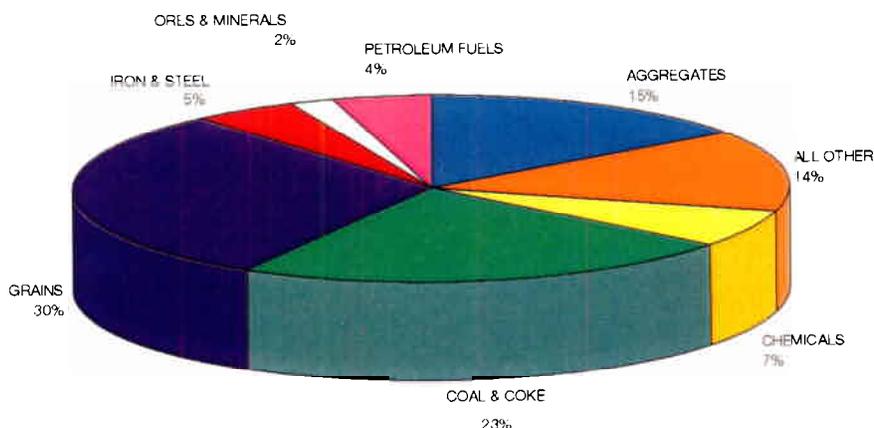
Second, inland river navigation projects are funded through a combination of funds from the Inland Waterway Trust Fund (50 percent) and congressional appropriations (50 percent). Revenue from towboat diesel-fuel taxes on the entire fuel-tax waterway system totals about \$100 million annually and cannot possibly fund 50 percent of all of the proposed waterway improvement projects. This has led to intense competition for construction funds between proponents of navigation facilities on different river systems. Having information on the estimated national and regional benefits assists local and state leaders and members of Congress in understanding the implications of particular facilities for their districts or states.

## The Upper Mississippi and Illinois Waterway

### The Traffic Base

As previously noted, the waterborne commerce moving inbound, outbound, and through the Upper Mississippi River and Illinois Waterway in 1998 was 143.8-million tons, according to most recent USACE data. The commodity distribution of total traffic on the two waterways is shown in Figure 1. Grains traffic, accounting for 30 percent of the total, is the most dominant commodity on the combined waterway network. Other important commodities are coal and coke (23 percent); aggregates (15 percent); a miscellaneous group containing petroleum coke, cement, lumber and forest materials, asphalt, and animal feed (15 percent); chemicals, including fertilizers, alcohol, and styrene (7 percent); iron and steel, including scrap metal (5 percent); petroleum fuels (4 percent); and ores and minerals, including iron ore (2 percent).

Figure 1. Commodity Traffic Distribution on the Upper Mississippi River and Illinois Waterway



Another manner in which to assess the traffic base of the Upper

Mississippi River and Illinois Waterway is through tonmiles and average distance trafficked on this navigation system. These data are shown in Table 1 for this system and also for the remainder of the nation. The most striking element in this table is the difference between miles per trip on the Upper Mississippi River and Illinois Waterway, as compared to the remainder of the national inland river system which is 670 miles as compared to 170 miles. The extreme difference in distance traveled is explained by the fact that the Upper Mississippi River provides a low-cost-transportation route for interregional and international trade as opposed to other river systems which are more intraregional in scope and purpose. The Upper Mississippi River has allowed the rural agricultural-based economy of the Midwest to flourish by providing an outlet for markets out of the region. By contrast, the Ohio River has provided a basis for industrialization for area resources and is largely a shuttle system for coal and other industrial inputs. The other system provides a conduit for grains to markets outside the region and nation.

Also shown in Table 1 is a comparison of tonmiles registered in the Upper Mississippi River systems as compared to the remainder of the nation. While the Upper Mississippi River accounts for 23 percent of

inland-river tonnage, this river system accounts for 27.7 percent of domestic tonmiles of traffic. This difference is accounted for by the longer miles traveled per trip on the Upper Mississippi River.

**Table 1. Miles Per Trip on the Mississippi River, Illinois Waterway, and the Remainder of the Nation**

Area	Tonmiles	Trip Miles	Trips	Miles Per Trip
Upper Mississippi and Illinois Waterway	113,082.2	69,741.2	104,103	670
Remainder of the Nation	295,205.8	183,516.9	1,077,955	170

The wide range of the commodities moving on the Upper Mississippi River and Illinois Waterway is a testament to the importance of the navigation system to the economy of the area. In November 1999, at the Midwest Area River Coalition 2000 (MARC 2000) meeting, Kent Pehler of Brennan Marine of La Crosse, Wisconsin, referenced the importance of river transportation for use in transporting a diverse cargo base.

Tons of consumer goods reach Wisconsin and Minnesota via the river such as coal for energy plants, salt and sand for highways during the winter, and cement for construction. The ability to ship via the river positively impacts the lifestyle of every family in Wisconsin or Minnesota who turn on the heat (or air conditioning), builds a home, or drives on the road during the winter.

Chris Novak of the American Soybean Association spoke about the importance of the river to the continued viability of soybean production in the region. He noted the following:

Regarding the battering that soybean growers have taken in the world-grain market for the last two years, he made the point that the coalition needs to make over and over is that the American Soybean Grower is desperate for infrastructure modernization.

Other information follows from MARC 2000 relating to the nation's balance of trade:

Over 60 percent of the nation's grain exports reach world markets by transiting the Upper Mississippi River to our Gulf of Mexico ports. Returning traffic often brings agricultural inputs, petroleum, coal, steel, cement, and other materials into the inner reaches of the Midwest. These exports contribute, on average, \$18 billion per year to our balance of trade and are fundamental in supporting farmer incomes.

The National Corn Growers Association (NCGA), through their spokesman Paul Bertles, is also firmly committed to improving the Upper Mississippi River and Illinois Waterway:

We recognize that inefficiencies add unnecessary costs to any industry, and this certainly holds true in the inland waterway system. Delays caused by antiquated, overused, and under-maintained locks increase the cost of shipping

commodities. Agriculture is unique in that farmers are “price takers”. In other words, many costs incurred within the marketing chain are passed on to growers. As lock delays increase, barge rates increase as well. Shippers respond to the higher transportation rates by cutting bid prices for grain.

In many years the export market represents the second largest single use of corn after domestic livestock feeding. It is clearly evident that even relatively modest improvements in export sales have very positive impact on prices. Corn exports have always siphoned off excess supply resulting in higher farm-gate prices. But, herein lies the problem, how can we take advantage of increasing global feedgrain demand, when the costs on our primary transportation artery continues to increase due to expanding obsolescence?

An efficient Upper Mississippi River system also provides competition to other industries and agricultural sectors. As the barge transportation becomes less efficient, the rail industry will naturally respond to the loss of competition by increasing rail rates. In addition, numerous corn processors are located within relatively close proximity to the river, and base their bid prices off of the river price. As inefficiencies on the river drive bid prices down at river elevators, processors also drop their bids, extending the problem to even more growers.

Even though American farmers are not the low-cost producers, our current leadership in global grain exports was derived from our transportation system. Relative transportation efficiencies have allowed us to move grain to export ports more cheaply than our competitors. Throughout the 1990s, our competitors, like Argentina and China, have made substantial improvements in their infrastructure with the intent of lowering transportation costs and capturing a larger share of the global market. If we continue to let the efficiency of our system wane, we will lose an ever-increasing market share to farmers in other nations.

It is plainly obvious, if the U.S. is to maintain and possibly even recapture some of our lost export markets, we need substantial improvements on the Upper Mississippi River and Illinois Waterway. At a minimum, we need to invest in new 1,200-foot locks at Mississippi Locks 20–25, and LaGrange and Peoria Locks on the Illinois River. Additional guidewall extensions at Locks 14–18 must be included into the national investment strategy. These investments will allow American agriculture and industry the necessary transportation capacity needed to grow in the future, while protecting the environment for generations to come.

It is apparent, those who reside and make their living in the Midwest feel strongly that something needs to be done to modernize the aging infrastructure on the Upper Mississippi River and Illinois Waterway.

## Geographic Penetration And Fuel Tax Collections

### Geographic Penetration

The initial study area of the Upper Mississippi River and Illinois Waterway is shown in Figure 2, including the dams and locks. The shipping patterns of the Upper Mississippi River and Illinois Waterway are shown in Figures 3–6.

Figure 2. Five-State Study Area



The study area is defined precisely as the Illinois Waterway from the confluence with the Mississippi River at Grafton, Illinois, (river mile 0.0) to T. J. O'Brien Lock in Chicago, Illinois, (river mile 327.0) and the segment of the Mississippi River from the confluence with the Ohio River (river mile 0.0) to Upper St. Anthony Falls Lock in Minneapolis-St. Paul, Minnesota, (river mile 854.0). The combined area includes approximately 1,200 miles of navigable waterway.

Figures 3 and 4 show the pattern of 1998 on-river origins and destinations for Upper Mississippi and Illinois Waterway traffic. That is, from river terminals, where does the traffic originate on the river and where does it terminate on the river? On-river origins are shown in Figure 3 with corresponding Congressional districts. Traffic originates to a large degree in the mid-western grain belt, but origins are also found on the Arkansas and Missouri Rivers, the inter-coastal waterways both to the East and West, the Alabama and Tombigbee Rivers, and the Ohio River and tributaries, including the Tennessee, Cumberland, Monongahela, Kanawha, and Allegheny. River traffic originates in 90 Congressional districts in 21 states.

On-river destinations are shown in Figure 4. The geographic area covered by river destinations is about the same as traffic origination patterns, but differ in the addition and deletion of three Congressional districts. Counting traffic into and out of the river terminals servicing Upper Mississippi River and Illinois Waterway traffic, 90 Congressional districts, out of 732, are represented in 21 states.

Off-river origins and destinations are shown in Figures 5 and 6. While Figures 3 and 4 reflect current 1998 river terminals data, Figures 5 and 6 are based on survey data collected by Tennessee Valley

Authority (TVA) in 1994 and 1995 on contract for the Rock Island District of the USACE. These survey data encompassed 1,300 movements which actually occurred in 1991. These data are included in the report to emphasize the fact that the actual origin and destination of Upper Mississippi River and Illinois Waterway traffic occur at a significant distance from the river and thus involve a greater geographic penetration when compared to the on-river origins and destinations.

Off-river origins are shown in Figure 5. Note that, potash moves to the river from Saskatchewan and oats move to the river from Manitoba. Further south, additional penetration is picked up in North Dakota, Wyoming, Kansas, Nebraska, Wisconsin, Illinois, Indiana, New Mexico, Ohio, North Carolina, and Virginia. Off-river origins occurred in 100 Congressional districts and 26 states.

Figure 6 shows the distribution of off-river destinations. In 1991, fertilizer moved to Manitoba from the river. In the United States, off-river destinations occurred in 25 states including South Dakota, Wisconsin, Minnesota, Illinois, Indiana, Oklahoma, Ohio, Pennsylvania, and Mississippi. Off-river destinations occurred in 128 Congressional districts. Including all of the movements from off-river and on-river origins and destinations, 137 Congressional districts and 30 states are represented.

It should be noted that the existing Geographic Information Systems (GIS) files were used where available. But elsewhere, data used for origin and destination locations were rough approximations. Thus, while some point locations may have fallen into neighboring Congressional districts, Figures 3–6 provide a good overview of existing shipping patterns.

### Fuel Taxes

Given the length of these movements and the fact this system accounts for about 25 percent of total domestic inland river traffic, the Upper Mississippi River and Illinois Waterway are an important source of Inland Waterways Trust Fund tax revenue. Appendix A shows the fuel-tax revenue which is collected by river for all rivers. These 1998 data are estimated by the TVA River Efficiency and Fuel Tax Model. These data, based on gallons of fuel consumed during running, delay, and processing time, show fuel tax collections only for gallons consumed by towing barges on each of these rivers. In 1998, \$10.3

Figure 3. On-River Originations



Figure 4. On-River Destinations

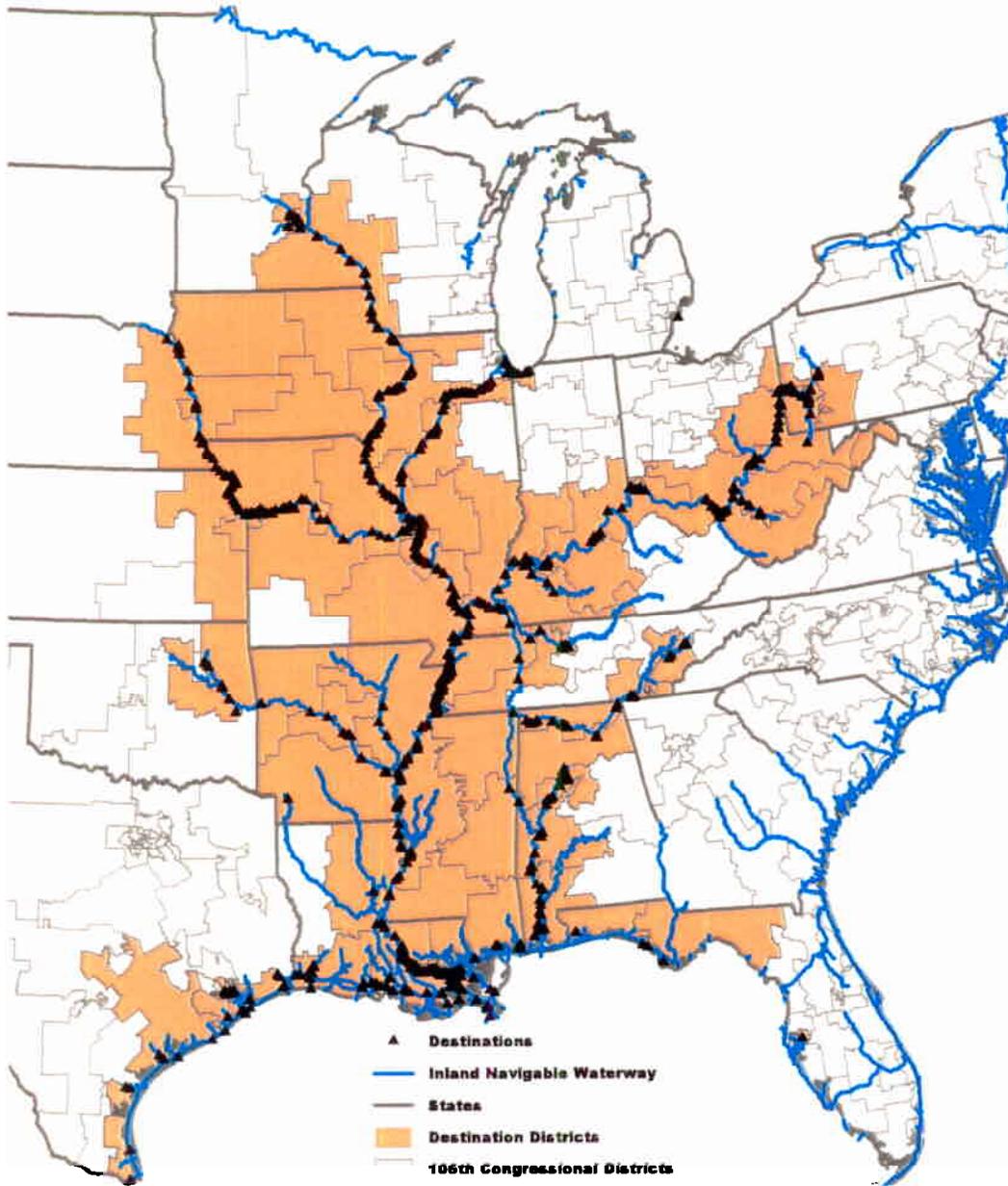


Figure 5. Off-River Origins

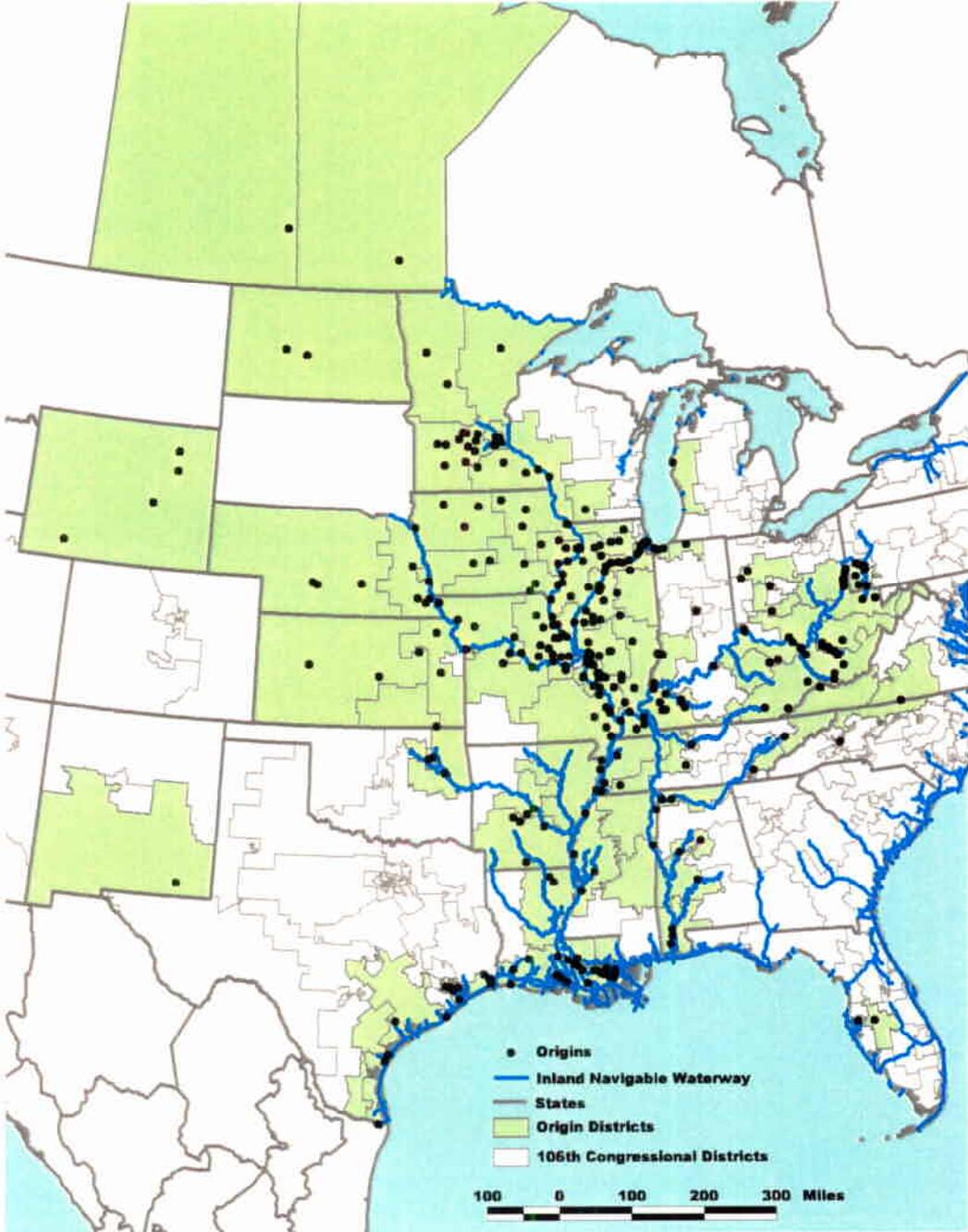
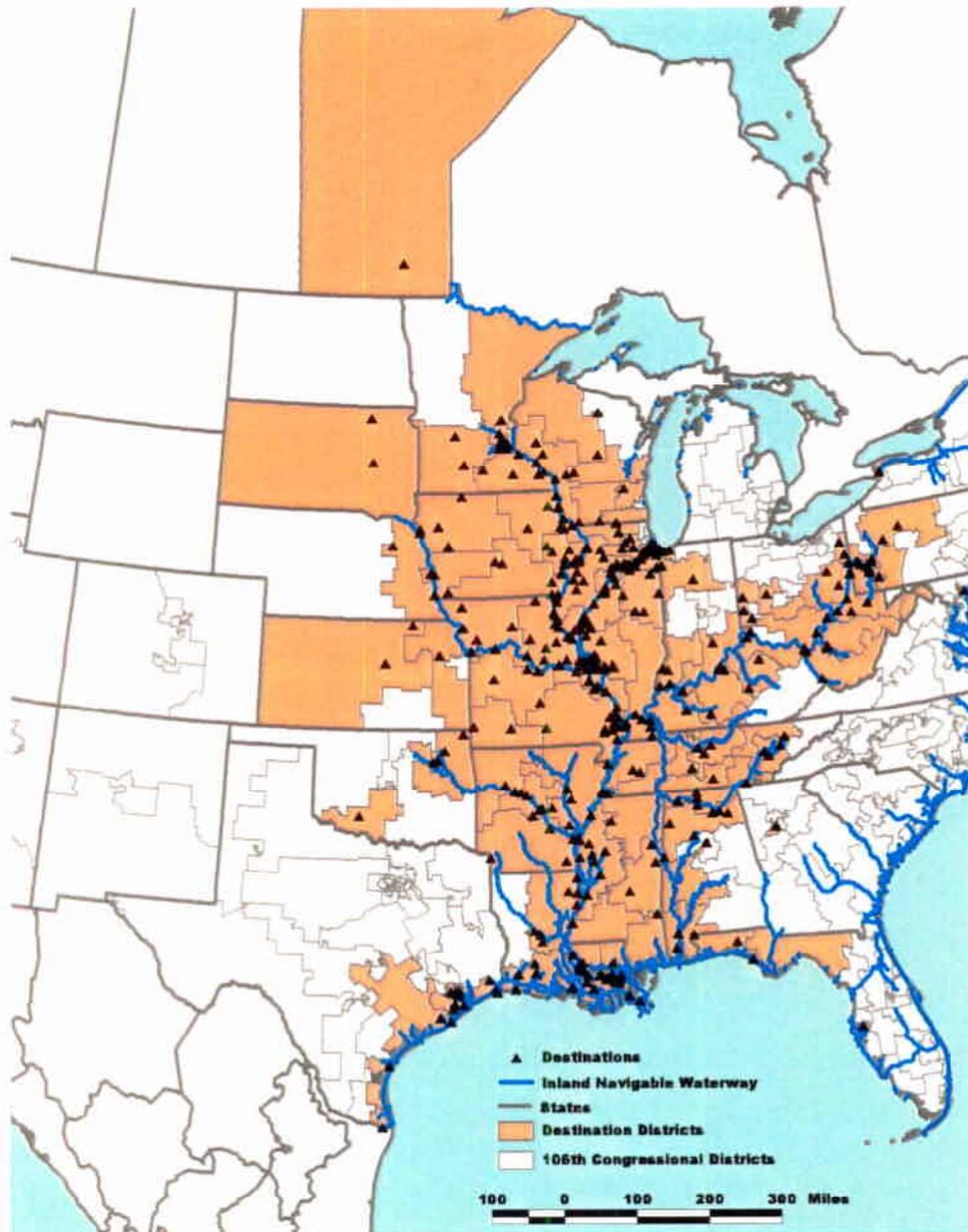


Figure 6. Off-River Destinations



million was collected for fuel consumed on the Mississippi River between Minneapolis, Minnesota and the mouth of the Missouri River. In addition, \$7.1 million was collected on the Illinois River.

As also shown in Figure 3 and 4, tows on the Upper Mississippi River and Illinois Waterway move essentially throughout the eastern United States River system and are responsible for considerably greater fuel-tax revenue than the combined \$17.4 million that was collected in 1998. In fact, the combined Upper Mississippi River and Illinois Waterway traffic throughout the inland river system generated \$40.7 million in 1998, or about 40 percent of total fuel-tax collections into the Inland Waterways Trust Fund. This is yet another factor demonstrating the importance of maintaining the infrastructure on the Upper Mississippi River and Illinois Waterway.

### The Five-State Study Area

As shown in Table 2, primary impact area of improvements to the Upper Mississippi River and Illinois Waterway includes five states: Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Together these states contain more than 11 percent of the nation's population, with total population in 1998 estimated to be about 30.3 million. The states range in size from Illinois with a population of over 12 million, to Iowa with a population of almost 2.9 million. With the exception of Illinois, these states are more rural than the nation. Iowa is the most rural, with over 39 percent of the population living in rural areas in 1990, followed by Wisconsin with over 34 percent of the population in rural areas. All of the states in

**Table 2. Population, Income, and Employment Data for the Five-State Study Area**

	Illinois	Iowa	Minnesota	Missouri	Wisconsin	Nation
Population, 1998	12,045,326	2,862,447	4,725,419	5,438,559	5,223,500	270,299,000
Percent Rural, 1990	15.4	39.4	30.1	31.3	34.3	24.8
Population Increase, 1980-98 (%)	5.4	- 1.8	15.9	10.6	11.0	19.3
Per Capita Personal Income, 1997	\$27,688	\$23,120	\$26,243	\$23,629	\$24,048	\$25,288
Agriculture	1.2	7.0	1.5	1.6	0.7	1.5
Manufacturing	19.8	21.2	21.4	19.5	28.5	17.7
Trade	15.3	16.0	16.9	16.2	15.2	15.4
Services	28.6	21.7	26.4	26.6	23.2	28.5
Government	12.2	14.6	12.7	13.7	13.3	14.8
Other	22.9	19.5	21.1	22.4	19.2	22.0

Source: U.S. Bureau of the Census, U.S. Bureau of Economic Analysis

the primary-impact area have been growing more slowly than the national average over the past several years. From 1980 to 1998, Iowa had a loss of population, although recent information indicates that it has bottomed out and has begun to grow again. The other four states increased in population from 1980 to 1998, with increases ranging from 5.4 percent in Illinois to 15.9 percent in Minnesota.

Average income levels in this area are about the same as the national average, with per capita personal income in 1997 at \$25,674, compared to the national average of \$25,288. The income range among the states is \$23,120 in Iowa, 91.4 percent of the national average, to \$27,688 in Illinois, 109.5 percent of the national average. All of the area states are more dependent on manufacturing earnings than the nation as a whole, especially Wisconsin which derives 28.5 percent of earnings from manufacturing.

With the exception of Iowa, the states derive about the same or less of their total earnings from agriculture. However, Iowa derives 7 percent of its earnings from agriculture compared to the national average of 1.5 percent.

This area is an important producer of the nation's major agricultural crops. In 1997, over half (50.7 percent) of the total value of soybean production was in this area, primarily in Illinois and Iowa. Almost half (48.7 percent) of the corn was produced in this area, also primarily in Illinois and Iowa. Additionally, close to half (46.1 percent) of the value of hog production was developed there, concentrated primarily in Iowa with 22.4 percent. Dairy products, primarily in Wisconsin (14.0 percent), were also important, contributing 23.6 percent of the nation's production by value. Minnesota is the source of most of the iron ore produced in the country, with production of 47.9 million metric tons in 1997, about 76 percent of the nation's production.

The actual market area extends well beyond the initial five-state study area. This broader study area includes 30 states and two Canadian provinces as shown in Figures 3–6.

## The Options

USACE used screening measures to limit the scope of the feasibility study due to funding constraints. The outcome of this exercise is that 9 alternatives are now being considered as development options for the Upper Mississippi River and Illinois River Waterway. The options and the letter designation are shown in Table 3.

**Table 3. Navigation Improvement Options on the Upper Mississippi River and Illinois Waterway**

Letter	Option	Construction Period
A	Mooring cells at Locks 12, 18, 20, 22, 24 on Upper Mississippi River	2001–2003
B	Option A and powered kevel guidewall extensions at Locks 20–25 on Upper Mississippi River	2001–2007
C	Lock extensions at Locks 20-25 on the Upper Mississippi River	2003–2012
D	Option C and powered kevel guidewall extensions at Locks 14–18 on the Upper Mississippi River	2003–2012
E	Options A and C plus powered kevel guidewall extensions at Locks 14–18	2001–2012
F	Option E and locks at Peoria and LaGrange on Illinois Waterway	2001–2012
G	Option C and extensions at Locks 14–18 on the Upper Mississippi River	2003–2016
H	Option C and locks at Peoria and LaGrange and powered kevel guidewall extensions at Locks 14–18	2003–2014
J	Option H and Option A	2003–2014

Notes:

1. Construction periods in the table begin in the most current year.
2. Peoria and LaGrange will need new locks measuring 1,200 x 110 feet.
3. Locks at Dams 20-25, will be extended to 1,200 x 110 feet.
4. Powered kevel guidewall extensions are sized at 1,200 feet.
5. Mooring cells, guidewall extensions at Mississippi Locks 14-18. Guidewall extensions at Locks 20-25. New locks or lock guidewall extensions at Peoria and LaGrange on the Illinois Waterway.

## The Impact Area

### Direct Impacts

The direct impacts of the construction expenditures of the various options are allocated to states as follows:

Each of the nine options are composed of one or more core activities at one or more of the locks and dams on either or both of the impacted river systems. Mooring cell construction at Locks and Dams 12, 18, 20, 22, and 24 directly impacts Iowa, Illinois, and Missouri. Construction associated with guidewall extensions at Locks and Dams 14–18 directly impacts Illinois and Iowa. Construction associated with guidewall extensions at locks and dams 20–25 directly impacts Illinois and Missouri. The average annual project and allocation to states is shown in Table 4.

**Table 4. Average Annual Project Cost and Allocation to States**

Letter	Component	Average Annual Costs	Years	Allocation to States
A	Mooring cells 12, 18, 20, 22, 24	\$233,000	3	Equally to Iowa, Illinois, Missouri
B	Mooring cells 12, 18, 20, 22, 24	\$233,000	3	Equally to Iowa, Illinois, Missouri
	Guidewall extensions 20–25	\$27,100,000	7	Equally between Illinois and Missouri
C	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
D	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
	Guidewall extensions at 14–18	\$23,300,000	7	Equally between Illinois and Iowa
E	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
	Guidewall extensions at 14–18	\$23,300,000	7	Equally between Illinois and Iowa
	Mooring cells 12, 18, 20, 22, 24	\$233,000	3	Equally to Iowa, Illinois, Missouri
F	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
	Guidewall extensions at 14–18	\$23,300,000	7	Equally between Illinois and Iowa
	Guidewall extensions at Peoria & LaGrange	\$10,500,000	5	Illinois
	Mooring cells 12, 18, 20, 22, 24	\$233,000	3	Equally to Iowa, Illinois, Missouri
G	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
	Guidewall extensions at 14–18	\$23,300,000	7	Equally between Illinois and Iowa
H	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
	Locks at Peoria and LaGrange	\$24,500,000	8	
	Guidewall extensions at 14–18	\$23,300,000	7	Equally between Illinois and Iowa
J	Lock extensions at 20–25	\$54,200,000	10	Equally between Illinois and Missouri
	Locks at Peoria and LaGrange	\$24,500,000	8	Illinois
	Guidewall extensions at 14–18	\$23,300,000	7	Equally between Illinois and Iowa
	Mooring cells 12, 18, 20, 22, 24	\$233,000	3	Equally to Iowa, Illinois, Missouri

### **Indirect Impacts**

Direct construction expenditures result in indirect impacts in the local economy. That's because money spent on construction activity, labor, and materials generates additional income and employment in a multiplier fashion. In a larger construction project, such as the alternatives considered for the Upper Mississippi River and Illinois Waterway, impacts can range from the local or regional construction area as purchases are made over long distances. Additionally, construction workers often migrate to a construction site and leave their families at home where the construction earnings are partially spent, and a certain amount of the construction work is done by private companies at remote locations.

In the study, USACE used a multiregional variable input-output model to estimate the economic impact of the 9 infrastructure options for the Upper Mississippi River and Illinois Waterway. The model was used to allocate the impacts within the industrial sectors located in regions which were defined as states or groups of states. USACE with input from the Iowa Department of Transportation, defined Illinois, Iowa, Minnesota, Missouri, and Wisconsin as the most likely candidates for receiving the indirect income. To account for the leakage of indirect income to the remainder of the nation, the USACE defined three areas as recipient states: the lower Mississippi River, Eastern United States, and Western United States. The input-output model is discussed in the USACE's August 1998 study *Master Water Control Manual, Missouri River*.

## **Regional Benefits**

In this study regional benefits are defined to include the following:

- Direct and indirect construction income,
- transportation savings, and
- water-compelled rate savings.

Regional benefits are defined in terms of income and employment generated by each of nine infrastructure upgrade options as defined by the USACE. Employment is defined in terms of average annual-job years, and income is defined as the present value of an income stream based in 1998 dollars and discounted to 2001 at the rate of 6.375 percent. Income generated from construction activity is limited to the actual period of construction. Income generated by transportation rate and water-compelled rate reductions begins when the various projects are completed and traffic begins to move. In cases where multiple large-scale projects are included in a particular strategy, partial benefits (based on percentages of total cost) accrue to the project which opens first.

### **Water-Compelled Rates Net Income**

Prior to 1980, and implementation of the Staggers Rail Act, the Interstate Commerce Commission (ICC) maintained regulatory control over railroad rates so that any discussion of benefits owing to waterborne competition would have been largely inappropriate. Presumably, the ICC sanctioned rail rates based on quasi-optimal departure from marginal-cost pricing aimed at minimizing market distortions while providing rail carriers with an adequate rate of return on capital. Under this scenario, the increased availability of barge transportation might affect transfers of wealth from shippers in regions without a water alternative to shippers located at or near a waterway improvement. However, the absence of extant supernormal rail profits would preclude any transfer of welfare from carrier to shipper or the achievement of any aggregate welfare gains.

With deregulation, the outcome is replaced by an environment in which rail carriers are presumed to act to maximize firm profits. This profit maximization dictates that railroads charge different rates for the transport of different commodities within different regions of the country if the demand in these markets are different, if there is no opportunity for arbitrage, and if the railroads have sufficient market power to affect rates. Assuming these conditions are met, the railroads will impose a set of often-disparate prices which will maximize profits in each market and maximize total profits for the firm. Except to the extent that there are common costs which are affected by the volume of traffic in some combination of markets, these profit-maximizing rates are independent of each other. It follows the increased waterborne competition in one market and may reduce prices in that market without affecting prices in

other markets which lie beyond that range of effective-barge competition. The most obvious result is a loss of railroad profits favoring rail shippers within the affected region. Further, the railroads cannot recover these lost profits by imposing higher prices elsewhere. If they possess the power to impose profitable price increases, they would have already exercised it. Instead, improved river transportation leads to a transfer of wealth from the providers of rail transport to its consumers. This does not imply that the railroads are earning zero economic profits, even in the affected market, only that the level of rail profits is less than it would have been in the absence of the navigation improvement.

With the existing infrastructure, the national water-compelled rate effect due to the Upper Mississippi River and Illinois Waterway is now estimated at about \$1 billion annually. This is shown in Table 5. In the study area, this effect ranges annually from \$5.07 million in Wisconsin, to \$161.39 million in Missouri, totaling \$1.163 billion nationally in 1998 dollars.

**Table 5. Annual Water-Compelled Rate Effects Related to the Existing Infrastructure**  
(Millions of 1998 Dollars)

Missouri	\$161.39
Illinois	\$157.15
Minnesota	\$107.34
Iowa	\$72.27
Wisconsin	\$5.07
Lower Mississippi	\$164.66
Eastern United States	\$120.08
Western United States	\$374.75
Total	\$1,162.71

With improvements to river infrastructure, barge costs would be expected to fall and lead to even more favorable railroad rates which would increase the water-compelled rate effect. An estimate of the net increase in the water-compelled rates related to the infrastructure improvement strategies is shown in Table 6. These data are discounted to 2001 for compatibility with construction and transportation-rate impacts. Nationally, the net increase in the water-compelled rate effect ranges from \$16 million in Option A to \$598 million in Option J. For example, in Option J the net increase in water-compelled rates is estimated to be

\$191.43 million for Illinois, Iowa, Minnesota, Missouri, and Wisconsin. It is significant, that Options F, G, H, and J return essentially identical water-compelled rate effects nationally, while Option G returns a slightly higher value for the five-state region.

While the increase in regional employment associated with the net water-compelled rate effect is not estimated in this study, it is assumed to be approximately equal to the impact of reduced transportation

**Table 6. Present Value of the Net Increase in Water-Compelled Rate Benefits for the Nine Options by State and Region**

State	A	B	C	D	E	F	G	H	J
Illinois	\$1.70	\$28.70	\$34.48	\$46.59	\$48.45	\$62.43	\$67.94	\$64.96	\$65.83
Iowa	\$0.00	\$12.74	\$15.16	\$20.22	\$21.23	\$24.26	\$31.30	\$23.65	\$23.65
Minnesota	\$2.59	\$29.85	\$35.53	\$48.32	\$49.74	\$58.27	\$48.20	\$57.18	\$58.51
Missouri	\$1.56	\$19.14	\$23.92	\$30.76	\$32.47	\$40.16	\$68.24	\$40.77	\$41.57
Wisconsin	\$0.00	\$1.00	\$1.14	\$1.43	\$1.57	\$1.86	\$2.20	\$1.87	\$1.87
Lower Miss	\$2.91	\$68.74	\$82.62	\$111.76	\$115.75	\$129.72	\$76.19	\$124.74	\$126.23
East U.S.	\$1.79	\$35.83	\$42.64	\$57.73	\$59.70	\$69.54	\$53.65	\$68.44	\$69.36
West U.S.	\$5.48	\$105.32	\$124.86	\$168.48	\$176.00	\$209.10	\$166.81	\$208.32	\$211.14
U.S. Total	\$16.03	\$301.33	\$360.35	\$485.28	\$504.90	\$595.32	\$514.53	\$589.94	\$598.17

rates. In other words, the employment effect shown in Table 10 can be doubled to gain an approximation of the employment of transportation rate and water-compelled rate savings.

## Construction Income and Employment

### Income

The present value of direct and indirect income generated by the nine construction options is shown in Table 7. As with the water-compelled rate effect, these data are expressed in 1998 dollars and discounted to 2001. As expected, Option A generates the least income stream, accounting for only \$770,000 nationally. Most of these benefits would accrue to Illinois, Missouri, and Iowa, the states adjacent to the construction projects. Also as expected, Options G, H, and J generate the highest national return. Option G tops these with \$701 million and also has the greatest average annual construction cost.<sup>7</sup>

**Table 7. Present Value of Regional Construction Benefits by State for Nine Construction Options**

Millions of 1998 Dollars Discounted to 2001 at 6.375 Percent

State	Option								
	A	B	C	D	E	F	G	H	J
Illinois	\$0.19	\$63.48	\$153.51	\$193.86	\$194.06	\$208.43	\$261.99	\$317.59	\$317.78
Iowa	\$0.15	\$1.10	\$2.17	\$35.29	\$35.44	\$35.44	\$97.68	\$35.90	\$36.05
Minnesota	\$0.01	\$1.63	\$3.69	\$5.74	\$5.75	\$6.00	\$9.64	\$6.82	\$6.83
Missouri	\$0.16	\$56.05	\$136.68	\$138.33	\$138.49	\$130.69	\$133.49	\$139.61	\$139.77
Wisconsin	\$0.01	\$2.19	\$4.97	\$6.68	\$6.69	\$7.12	\$9.91	\$8.46	\$8.47
Lower Miss	\$0.02	\$5.26	\$11.92	\$14.49	\$14.51	\$15.17	\$19.29	\$17.39	\$17.41
East US	\$0.12	\$28.47	\$64.46	\$82.67	\$82.79	\$87.16	\$116.92	\$101.25	\$101.38
West US	\$0.10	\$20.87	\$47.24	\$61.37	\$61.47	\$64.43	\$87.99	\$74.16	\$74.26
Total US	\$0.77	\$179.05	\$424.64	\$538.42	\$539.19	\$554.44	\$736.92	\$701.19	\$701.95

### Employment

Average annual-direct and indirect employment associated with each of the nine construction options is found in Table 8. These numbers are generated using very precise USACE engineering ratios of labor cost to total cost. Earnings rates adjusted to include overhead are then used for three classes of construction workers. These classes of workers are in design, contract management, and construction contractors. Bureau of Economic Analysis (BEA) income and employment data were used to derive area construction earnings rates. The number of employees is then derived from labor cost expenditures and cost per worker. The average number of employees per option ranges from 7 in Option A to 2,915 in Option H. Option J falls below Option H because the addition of mooring cells adds three years to the length of the construction period with very little increase in employment.

The data shown in Table 8 indicate the impacts that might occur in each of the nine options. These data point to the need to study year-to-year impacts associated with employees who might move to the area and bring their families, stressing the school system, other social services, and local

infrastructure. For example, Option H includes the construction of locks at Peoria and LaGrange. Table 8 also shows an average employment of 1,199 in Illinois. To a large degree, this number includes indirect employment which is already located in the region.

**Table 8. Average Annual Employment Associated With Infrastructure Construction**  
(Valid During Construction Period for Each Option)

State	A	B	C	D	E	F	G	H	J
Illinois	2	346	653	848	707	565	365	1199	1028
Iowa	1	166	16	202	169	564	879	173	149
Minnesota	1	167	21	34	28	31	406	34	29
Missouri	2	337	636	647	539	287	244	546	469
Wisconsin	0	172	39	50	42	374	297	53	45
Lower Miss	0	195	76	94	78	53	63	97	83
East US	1	320	324	423	353	205	121	446	383
West US	1	292	268	354	295	433	603	367	315
Total US	7	1994	2034	2652	2212	2317	2612	2915	2500

For the purposes of examining any need to mitigate socioeconomic impacts, annual

direct construction employment should be tabulated and studied. For example, the maximum direct construction employment during construction of locks at Peoria and LaGrange should average 873 for three years. Put into perspective, detailed survey data collected by TVA during the agency's massive nuclear plant construction effort found that, on average, the fraction of the work force that moved into the construction area ranged from 18 to 43 percent<sup>8</sup>. Of this group, between 49 and 73 percent brought children. The average family size is about 3.4, including between 0.8 and 1.3 school-age children. Using these data as a reference point and assuming the most drastic impact, migrating workers to the Peoria and LaGrange construction sites would bring at the peak construction period about 356 school age children ( $873 \times 0.43 \times 0.73 \times 1.3$ ). Assuming that the early TVA data remain relevant, negative impacts would be contingent upon the age distribution of the children and the capacity of the school system. A thorough examination of the construction work force by the USACE in combination with consultation with local school officials and other impacted parties, such as public safety personnel, would determine the need for any mitigation effort.

## Transportation-Rate Savings

### Income

Transportation-rate savings refers to the actual savings on shipments that utilize the waterway system rather than rail transportation. Since barge shipments often are less expensive, these savings can be substantial. Transportation-rate savings are estimated as the difference between the rate charges for barge or vessel carriage and the next least costly mode which is generally rail. Included in the analysis are the line-haul costs, associated truck or rail costs, and transloading costs. Where possible, these cost are obtained from the shipper or carrier. When these data cannot be obtained through a field survey, computer models are used to simulate transportation rates by mode. Barge rates are estimated using the TVA Barge Costing Model (BCM), and rail rates are estimated using the REEBIE model.

The transportation-rate savings income effect associated with the nine construction options is shown in Table 9. With the exception of heavy power-using industry, transportation is generally the third largest business cost, lagging behind labor and materials. As such, a major decrease in transportation cost should decrease regional production costs and cause area industry to be more competitive. Thus, it would be expected that production in the region should increase in relation to national competitors with a resultant expansion of income and employment.

**Table 9. Present Value of Regional Transportation Savings Benefits by State for Nine Construction Options**

(Millions of 1998 Dollars Discounted to 2001 to 6.375 Percent)

State	Option								
	A	B	C	D	E	F	G	H	J
Illinois	\$2.88	\$48.65	\$58.42	\$78.95	\$82.11	\$105.80	\$115.14	\$110.08	\$111.56
Iowa	\$0.00	\$9.95	\$11.84	\$15.79	\$16.58	\$18.95	\$24.44	\$18.47	\$18.47
Minnesota	\$1.44	\$16.58	\$19.74	\$26.84	\$27.63	\$32.37	\$26.78	\$31.77	\$32.51
Missouri	\$1.44	\$17.69	\$22.11	\$28.42	\$30.00	\$37.11	\$63.06	\$37.68	\$38.42
Wisconsin	\$0.00	\$5.53	\$6.32	\$7.90	\$8.68	\$10.26	\$12.15	\$10.34	\$10.34
Lower Miss	\$5.76	\$135.99	\$163.43	\$221.07	\$228.96	\$256.59	\$150.70	\$246.75	\$249.71
East U.S.	\$4.32	\$86.23	\$102.64	\$138.96	\$143.69	\$167.38	\$129.13	\$164.75	\$166.96
West U.S.	\$2.88	\$55.28	\$65.53	\$88.43	\$92.37	\$109.74	\$87.55	\$109.34	\$110.82
U.S. Total	\$18.71	\$375.89	\$450.03	\$606.35	\$630.04	\$738.20	\$608.96	\$729.17	\$738.78

Nationally, the magnitude of regional income impacts due to transportation cost reduction cluster into Options B and C; D, E, and G; and Options F, H, and J. An implication of the transportation analysis is that Option F is a powerful combination of alternatives: lock extensions at Locks 20–25, guidewall extensions at Locks 14–18, guidewall extensions at Peoria and LaGrange, and mooring cells at Dams 12, 18, 20, 22, and 24. At the national level, the magnitude of transportation savings found in Option F equals that of Option J which is lock extensions at Locks 20–25, locks at Peoria and LaGrange, guidewall extensions at Locks 14–18, and mooring cells at Dams 12, 18, 20, 22, and 24. The present value of construction costs is lower in Option F and yet the transportation benefits are approximately equivalent to Option J.

**Table 10. Average Annual Years of Employment Associated with Transportation Improvements**

**Employment**

The average number of persons per year that would be added to the industrial base is shown in Table 10. The average increase in employment ranges from 73 in Option A to 5,679 in Option J.

State	Option								
	A	B	C	D	E	F	G	H	J
Illinois	11	302	506	682	708	836	3259	885	896
Iowa	0	104	174	238	247	275	1038	282	282
Minnesota	5	136	226	309	321	359	1359	369	374
Missouri	4	122	208	272	282	325	1252	340	344
Wisconsin	0	26	43	59	62	72	276	75	75
Lower Miss	29	795	1337	1802	1871	2058	7725	2098	2127
East US	11	313	523	707	734	842	3233	878	889
West US	9	239	400	540	561	649	2504	680	689
Total US	73	2036	3419	4610	4786	5415	4999	5606	5679

## Total Benefits

The combination of construction, transportation savings, and the net increase in water-compelled rates is found in Table 11. A rough way to put this large amount of data into perspective is to compare total region benefits to the cost of constructing each option. In Table 10, this number is called the total regional benefits per cost, where cost is the total cost of each project in 1998 dollars discounted to 2001. It is important to note that these ratios are not the standard benefit-cost or net-benefit numbers used by the USACE to evaluate projects under the guidelines laid out in the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*. First, the guidelines do not permit the use of regional data to justify projects. Second, this analysis is static and underestimates any transportation-rate impact because traffic is not allowed to grow in the analysis. Thus, these ratios serve as only a rough guide to evaluate a large amount of data.

Also in Table 11, the total regional benefit for the three categories of regional benefits ranges from \$35.5 million in Option A to \$2,038.9 million in Option J. In Option A, \$35.5 million is a very large benefit given to the small investment of \$650,000 (present value) to construct mooring cells at Locks and Dams 12, 18, 20, 22, and 24. This yields a regional benefits-to-cost ratio of 55 which reflects the power of mooring cells to enhance efficiency<sup>9</sup>.

**Table 11. Present Value of Total Regional Benefits by State for Nine Construction Options**  
(Millions of 1998 Dollars Discounted to 2001 at 6.375 Percent)

State	Option								
	A	B	C	D	E	F	G	H	J
Illinois	\$4.77	\$140.83	\$246.41	\$319.40	\$324.62	\$376.65	\$445.07	\$492.62	\$495.16
Iowa	\$0.15	\$23.79	\$29.18	\$71.30	\$73.25	\$78.64	\$153.42	\$78.02	\$78.17
Minnesota	\$4.04	\$48.07	\$58.96	\$80.91	\$83.13	\$96.64	\$84.62	\$95.77	\$97.85
Missouri	\$3.16	\$92.88	\$182.71	\$197.51	\$200.96	\$207.95	\$264.80	\$218.06	\$219.76
Wisconsin	\$0.01	\$8.72	\$12.42	\$16.00	\$16.94	\$19.24	\$24.26	\$20.68	\$20.69
Lower Mississippi	\$8.69	\$209.99	\$257.97	\$347.31	\$359.22	\$401.48	\$246.18	\$388.88	\$393.35
East U.S.	\$6.23	\$150.53	\$209.74	\$279.35	\$286.18	\$324.08	\$299.70	\$334.44	\$337.70
West U.S.	\$8.46	\$181.47	\$237.62	\$318.28	\$329.84	\$353.27	\$342.36	\$391.83	\$396.22
National Total	\$35.51	\$856.28	\$1,235.02	\$1,630.05	\$1,674.13	\$1,887.97	\$1,860.40	\$2,020.30	\$2,038.90
Present Value of Cost	\$0.649	\$150.948	\$342.445	\$438.233	\$438.882	\$467.673	\$617.667	\$618.316	\$618.317
Reg. Benefits Per Cost	54.71	5.67	3.60	3.71	3.81	4.04	2.96	3.26	3.30
Net Benefits	\$34.86	\$705.332	\$892.575	1191.83	\$1235.25	\$1420.30	\$1245.77	\$1401.98	\$1420.58

While Options B through Option J return considerable regional benefits, Options D through Option J all return over \$1 billion over the cost of the projects. It is interesting that Option F, noted as a powerful alternative, returns a net sum equivalent to Option J, and also has the highest regional benefit-to-cost ratio among the projects, of course, excluding Option A. In either Option F or Option A, Illinois and Missouri would receive the largest benefits among the five-state study area.

## **Conclusion**

The USACE initially embarked on a feasibility study of 29 locks on the Upper Mississippi River and 8 locks on the Illinois Waterway, including the impacts associated with providing these improvements. In this study, the principal problem addressed has been the potential for significant traffic delays on the system within the 50-year planning horizon (2000-2050), resulting in economic losses to the nation. The study attempts to determine whether navigation improvements are justified and, if so, what would be the appropriate navigation improvements, sites, and sequencing for the 50-year planning horizon. The feasibility study also includes preparing an Environmental Impact Statement.

Due to the high cost of making large-scale navigation improvements and the limitations of funding for waterway capital projects, the USACE embarked on the task of identifying and screening large- and small-scale efficiency measures. Large-scale measures are navigation improvements involving extending the existing lock or providing a second lock at an existing lock and dam. Small-scale measures are navigation improvements of smaller scope such as mooring cells or powered keel guidewalls. The alternatives that have passed through the screening process now totals 9 combinations of large- and small-scale navigation improvements.

This report catalogs the regional benefits that would be expected to accrue to study-area states and larger regions proximate to the Upper Mississippi River and Illinois Waterway. The impacts of more favorable water-compelled rates, greater transportation-rate savings, and the direct and indirect impacts of construction expenditures are considered in the analysis. These three sources of regional income are combined and then compared with the cost of building the infrastructure for ease in assimilating the large amount of data generated.

While Options B through Option J return considerable regional benefits, Options D through Option J all return over \$1 billion over the cost of the projects. It is interesting that Option F noted above as a powerful alternative, returns a net sum to the nation of \$1.4 billion which is equivalent to Option J, but also has the highest regional benefit-to-cost ratio among the projects excluding Option A. Option A is a very small project with a very high ratio of regional benefits to cost, but due to its limited scope, its net benefits are small. Under any of the alternatives, Illinois would receive the largest benefits of the five-state study area, due to its heavy use of the waterway and because all the alternatives involve construction in that state.

## Appendix A

### Fuel-Tax Revenue by River or River Segment

Prior to 1978, taxes were not charged to users of the inland river system due to the Northwest Ordinance of 1789 which specified that use of the waterways should be forever free. However, President Jimmy Carter insisted that a fuel tax be authorized in support of the replacement of Locks and Dam 26 at Alton, Illinois. In response, Congress enacted legislation creating the Inland Waterways Trust Fund as the repository for a new tax to be levied on fuel consumed in the transport of shipments on designated fuel-tax waterways. In 1998, the tax was 20.1 cents per gallon and also includes a 4.3-cent-per-gallon-deficit-reduction tax, making the total diesel fuel tax 24.4 cents per gallon. Collections to the trust fund averaged about \$60 million annually in the early 1990s, but jumped to \$80 million in 1994. During 1995–1998, collections averaged about \$100 million per year.

The waterways, or reaches of waterways, selected by Congress as fuel-tax waterways exclude a significant proportion of the inland river system. For example, the segment of the Lower Mississippi River from Baton Rouge to New Orleans is not a fuel-tax waterway nor are the tributaries to the Tennessee River, including the Barkely Canal which connects the Tennessee and Cumberland Rivers. While defining the extent of navigable waterways is subject to interpretation, if one excludes the Great Lakes and national harbors from inland and intracoastal waterways, fuel-tax waterways comprise only about 45 percent of the total length of the navigable system.

**Table A-1. Fuel-Tax Collections and the Estimated Prediction Errors During 1995-1998**

Year	Percentage Error	Collections
1995	-4.9	\$ 100,980
1996	0.0	\$ 100,977
1997	-0.2	\$100, 141
1998—Preliminary	4.0	\$ 101,153

Tracking the source of the collections by river has been impossible due to the manner in which the data are collected and reported. The collections are paid to the U. S. Bureau of the Treasury which only reports national summaries on a quarterly basis in February, May, August, and November. In the other months, the Treasury reports credits back to the towing companies which, in fact, have a multi-year grace period to file for these credits. Credits can accrue due to trips made on nonfuel-tax waterways. The net collections reported to the Treasury during 1995–1998 are shown in the Table A-1.

Economists at TVA became interested in the Inland Waterway Trust Fund due to the two lock projects that were being considered on the Tennessee River and because of pollution abatement work that was being done for TVA and USACE by TVA. Estimates of river efficiency were needed to facilitate comparisons with rail and truck efficiency. Since these data were not available, TVA decided to develop and implement a methodology that used the USACE Navigation Data Center detailed data to estimate fuel consumption per tonmile by river.

The end product was the TVA River Efficiency and Fuel Tax Model (REFTM). Completed in the spring of 1998, the model estimates gallons of fuel consumed for all loaded and empty shipments on the inland river system. The model estimates fuel consumption for individual origination-destination movements (loaded and empty) while they are running, while they are being processed at the locks, and while delayed. The model excludes that portion of the trip that is not part of the fuel-tax waterway system.

The model is extremely accurate, showing virtually no error in 1996 and 1997. This is shown in Table A-1. The preliminary estimation error in 1998 is four percent. The error reflects the summation of gallons consumed and fuel tax collections for detailed movements

relative to their summations as compared to the national total reported by the Treasury. Table A-2 shows the estimated fuel tax for the towing that is done within the fuel-tax segments of each designated river or river segment. For example, the taxes that were collected on the Black Warrior and Tombigbee Rivers is estimated to be \$2,228,430 in 1998. The model is extremely flexible in answering "what if questions." For example, the model can estimate the magnitude of fuel-tax collections assuming that the entire inland river system is taxable. More to the point, the model can estimate the fuel-tax collections attributable to Upper Mississippi River and Illinois Waterway movements throughout the entire inland river fuel-tax waterway system. This question was posed to TVA by Mr. Jim Hall of the Iowa Department of Transportation.

Table A-2 data show the fuel tax collections from movements on the Mississippi River (Minneapolis to Missouri—\$9,250,213) and (Missouri to the Ohio—\$6,886,981) and the Illinois Waterway (\$6,638,490). The total for the Upper Mississippi River system is \$22,775,684. Mr. Hall

**Table A-2. Fuel-Tax Collections by Waterway in 1998**

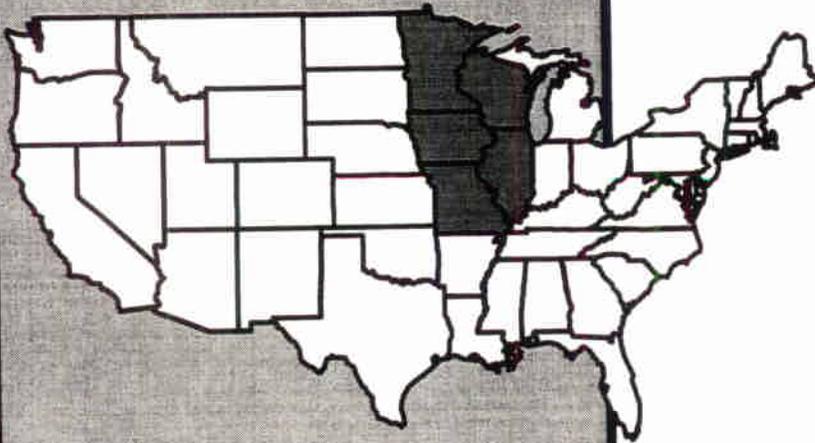
WATERWAY DESCRIPTION	CODE	FUEL TAX
BLACK WARRIOR AND TOMBIGBEE RIVERS, AL	2006	\$2,282.43
GREEN AND BARREN RIVERS, KY	2026	\$141.76
KANAWHA RIVER, WV	2027	\$1,160.51
INTRACOASTAL WATERWAY, JACKSONVILLE TO MIAMI, FL	2046	\$88.52
TENNESSEE RIVER, TN, AL AND KY	2049	\$2,957.45
GULF INTRACOASTAL WATERWAY, MORGAN CITY-PORT ALLEN ROUTE, LA	2053	\$463.91
RED RIVER BELOW FULTON, AR	2056	\$171.11
OUACHITA AND BLACK RIVERS, AR AND LA	2057	\$145.78
ATCHAFALAYA RIVER, LA	2068	\$349.46
MONONGAHELA RIVER, PA AND WV	2077	\$591.39
OHIO RIVER	2078	\$16,655.72
ALABAMA-COOSA RIVERS, AL AND GA	2197	\$19.38
TENNESSEE TOMBIGBEE WATERWAY	2198	\$1,407.36
PEARL RIVER, MS AND LA	2210	\$0.03
APALACHICOLA, CHATTAHOOCHEE AND FLINT RIVERS, GA AND FL	2212	\$49.19
WHITE RIVER, AR BELOW BATESVILLE, AR	2290	\$37.25
KASKASKIA RIVER, IL	2305	\$20.51
KENTUCKY RIVER, KY	2334	\$14.26
SNAKE RIVER, OR, WA AND ID	4520	\$418.28
WILLAMETTE RIVER ABOVE PORTLAND AND YAMHILL RIVER, OR	4645	\$8.88
AIWW BETWEEN NORFOLK VA & ST JOHNS RIVER FL (NORFOLK DIST) VI	5671	\$32.83
AIWW BETWEEN NORFOLK VA & ST JOHNS RIVER FL (NORFOLK DIST) DI	5672	\$4.09
AIWW BETWEEN NORFOLK VA & ST JOHNS RIVER FL (WILMINGTON DIST)	5680	\$355.15
AIWW BETWEEN NORFOLK VA & ST JOHNS RIVER FL (CHARLESTON DIST)	5685	\$247.12
AIWW BETWEEN NORFOLK VA & ST JOHNS RIVER FL (SAVANNAH DIST)	5690	\$87.72
AIWW BETWEEN NORFOLK VA & ST JOHNS RIVER FL (JACKSONVILLE DIST)	5695	\$26.06
MISSISSIPPI RIVER, MOUTH OF OHIO RIVER TO BATON ROUGE, LA	6034	\$38,887.50
MISSISSIPPI RIVER, MOUTH OF MISSOURI TO MOUTH OF OHIO RIVER	6079	\$6,886.98
MISSISSIPPI RIVER, MINNEAPOLIS, MN TO MOUTH OF MISSOURI RIVER	6080	\$10,303.55
MCCLELLAN-KERR ARK. RIVER NAV SYSTEM	6100	\$1,190.78
GULF IWWW, APALACHEE BAY TO PANAMA CITY, FL	6236	\$49.12
GULF IWWW, PANAMA CITY TO PENSACOLA BAY, FL	6238	\$178.88
GULF IWWW, PENSACOLA BAY, FL TO MOBILE BAY, AL	6240	\$155.96
GULF IWWW, MOBILE BAY, AL TO NEW ORLEANS, LA	6241	\$633.71
GULF IWWW, MISSISSIPPI RIVER, LA., TO SABINE RIVER, TX	6242	\$2,606.08
GULF IWWW, SABINE RIVER TO GALVESTON, TX	6243	\$994.85
GULF IWWW, GALVESTON TO CORPUS CHRISTI, TX	6244	\$1,192.23
GULF IWWW, CORPUS CHRISTI, TX TO MEXICAN BORDER	6267	\$115.75
MISSOURI RIVER, FT. BENTON, MT TO SIOUX CITY, IA	6439	\$0.06
MISSOURI RIVER, KANSAS CITY TO THE MOUTH	6474	\$613.44
MISSOURI RIVER, OMAHA TO KANSAS CITY	6475	\$137.88
MISSOURI RIVER, SIOUX CITY TO OMAHA	6476	\$24.54
ALLEGHENY RIVER, PA IMPROVED PORTION	6529	\$81.68
CUMBERLAND RIVER, MOUTH TO NASHVILLE, TN	6624	\$1,069.26
CUMBERLAND RIVER, NASHVILLE, TN	6625	\$103.68
ILLINOIS RIVER, IL (INCL. IN THE ILLINOIS WATERWAY CONSOLIDATED)	7701	\$7,146.40
CALUMET-SAG CHANNEL, IL	7743	\$115.28
CHICAGO SANITARY AND SHIP CANAL, IL	7744	\$120.92
CHICAGO RIVER, SOUTH BRANCH, IL	7745	\$4.13
COLUMBIA RIVER ABOVE DALLES DAM WA & MCNARY LOCK & DAM & WA	8692	\$585.67
COLUMBIA RIVER & TRIBS A&V MCNARY LOCK & DAM TO KENNEWICK, WA	8693	\$218.67
TOTALS OVER ALL FUEL TAX WATERWAYS		\$101,153.15

asked TVA to estimate the total impact of these movements on the Inland Waterways Trust Fund as they travel throughout the entire inland river system. Based on the 1997 data, the total contribution of the Upper Mississippi River system was estimated to be \$40.8 million. Preliminary 1998 data show this impact growing slightly to \$42 million.

## **Appendix B**

**A Profile of Illinois, Iowa, Minnesota, Missouri, and Wisconsin**

**A Profile of  
Illinois, Iowa,  
Minnesota,  
Missouri, and  
Wisconsin**



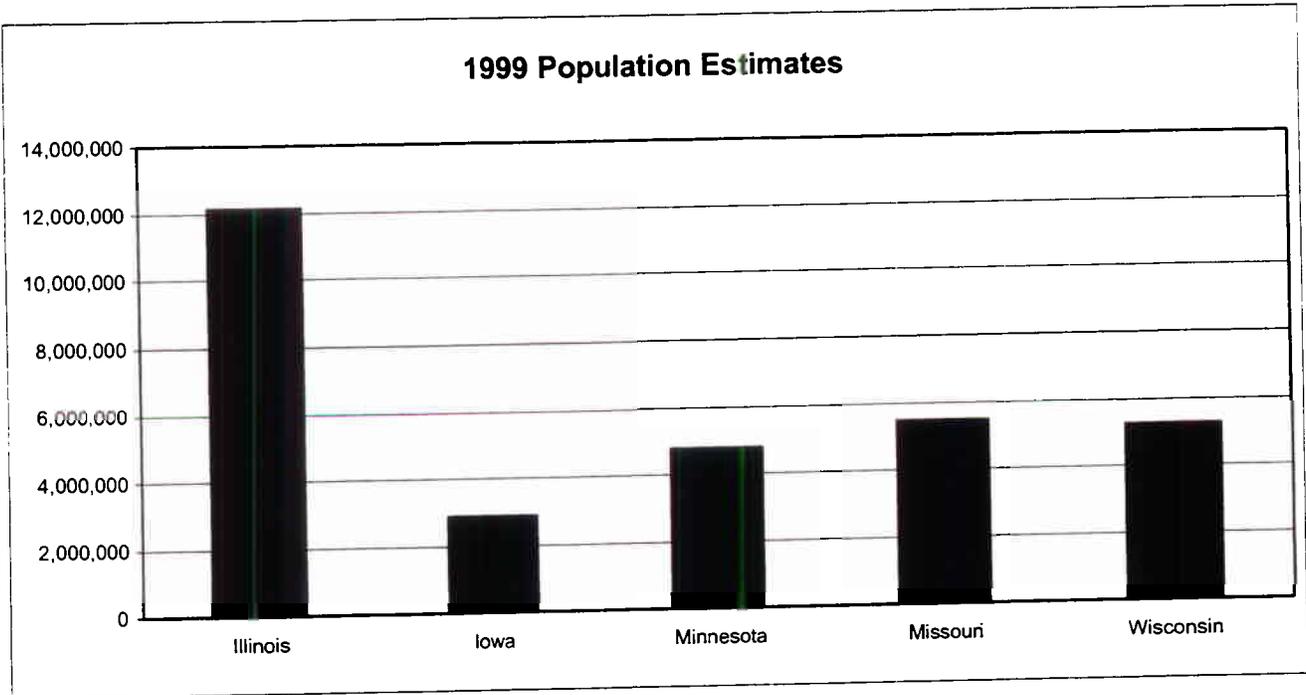
**TVA**

*Prepared by  
Tennessee Valley Authority  
Economic Development  
Nashville, Tennessee  
November 1999*

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**POPULATION  
UPPER MISSISSIPPI RIVER AREA**

<b>Area</b>	<b>Land Area (Sq. Miles)</b>	<b>1930</b>	<b>1940</b>	<b>1950</b>	<b>1960</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>1999 Estimate</b>
Illinois	55,593	7,630,654	7,897,241	8,712,176	10,081,158	11,110,285	11,427,409	11,430,602	12,128,370
Iowa	55,875	2,470,939	2,538,268	2,621,073	2,757,537	2,825,368	2,913,808	2,776,831	2,869,413
Minnesota	79,617	2,563,953	2,792,300	2,982,483	3,413,864	3,806,103	4,075,970	4,375,665	4,775,508
Missouri	68,898	3,629,367	3,784,664	3,954,653	4,319,813	4,677,623	4,916,766	5,116,901	5,468,338
Wisconsin	54,314	2,939,006	3,137,587	3,434,575	3,951,777	4,417,821	4,705,642	4,891,769	5,250,446
<b>Area Total</b>	<b>314,297</b>	<b>19,233,919</b>	<b>20,150,060</b>	<b>21,704,960</b>	<b>24,524,149</b>	<b>26,837,200</b>	<b>28,039,595</b>	<b>28,591,768</b>	<b>30,492,075</b>
U.S. (1,000)	3,536	123,203	132,165	151,326	179,323	203,302	226,542	248,791	272,691

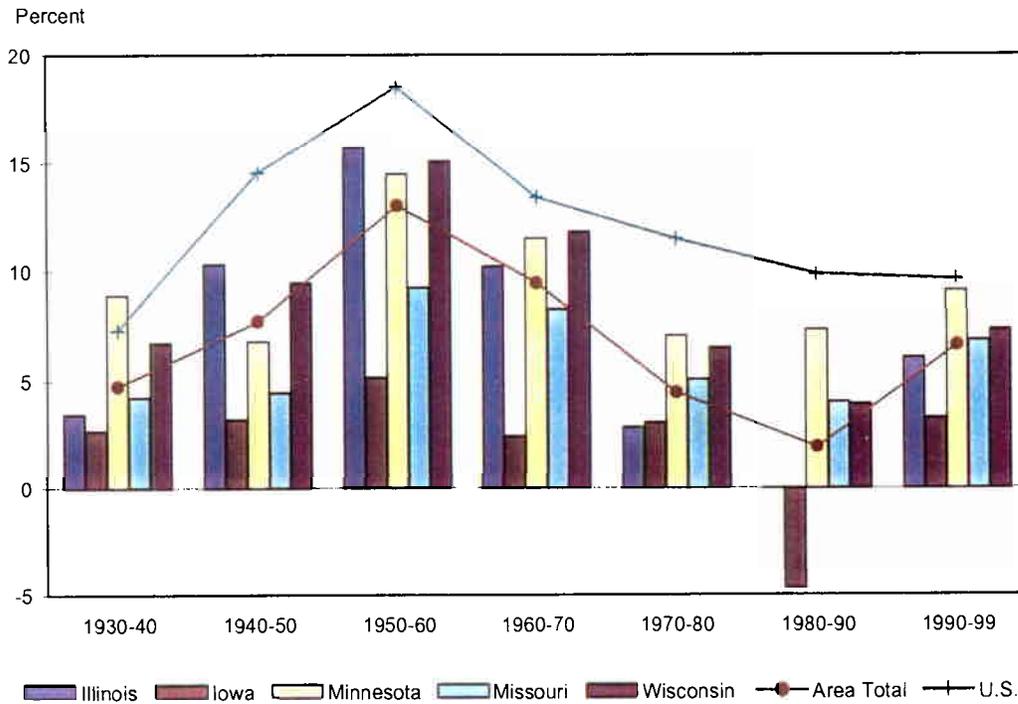


Source: U.S. Bureau of the Census

## PERCENT CHANGE IN POPULATION UPPER MISSISSIPPI RIVER AREA

Area	1930	1940	1950	1960	1970	1980	1990
	to 1940	to 1950	to 1960	to 1970	to 1980	to 1990	to 1999
Illinois	3.5	10.3	15.7	10.2	2.9	0.0	6.1
Iowa	2.7	3.3	5.2	2.5	3.1	-4.7	3.3
Minnesota	8.9	6.8	14.5	11.5	7.1	7.4	9.1
Missouri	4.3	4.5	9.2	8.3	5.1	4.1	6.9
Wisconsin	6.8	9.5	15.1	11.8	6.5	4.0	7.3
Area Total	4.8	7.7	13.0	9.4	4.5	2.0	6.6
U.S.	7.3	14.5	18.5	13.4	11.4	9.8	9.6

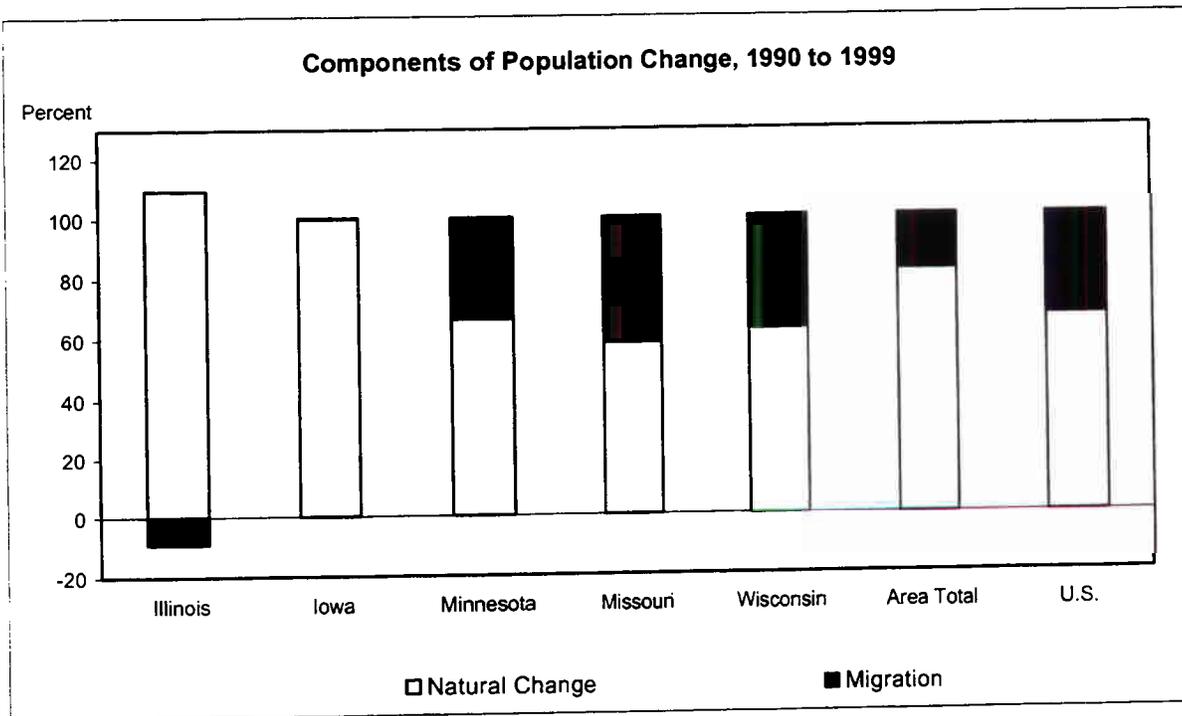
### Percent Change in Population



Source: U.S. Bureau of the Census

## POPULATION CHANGES UPPER MISSISSIPPI RIVER AREA

Area	Population		Change, 1990-1999		Components of Change 1990-1999				Net Migration 1990-1999	
	1999	1990	Number	%	Births	Deaths	Natural	% of Population	Number	% of Population
							Change	Change		
Illinois	12,128,370	11,430,602	697,768	6.1	1,735,493	971,944	763,549	109.4	-65,781	-9.4
Iowa	2,869,413	2,776,831	92,582	3.3	349,191	256,794	92,397	99.8	185	0.2
Minnesota	4,775,508	4,375,665	399,843	9.1	603,264	338,093	265,171	66.3	134,672	33.7
Missouri	5,468,338	5,116,901	351,437	6.9	697,038	492,127	204,911	58.3	146,526	41.7
Wisconsin	5,250,446	4,891,769	358,677	7.3	637,733	412,353	225,380	62.8	133,297	37.2
Area Total	30,492,075	28,591,768	1,900,307	6.6	4,022,719	2,471,311	1,551,408	81.6	348,899	18.4
U.S. (1,000)	272,691	248,791	23,900	9.6	36,820	20,934	15,886	66.5	8,014	33.5



Note: Totals may not add due to rounding  
Source: U.S. Bureau of the Census

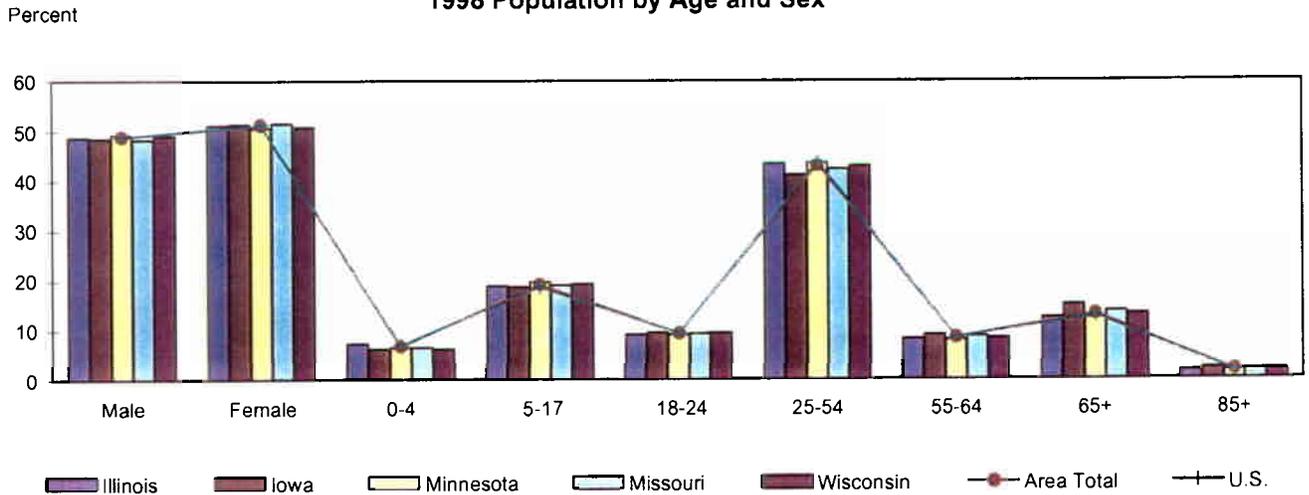
**AGE DISTRIBUTION  
1998 ESTIMATES  
UPPER MISSISSIPPI RIVER AREA**

Area	Male	Female	Median Age	Age						Total	
				0-4	5-17	18-24	25-54	55-64	65+		85+
Illinois	5,873,187	6,172,139	34.9	890,781	2,296,551	1,120,513	5,236,950	1,004,562	1,495,969	185,862	12,045,326
Iowa	1,393,733	1,468,714	36.6	182,181	539,958	276,701	1,175,293	257,296	431,018	63,843	2,862,447
Minnesota	2,327,908	2,397,511	35.2	317,381	942,066	439,443	2,062,241	381,191	583,097	83,159	4,725,419
Missouri	2,633,300	2,805,259	35.8	363,871	1,042,745	508,710	2,301,715	476,131	745,387	98,129	5,438,559
Wisconsin	2,566,723	2,656,777	35.7	332,898	1,018,146	497,893	2,245,748	438,029	690,786	93,145	5,223,500
Area Total	14,794,851	15,500,400		2,087,112	5,839,466	2,843,260	13,021,947	2,557,209	3,946,257	524,138	30,295,251
U.S. (1,000)	132,046	138,252	35.2	18,966	50,906	25,470	117,879	22,676	34,401	4,054	270,299

**Percent Distribution**

Area	Male	Female	Age						Total	
			0-4	5-17	18-24	25-54	55-64	65+		85+
Illinois	48.8	51.2	7.4	19.1	9.3	43.5	8.3	12.4	1.5	100.0
Iowa	48.7	51.3	6.4	18.9	9.7	41.1	9.0	15.1	2.2	100.0
Minnesota	49.3	50.7	6.7	19.9	9.3	43.6	8.1	12.3	1.8	100.0
Missouri	48.4	51.6	6.7	19.2	9.4	42.3	8.8	13.7	1.8	100.0
Wisconsin	49.1	50.9	6.4	19.5	9.5	43.0	8.4	13.2	1.8	100.0
Area Total	48.8	51.2	6.9	19.3	9.4	43.0	8.4	13.0	1.7	100.0
U.S.	48.9	51.1	7.0	18.8	9.4	43.6	8.4	12.7	1.5	100.0

**1998 Population by Age and Sex**



Source: U. S. Bureau of the Census

**POPULATION DISTRIBUTION BY RACE  
1998 ESTIMATES  
UPPER MISSISSIPPI RIVER AREA**

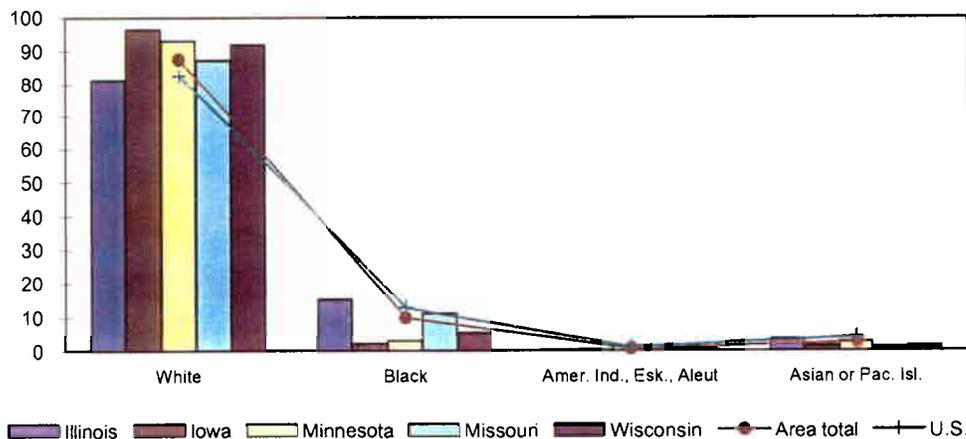
Area	Population	White	Black	Amer. Indian, Eskimo or Aleut.	Asian or Pacific Islander
Illinois	12,045,326	9,775,042	1,839,744	27,293	403,247
Iowa	2,862,447	2,760,869	56,880	8,456	36,242
Minnesota	4,725,419	4,403,082	140,644	57,522	124,171
Missouri	5,438,559	4,744,808	612,788	20,644	60,319
Wisconsin	5,223,500	4,806,833	290,585	46,304	79,778
Area Total	30,295,251	26,490,634	2,940,641	160,219	703,757
U.S. (1,000)	270,299	223,001	34,431	2,360	10,507

**Percent Distribution**

Area	Total	White	Black	Amer. Indian, Eskimo or Aleut.	Asian or Pacific Islander
Illinois	100.0	81.2	15.3	0.2	3.3
Iowa	100.0	96.5	2.0	0.3	1.3
Minnesota	100.0	93.2	3.0	1.2	2.6
Missouri	100.0	87.2	11.3	0.4	1.1
Wisconsin	100.0	92.0	5.6	0.9	1.5
Area Total	100.0	87.4	9.7	0.5	2.3
U.S.	100.0	82.5	12.7	0.9	3.9

Percent

**1998 Population by Race**



Source: U. S. Bureau of the Census

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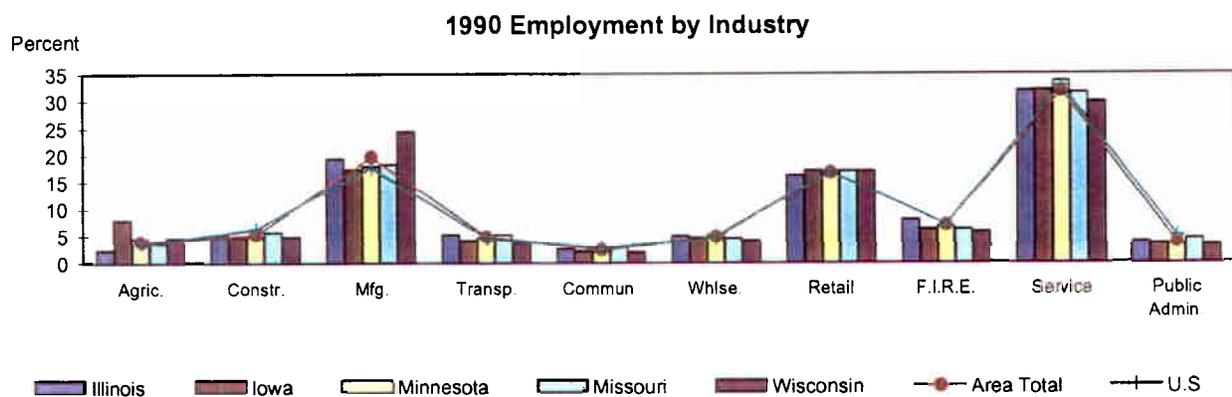
**EMPLOYED PERSONS 16 YEARS AND OVER  
BY INDUSTRY  
UPPER MISSISSIPPI RIVER AREA  
1990**

Industry	Employment					Area Total
	Illinois	Iowa	Minnesota	Missouri	Wisconsin	
Agriculture, Forestry, Fisheries, Mining	131,058	105,856	99,386	85,560	112,035	533,895
Construction	280,997	64,839	109,859	136,352	117,732	709,779
Manufacturing	1,055,047	234,461	399,592	439,651	584,143	2,712,894
Transportation	281,166	54,886	101,768	123,645	89,865	651,330
Communications, Public Utilities	139,869	28,659	44,164	68,971	47,383	329,046
Wholesale Trade	271,731	62,371	111,585	107,238	96,532	649,457
Retail Trade	886,331	231,858	372,662	407,433	408,937	2,307,221
Finance, Insurance, Real Estate	431,683	83,035	145,943	149,271	139,550	949,482
Service:	1,728,791	428,771	737,254	747,300	713,295	4,355,411
Business and Repair Service	264,378	49,786	101,284	101,645	89,214	606,307
Personal, Entertainment, Recreation	215,192	49,397	86,148	96,689	84,651	532,077
Professional and Related Services:	1,249,221	329,588	549,822	548,966	539,430	3,217,027
Health Services	446,890	120,633	205,714	218,280	210,874	1,202,391
Educational Services	430,842	129,022	186,050	189,452	196,751	1,132,117
Other Professional Services	371,489	79,933	158,058	141,234	131,805	882,519
Public Administration	211,294	45,506	70,204	101,974	76,967	505,945
Total	5,417,967	1,340,242	2,192,417	2,367,395	2,386,439	13,704,460

Note: Employment by place of residence  
Source: U.S. Bureau of the Census

**EMPLOYED PERSONS 16 YEARS AND OVER  
PERCENT DISTRIBUTION BY INDUSTRY  
UPPER MISSISSIPPI RIVER AREA  
1990**

Industry	Percent Distribution						Area Total	U.S.
	Illinois	Iowa	Minnesota	Missouri	Wisconsin			
Agriculture, Forestry, Fisheries, Mining	2.4	7.9	4.5	3.6	4.7	3.9	3.3	
Construction	5.2	4.8	5.0	5.8	4.9	5.2	6.2	
Manufacturing	19.5	17.5	18.2	18.6	24.5	19.8	17.7	
Transportation	5.2	4.1	4.6	5.2	3.8	4.8	4.4	
Communications, Public Utilities	2.6	2.1	2.0	2.9	2.0	2.4	2.7	
Wholesale Trade	5.0	4.7	5.1	4.5	4.0	4.7	4.4	
Retail Trade	16.4	17.3	17.0	17.2	17.1	16.8	16.8	
Finance, Insurance, Real Estate	8.0	6.2	6.7	6.3	5.8	6.9	6.9	
Service:	31.9	32.0	33.6	31.6	29.9	31.8	32.7	
Business and Repair Service	4.9	3.7	4.6	4.3	3.7	4.4	4.8	
Personal, Entertainment, Recreation	4.0	3.7	3.9	4.1	3.5	3.9	4.6	
Professional and Related Services:	23.1	24.6	25.1	23.2	22.6	23.5	23.3	
Health Services	8.2	9.0	9.4	9.2	8.8	8.8	8.4	
Educational Services	8.0	9.6	8.5	8.0	8.2	8.3	8.3	
Other Professional Services	6.9	6.0	7.2	6.0	5.5	6.4	6.6	
Public Administration	3.9	3.4	3.2	4.3	3.2	3.7	4.8	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	



Note: Employment by place of residence

Source: U.S. Bureau of the Census

**EMPLOYED PERSONS 16 YEARS AND OVER  
BY OCCUPATION  
UPPER MISSISSIPPI RIVER AREA  
1990**

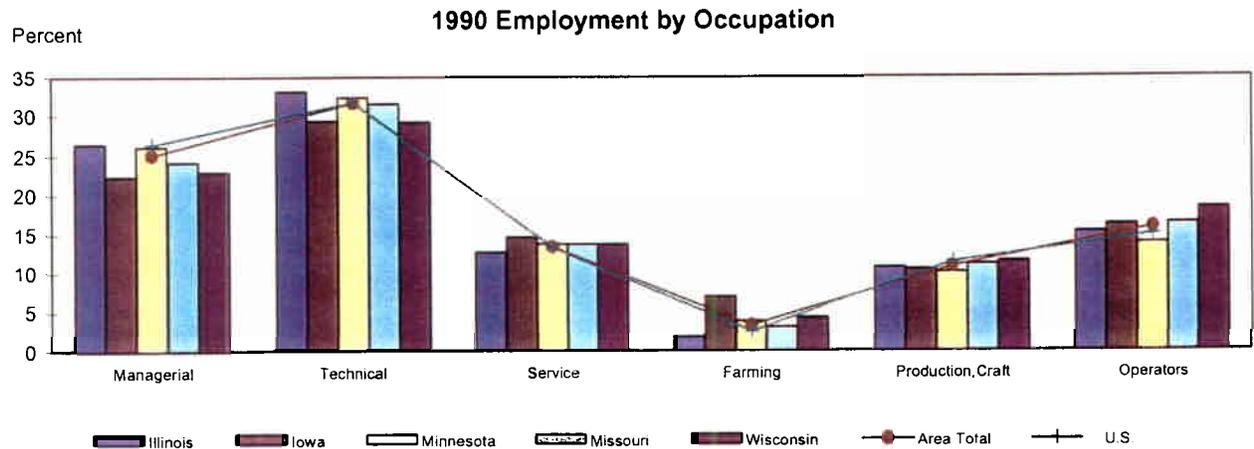
Occupation	Employment					Area Total
	Illinois	Iowa	Minnesota	Missouri	Wisconsin	
Managerial and Professional Specialty:	1,435,613	299,256	573,939	573,918	549,608	3,431,334
Executive, Admin., Managers	685,254	128,717	261,293	262,108	244,487	1,581,859
Professional Specialty	750,359	170,539	312,646	311,810	304,121	1,849,475
Technical, Sales and Admin. Support:	1793289	393855	708753	746949	699124	4,341,970
Technicians and Related Support	187,312	40,091	90,868	84,770	80,728	483,769
Sales	644,083	149,618	259,017	275,368	253,086	1,581,172
Administrative Support	961,894	204,146	358,868	386,811	365,310	2,277,029
Service:	684,660	195,177	301,326	323,423	325,708	1,830,294
Private Household	17011	5066	5837	8446	5713	42,073
Protective Service	97,409	13,761	22,094	34,104	29,589	196,957
Other Service	570,240	176,350	273,395	280,873	290,406	1,591,264
Farming, Forestry, Fishing	96,328	93,780	83,245	73,871	102,320	449,544
Precision Production, Craft, Repair	579,171	140,903	222,013	262,488	274,598	1,479,173
Operators, Fabricators, Laborers:	828906	217271	303141	386746	436081	2,172,145
Operators, Assemblers, Inspectors	384,050	98,227	142,375	177,415	232,068	1,034,135
Transportation and Material Moving	220322	59779	82014	107045	100517	569,677
Handlers, Equipment Cleansers, Laborers	224,534	59,265	78,752	102,286	103,496	568,333
<b>Total</b>	<b>5,417,967</b>	<b>1,340,242</b>	<b>2,192,417</b>	<b>2,367,395</b>	<b>2,386,439</b>	<b>13,704,460</b>

Note: Employment by place of residence

Source: U.S. Bureau of the Census

**EMPLOYED PERSONS 16 YEARS AND OVER  
PERCENT DISTRIBUTION BY OCCUPATION  
UPPER MISSISSIPPI RIVER AREA  
1990**

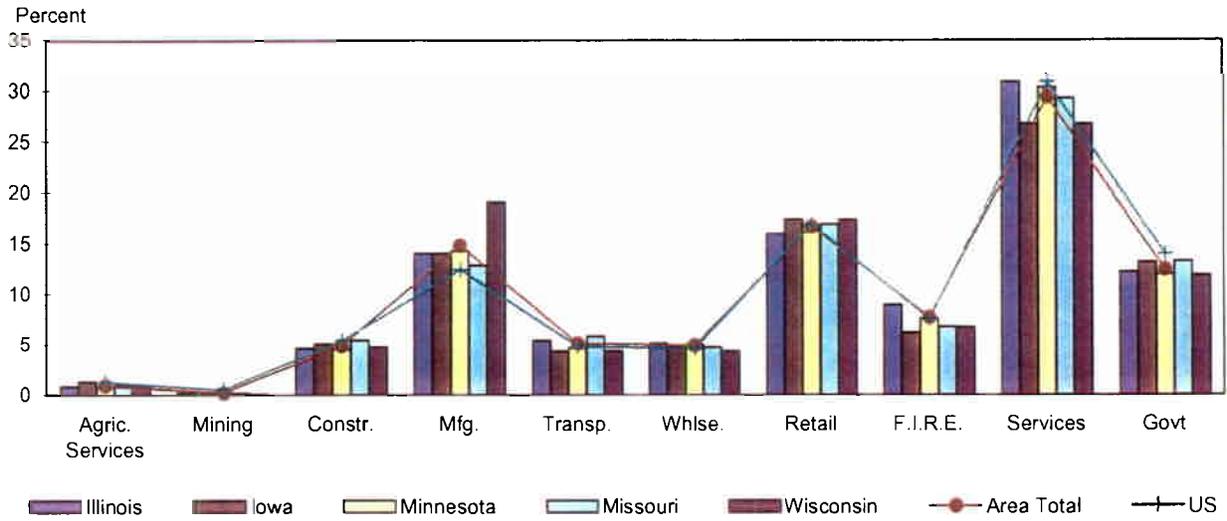
Occupation	Percent Distribution					
	Illinois	Iowa	Minnesota	Missouri	Wisconsin	Area Total
Managerial and Professional Specialty:	26.5	22.3	26.2	24.2	23.0	25.0
Executive, Admin., Managers	12.6	9.6	11.9	11.1	10.2	11.5
Professional Specialty	13.8	12.7	14.3	13.2	12.7	13.5
Technical, Sales and Admin. Support:	33.1	29.4	32.3	31.6	29.3	31.7
Technicians and Related Support	3.5	3.0	4.1	3.6	3.4	3.5
Sales	11.9	11.2	11.8	11.6	10.6	11.5
Administrative Support	17.8	15.2	16.4	16.3	15.3	16.6
Service:	12.6	14.6	13.7	13.7	13.6	13.4
Private Household	0.3	0.4	0.3	0.4	0.2	0.3
Protective Service	1.8	1.0	1.0	1.4	1.2	1.4
Other Service	10.5	13.2	12.5	11.9	12.2	11.6
Farming, Forestry, Fishing	1.8	7.0	3.8	3.1	4.3	3.3
Precision Production, Craft, Repair	10.7	10.5	10.1	11.1	11.5	10.8
Operators, Fabricators, Laborers:	15.3	16.2	13.8	16.3	18.3	15.8
Operators, Assemblers, Inspectors	7.1	7.3	6.5	7.5	9.7	7.5
Transportation and Material Moving	4.1	4.5	3.7	4.5	4.2	4.2
Handlers, Equipment Cleansers, Laborers	4.1	4.4	3.6	4.3	4.3	4.1
Total	100.0	100.0	100.0	100.0	100.0	100.0



Note: Employment by place of residence  
Source: U.S. Bureau of the Census

# FULL AND PART-TIME EMPLOYMENT

## 1997 Employment Distribution



**FULL AND PART-TIME EMPLOYMENT  
ILLINOIS**

Industry	1969	1973	1979	1989	1997
Total Employment	5,179,169	5,350,560	5,810,661	6,347,411	7,098,036
By Type:					
Wage and Salary	4,577,669	4,688,160	5,088,692	5,473,902	6,040,900
Proprietors	601,500	662,400	721,969	873,509	1,057,136
Farm	124,348	122,832	114,361	92,642	78,738
Nonfarm	477,152	539,568	607,608	780,867	978,398
By Industry:					
Farm	150,220	149,699	154,352	115,915	98,923
Nonfarm	5,028,949	5,200,861	5,656,309	6,231,496	6,999,113
Private	4,309,227	4,452,134	4,846,335	5,408,080	6,131,471
Agric Services, Forestry, Fisheries, Other	13,878	16,644	21,608	42,790	61,329
Mining	27,600	27,899	39,906	35,344	20,280
Construction	233,820	231,593	252,631	294,293	333,336
Manufacturing	1,420,971	1,374,877	1,297,361	1,003,855	996,612
Transportation and Public Utilities	304,981	303,995	307,597	334,741	387,523
Wholesale Trade	290,218	293,700	353,624	392,796	367,318
Retail Trade	783,644	811,145	898,878	1,029,281	1,136,840
Finance, Insurance, Real Estate	337,811	397,972	470,930	554,303	636,020
Services	896,304	994,309	1,203,800	1,720,677	2,192,213
Government and Government Enterprises	719,722	748,727	809,974	823,416	867,642
Federal, Civilian	117,812	108,471	104,864	108,540	96,371
Military	97,624	70,590	63,320	77,231	58,357
State and Local	504,286	569,666	641,790	637,645	712,914

Note: Employment by place of work  
Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
ILLINOIS  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	88.4	87.6	87.6	86.2	85.1
Proprietors	11.6	12.4	12.4	13.8	14.9
Farm	2.4	2.3	2.0	1.5	1.1
Nonfarm	9.2	10.1	10.5	12.3	13.8
By Industry:					
Farm	2.9	2.8	2.7	1.8	1.4
Nonfarm	97.1	97.2	97.3	98.2	98.6
Private	83.2	83.2	83.4	85.2	86.4
Agric Services, Forestry, Fisheries, Other	0.3	0.3	0.4	0.7	0.9
Mining	0.5	0.5	0.7	0.6	0.3
Construction	4.5	4.3	4.3	4.6	4.7
Manufacturing	27.4	25.7	22.3	15.8	14.0
Transportation and Public Utilities	5.9	5.7	5.3	5.3	5.5
Wholesale Trade	5.6	5.5	6.1	6.2	5.2
Retail Trade	15.1	15.2	15.5	16.2	16.0
Finance, Insurance, Real Estate	6.5	7.4	8.1	8.7	9.0
Services	17.3	18.6	20.7	27.1	30.9
Government and Government Enterprises	13.9	14.0	13.9	13.0	12.2
Federal, Civilian	2.3	2.0	1.8	1.7	1.4
Military	1.9	1.3	1.1	1.2	0.8
State and Local	9.7	10.6	11.0	10.0	10.0

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
IOWA**

Industry	1969	1973	1979	1989	1997
Total Employment	1,289,305	1,374,439	1,556,967	1,610,036	1,855,872
By Type:					
Wage and Salary	967,772	1,041,905	1,232,891	1,280,151	1,483,916
Proprietors	321,533	332,534	324,076	329,885	371,956
Farm	146,006	139,530	125,986	109,745	98,550
Nonfarm	175,527	193,004	198,090	220,140	273,406
By Industry:					
Farm	172,011	169,536	171,975	136,564	118,056
Nonfarm	1,117,294	1,204,903	1,384,992	1,473,472	1,737,816
Private	935,175	1,012,912	1,168,343	1,244,124	1,492,269
Agric Services, Forestry, Fisheries, Other	11,330	9,928	9,834	17,523	24,854
Mining	4,336	3,333	3,422	2,828	2,725
Construction	63,636	63,773	83,566	65,749	94,865
Manufacturing	230,475	243,337	264,937	240,866	260,386
Transportation and Public Utilities	60,847	65,273	69,474	68,669	81,708
Wholesale Trade	50,409	53,665	83,929	84,661	90,148
Retail Trade	213,657	236,756	256,837	273,433	324,661
Finance, Insurance, Real Estate	82,003	94,191	102,555	104,898	115,428
Services	218,482	242,656	293,789	385,497	497,494
Government and Government Enterprises	182,119	191,991	216,649	229,348	245,547
Federal, Civilian	20,736	19,990	19,982	20,493	20,115
Military	15,757	15,305	12,491	15,954	14,121
State and Local	145,626	156,696	184,176	192,901	211,311

Note: Employment by place of work  
Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
IOWA  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	75.1	75.8	79.2	79.5	80.0
Proprietors	24.9	24.2	20.8	20.5	20.0
Farm	11.3	10.2	8.1	6.8	5.3
Nonfarm	13.6	14.0	12.7	13.7	14.7
By Industry:					
Farm	13.3	12.3	11.0	8.5	6.4
Nonfarm	86.7	87.7	89.0	91.5	93.6
Private	72.5	73.7	75.0	77.3	80.4
Agric Services, Forestry, Fisheries, Other	0.9	0.7	0.6	1.1	1.3
Mining	0.3	0.2	0.2	0.2	0.1
Construction	4.9	4.6	5.4	4.1	5.1
Manufacturing	17.9	17.7	17.0	15.0	14.0
Transportation and Public Utilities	4.7	4.7	4.5	4.3	4.4
Wholesale Trade	3.9	3.9	5.4	5.3	4.9
Retail Trade	16.6	17.2	16.5	17.0	17.5
Finance, Insurance, Real Estate	6.4	6.9	6.6	6.5	6.2
Services	16.9	17.7	18.9	23.9	26.8
Government and Government Enterprises	14.1	14.0	13.9	14.2	13.2
Federal, Civilian	1.6	1.5	1.3	1.3	1.1
Military	1.2	1.1	0.8	1.0	0.8
State and Local	11.3	11.4	11.8	12.0	11.4

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
MINNESOTA**

Industry	1969	1973	1979	1989	1997
Total Employment	1,690,871	1,877,798	2,221,775	2,653,709	3,166,319
By Type:					
Wage and Salary	1,393,728	1,548,901	1,866,279	2,197,597	2,605,079
Proprietors	297,143	328,897	355,496	456,112	561,240
Farm	110,342	106,331	106,584	94,943	88,481
Nonfarm	186,801	222,566	248,912	361,169	472,759
By Industry:					
Farm	136,119	140,143	136,577	116,680	106,151
Nonfarm	1,554,752	1,737,655	2,085,198	2,537,029	3,060,168
Private	1,299,620	1,456,414	1,781,567	2,193,025	2,680,155
Agric Services, Forestry, Fisheries, Other	6,841	8,430	12,838	19,409	26,761
Mining	15,356	14,410	18,001	9,564	9,031
Construction	84,660	87,330	111,172	118,868	146,048
Manufacturing	335,338	338,523	390,253	412,808	452,767
Transportation and Public Utilities	92,921	100,579	111,346	122,249	149,650
Wholesale Trade	83,387	93,565	126,904	135,874	160,720
Retail Trade	264,179	312,330	377,695	448,868	533,900
Finance, Insurance, Real Estate	113,330	139,613	160,848	195,510	240,811
Services	303,608	361,634	472,510	729,875	960,467
Government and Government Enterprises	255,132	281,241	303,631	344,004	380,013
Federal, Civilian	31,610	30,472	31,531	33,534	33,446
Military	33,537	28,655	23,038	24,387	20,290
State and Local	189,985	222,114	249,062	286,083	326,277

Note: Employment by place of work  
Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
MINNESOTA  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	82.4	82.5	84.0	82.8	82.3
Proprietors	17.6	17.5	16.0	17.2	17.7
Farm	6.5	5.7	4.8	3.6	2.8
Nonfarm	11.0	11.9	11.2	13.6	14.9
By Industry:					
Farm	8.1	7.5	6.1	4.4	3.4
Nonfarm	91.9	92.5	93.9	95.6	96.6
Private	76.9	77.6	80.2	82.6	84.6
Agric Services, Forestry, Fisheries, Other	0.4	0.4	0.6	0.7	0.8
Mining	0.9	0.8	0.8	0.4	0.3
Construction	5.0	4.7	5.0	4.5	4.6
Manufacturing	19.8	18.0	17.6	15.6	14.3
Transportation and Public Utilities	5.5	5.4	5.0	4.6	4.7
Wholesale Trade	4.9	5.0	5.7	5.1	5.1
Retail Trade	15.6	16.6	17.0	16.9	16.9
Finance, Insurance, Real Estate	6.7	7.4	7.2	7.4	7.6
Services	18.0	19.3	21.3	27.5	30.3
Government and Government Enterprises	15.1	15.0	13.7	13.0	12.0
Federal, Civilian	1.9	1.6	1.4	1.3	1.1
Military	2.0	1.5	1.0	0.9	0.6
State and Local	11.2	11.8	11.2	10.8	10.3

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
MISSOURI**

Industry	1969	1973	1979	1989	1997
Total Employment	2,215,945	2,324,568	2,579,451	2,959,455	3,351,820
By Type:					
Wage and Salary	1,832,558	1,911,284	2,139,353	2,461,203	2,776,076
Proprietors	383,387	413,284	440,098	498,252	575,744
Farm	136,187	131,678	124,508	114,262	103,483
Nonfarm	247,200	281,606	315,590	383,990	472,261
By Industry:					
Farm	163,693	161,227	148,502	131,348	117,784
Nonfarm	2,052,252	2,163,341	2,430,949	2,828,107	3,234,036
Private	1,718,894	1,819,533	2,066,280	2,431,503	2,789,241
Agric Services, Forestry, Fisheries, Other	8,603	10,174	13,562	22,127	32,093
Mining	10,418	9,035	9,847	8,300	6,304
Construction	101,624	103,818	127,658	147,371	184,584
Manufacturing	471,908	464,646	474,105	452,040	431,367
Transportation and Public Utilities	139,136	140,775	157,330	174,506	195,534
Wholesale Trade	116,603	117,492	144,670	153,356	159,593
Retail Trade	331,603	361,979	406,886	494,062	570,532
Finance, Insurance, Real Estate	156,847	175,084	188,665	208,684	228,284
Services	382,152	436,530	543,557	771,057	980,950
Government and Government Enterprises	333,358	343,808	364,669	396,604	444,795
Federal, Civilian	70,501	66,566	68,013	70,788	60,700
Military	62,957	46,123	34,697	44,963	40,880
State and Local	199,900	231,119	261,959	280,853	343,215

Note: Employment by place of work  
Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
MISSOURI  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	82.7	82.2	82.9	83.2	82.8
Proprietors	17.3	17.8	17.1	16.8	17.2
Farm	6.1	5.7	4.8	3.9	3.1
Nonfarm	11.2	12.1	12.2	13.0	14.1
By Industry:					
Farm	7.4	6.9	5.8	4.4	3.5
Nonfarm	92.6	93.1	94.2	95.6	96.5
Private	77.6	78.3	80.1	82.2	83.2
Agric Services, Forestry, Fisheries, Other	0.4	0.4	0.5	0.7	1.0
Mining	0.5	0.4	0.4	0.3	0.2
Construction	4.6	4.5	4.9	5.0	5.5
Manufacturing	21.3	20.0	18.4	15.3	12.9
Transportation and Public Utilities	6.3	6.1	6.1	5.9	5.8
Wholesale Trade	5.3	5.1	5.6	5.2	4.8
Retail Trade	15.0	15.6	15.8	16.7	17.0
Finance, Insurance, Real Estate	7.1	7.5	7.3	7.1	6.8
Services	17.2	18.8	21.1	26.1	29.3
Government and Government Enterprises	15.0	14.8	14.1	13.4	13.3
Federal, Civilian	3.2	2.9	2.6	2.4	1.8
Military	2.8	2.0	1.3	1.5	1.2
State and Local	9.0	9.9	10.2	9.5	10.2

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
WISCONSIN**

Industry	1969	1973	1979	1989	1997
Total Employment	1,943,515	2,116,005	2,464,770	2,760,401	3,268,072
By Type:					
Wage and Salary	1,633,857	1,778,669	2,093,429	2,350,049	2,765,715
Proprietors	309,658	337,336	371,341	410,352	502,357
Farm	109,412	104,560	96,601	85,659	80,463
Nonfarm	200,246	232,776	274,740	324,693	421,894
By Industry:					
Farm	149,391	148,262	150,588	114,335	104,935
Nonfarm	1,794,124	1,967,743	2,314,182	2,646,066	3,163,137
Private	1,521,166	1,667,909	1,989,839	2,288,990	2,774,664
Agric Services, Forestry, Fisheries, Other	7,560	8,484	13,697	21,490	31,097
Mining	3,743	3,224	3,652	3,475	3,538
Construction	89,677	90,109	108,706	117,092	158,405
Manufacturing	529,228	540,594	597,765	573,655	628,138
Transportation and Public Utilities	87,925	92,426	102,774	117,886	145,259
Wholesale Trade	72,998	80,784	104,592	124,213	142,816
Retail Trade	325,668	359,731	413,528	485,263	569,800
Finance, Insurance, Real Estate	98,309	126,208	167,641	177,750	221,764
Services	306,058	366,349	477,484	668,166	873,847
Government and Government Enterprises	272,958	299,834	324,343	357,076	388,473
Federal, Civilian	26,421	25,760	27,151	28,874	29,117
Military	24,305	22,818	18,598	24,710	20,046
State and Local	222,232	251,256	278,594	303,492	339,310

Note: Employment by place of work  
Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
WISCONSIN  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	84.1	84.1	84.9	85.1	84.6
Proprietors	15.9	15.9	15.1	14.9	15.4
Farm	5.6	4.9	3.9	3.1	2.5
Nonfarm	10.3	11.0	11.1	11.8	12.9
By Industry:					
Farm	7.7	7.0	6.1	4.1	3.2
Nonfarm	92.3	93.0	93.9	95.9	96.8
Private	78.3	78.8	80.7	82.9	84.9
Agric Services, Forestry, Fisheries, Other	0.4	0.4	0.6	0.8	1.0
Mining	0.2	0.2	0.1	0.1	0.1
Construction	4.6	4.3	4.4	4.2	4.8
Manufacturing	27.2	25.5	24.3	20.8	19.2
Transportation and Public Utilities	4.5	4.4	4.2	4.3	4.4
Wholesale Trade	3.8	3.8	4.2	4.5	4.4
Retail Trade	16.8	17.0	16.8	17.6	17.4
Finance, Insurance, Real Estate	5.1	6.0	6.8	6.4	6.8
Services	15.7	17.3	19.4	24.2	26.7
Government and Government Enterprises	14.0	14.2	13.2	12.9	11.9
Federal, Civilian	1.4	1.2	1.1	1.0	0.9
Military	1.3	1.1	0.8	0.9	0.6
State and Local	11.4	11.9	11.3	11.0	10.4

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
UPPER MISSISSIPPI RIVER AREA**

Industry	1969	1973	1979	1989	1997
Total Employment	12,318,805	13,043,370	14,633,624	16,331,012	18,740,119
By Type:					
Wage and Salary	10,405,584	10,968,919	12,420,644	13,762,902	15,671,686
Proprietors	1,913,221	2,074,451	2,212,980	2,568,110	3,068,433
Farm	626,295	604,931	568,040	497,251	449,715
Nonfarm	1,286,926	1,469,520	1,644,940	2,070,859	2,618,718
By Industry:					
Farm	771,434	768,867	761,994	614,842	545,849
Nonfarm	11,547,371	12,274,503	13,871,630	15,716,170	18,194,270
Private	9,784,082	10,408,902	11,852,364	13,565,722	15,867,800
Agric Services, Forestry, Fisheries, Other	48,212	53,660	71,539	123,339	176,134
Mining	61,453	57,901	74,828	59,511	41,878
Construction	573,417	576,623	683,733	743,373	917,238
Manufacturing	2,987,920	2,961,977	3,024,421	2,683,224	2,769,270
Transportation and Public Utilities	685,810	703,048	748,521	818,051	959,674
Wholesale Trade	613,615	639,206	813,719	890,900	920,595
Retail Trade	1,918,751	2,081,941	2,353,824	2,730,907	3,135,733
Finance, Insurance, Real Estate	788,300	933,068	1,090,639	1,241,145	1,442,307
Services	2,106,604	2,401,478	2,991,140	4,275,272	5,504,971
Government and Government Enterprises	1,763,289	1,865,601	2,019,266	2,150,448	2,326,470
Federal, Civilian	267,080	251,259	251,541	262,229	239,749
Military	234,180	183,491	152,144	187,245	153,694
State and Local	1,262,029	1,430,851	1,615,581	1,700,974	1,933,027

Note: Employment by place of work.

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
UPPER MISSISSIPPI RIVER AREA  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	84.5	84.1	84.9	84.3	83.6
Proprietors	15.5	15.9	15.1	15.7	16.4
Farm	5.1	4.6	3.9	3.0	2.4
Nonfarm	10.4	11.3	11.2	12.7	14.0
By Industry:					
Farm	6.3	5.9	5.2	3.8	2.9
Nonfarm	93.7	94.1	94.8	96.2	97.1
Private	79.4	79.8	81.0	83.1	84.7
Agric Services, Forestry, Fisheries, Other	0.4	0.4	0.5	0.8	0.9
Mining	0.5	0.4	0.5	0.4	0.2
Construction	4.7	4.4	4.7	4.6	4.9
Manufacturing	24.3	22.7	20.7	16.4	14.8
Transportation and Public Utilities	5.6	5.4	5.1	5.0	5.1
Wholesale Trade	5.0	4.9	5.6	5.5	4.9
Retail Trade	15.6	16.0	16.1	16.7	16.7
Finance, Insurance, Real Estate	6.4	7.2	7.5	7.6	7.7
Services	17.1	18.4	20.4	26.2	29.4
Government and Government Enterprises	14.3	14.3	13.8	13.2	12.4
Federal, Civilian	2.2	1.9	1.7	1.6	1.3
Military	1.9	1.4	1.0	1.1	0.8
State and Local	10.2	11.0	11.0	10.4	10.3

Source: Bureau of Economic Analysis

**FULL AND PART-TIME EMPLOYMENT  
UNITED STATES**

Industry (1,000)	1969	1973	1979	1989	1997
Total Employment	91,057	98,433	113,288	137,318	156,410
By Type:					
Wage and Salary	78,726	84,662	97,549	116,165	130,352
Proprietors	12,331	13,771	15,739	21,153	26,058
Farm	2,751	2,627	2,491	2,268	2,078
Nonfarm	9,580	11,144	13,248	18,885	23,980
By Industry:					
Farm	3,978	3,896	3,764	3,196	2,954
Nonfarm	87,079	94,537	109,524	134,122	153,456
Private	71,238	77,819	91,127	113,374	131,676
Agric Services, Forestry, Fisheries, Other	506	613	869	1,374	1,972
Mining	735	762	1,154	1,047	833
Construction	4,471	5,074	5,906	7,293	8,366
Manufacturing	20,546	20,413	21,497	19,998	19,416
Transportation and Public Utilities	4,796	5,073	5,627	6,365	7,550
Wholesale Trade	4,098	4,529	5,673	6,705	7,178
Retail Trade	13,449	15,012	17,781	22,690	26,356
Finance, Insurance, Real Estate	5,915	7,138	8,538	10,667	11,778
Services	16,723	19,204	24,083	37,236	48,228
Government and Government Enterprises	15,841	16,718	18,397	20,748	21,780
Federal, Civilian	2,919	2,839	2,951	3,136	2,814
Military	3,419	2,766	2,425	2,810	2,165
State and Local	9,503	11,113	13,021	14,802	16,801

Note: Employment by place of work

Source: Bureau of Economic Analysis

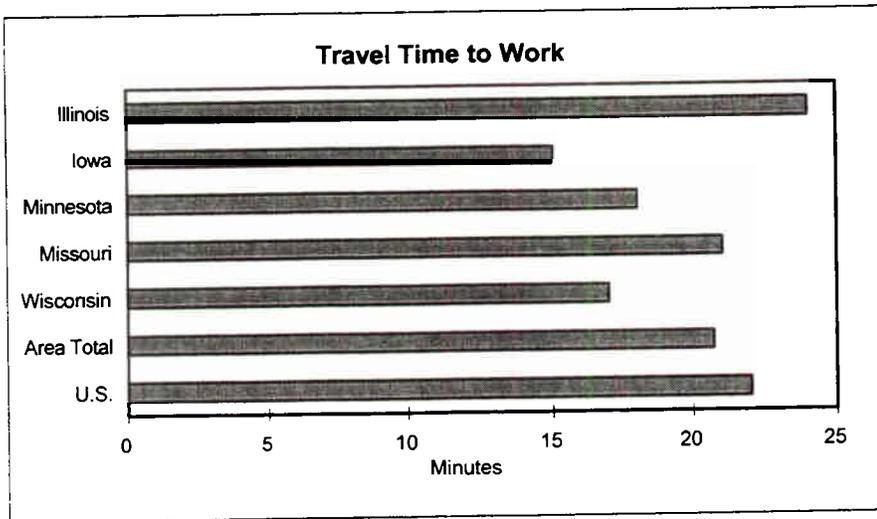
**FULL AND PART-TIME EMPLOYMENT  
UNITED STATES  
PERCENT DISTRIBUTION**

Industry	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Employment	100.0	100.0	100.0	100.0	100.0
By Type:					
Wage and Salary	86.5	86.0	86.1	84.6	83.3
Proprietors	13.5	14.0	13.9	15.4	16.7
Farm	3.0	2.7	2.2	1.7	1.3
Nonfarm	10.5	11.3	11.7	13.8	15.3
By Industry:					
Farm	4.4	4.0	3.3	2.3	1.9
Nonfarm	95.6	96.0	96.7	97.7	98.1
Private	78.2	79.1	80.4	82.6	84.2
Agric Services, Forestry, Fisheries, Other	0.6	0.6	0.8	1.0	1.3
Mining	0.8	0.8	1.0	0.8	0.5
Construction	4.9	5.2	5.2	5.3	5.3
Manufacturing	22.6	20.7	19.0	14.6	12.4
Transportation and Public Utilities	5.3	5.2	5.0	4.6	4.8
Wholesale Trade	4.5	4.6	5.0	4.9	4.6
Retail Trade	14.8	15.3	15.7	16.5	16.9
Finance, Insurance, Real Estate	6.5	7.3	7.5	7.8	7.5
Services	18.4	19.5	21.3	27.1	30.8
Government and Government Enterprises	17.4	17.0	16.2	15.1	13.9
Federal, Civilian	3.2	2.9	2.6	2.3	1.8
Military	3.8	2.8	2.1	2.0	1.4
State and Local	10.4	11.3	11.5	10.8	10.7

Source: Bureau of Economic Analysis

**AVERAGE TRAVEL TIME TO WORK  
(MINUTES)  
UPPER MISSISSIPPI RIVER AREA**

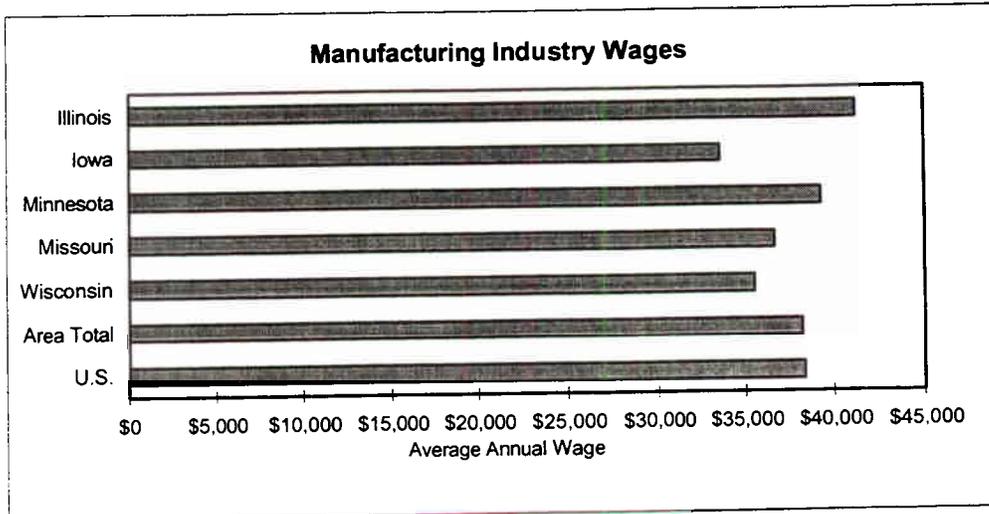
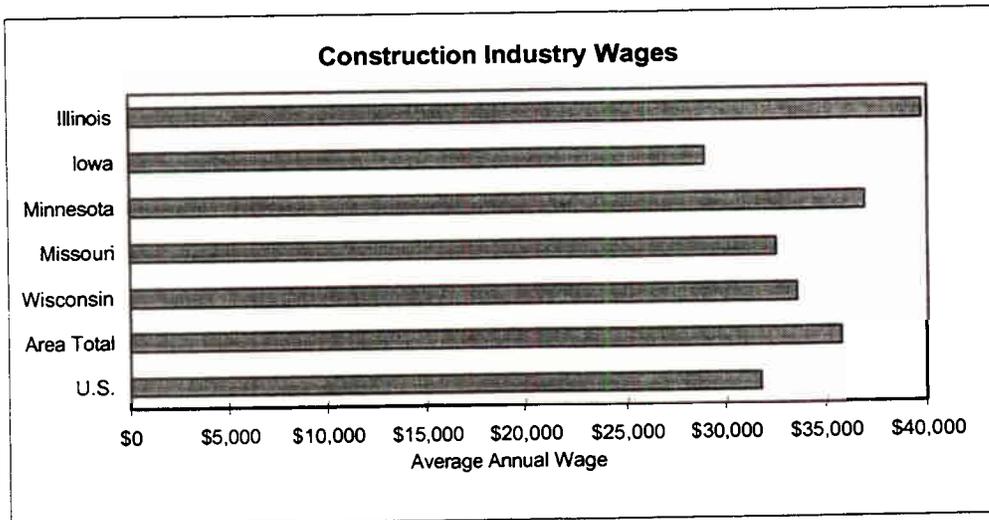
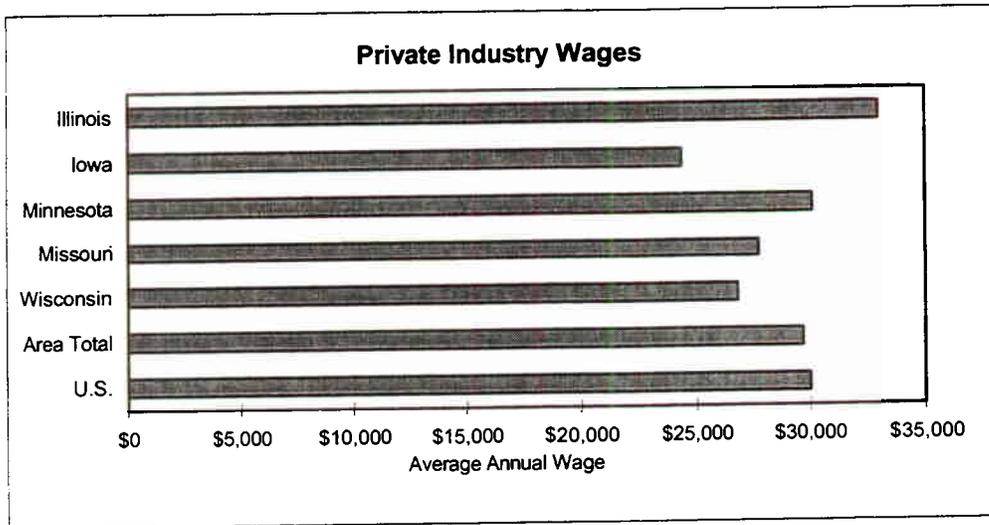
<b>Area</b>	<b>Travel Time (Minutes)</b>
Illinois	24.0
Iowa	15.0
Minnesota	18.0
Missouri	21.0
Wisconsin	17.0
Area Total	20.7
U.S.	22.0



Source: U.S. Bureau of the Census

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**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997**



Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
ILLINOIS**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	302,607	4,890,522	161,232,001	\$32,968
By Industry:				
Agric Services, Forestry, and Fish	5,612	46,161	985,666	\$21,353
Mining	764	11,550	528,979	\$45,799
Construction	31,722	231,107	9,190,712	\$39,768
Manufacturing	21,759	972,978	40,082,699	\$41,196
Transportation and Public Utilities	13,924	317,876	12,636,166	\$39,752
Wholesale Trade	29,503	346,947	15,026,278	\$43,310
Retail Trade	58,776	973,671	15,994,297	\$16,427
Finance, Insurance, Real Estate	27,783	387,354	18,887,362	\$48,760
Services	112,764	1,602,878	47,899,842	\$29,884
Government	7,971	769,487	25,661,473	\$33,349
Federal	1,043	97,860	4,177,243	\$42,686
State	95	129,642	4,928,675	\$38,018
Local	6,833	541,985	16,555,555	\$30,546

Note: Employment by place of work

\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
IOWA**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	82,534	1,154,388	28,123,730	\$24,362
By Industry:				
Agric Services, Forestry, and Fish	2,359	15,618	283,874	\$18,176
Mining	205	2,134	69,342	\$32,494
Construction	8,330	59,954	1,737,038	\$28,973
Manufacturing	4,438	253,227	8,496,458	\$33,553
Transportation and Public Utilities	4,680	61,781	1,871,405	\$30,291
Wholesale Trade	8,922	84,705	2,638,343	\$31,147
Retail Trade	19,458	261,217	3,361,226	\$12,868
Finance, Insurance, Real Estate Services	7,772	79,540	2,644,461	\$33,247
	26,370	336,212	7,021,583	\$20,884
Government	5,595	215,816	5,872,852	\$27,212
Federal	1,071	20,391	751,521	\$36,856
State	1,020	46,810	1,654,667	\$35,349
Local	3,504	148,615	3,466,664	\$23,326

Note: Employment by place of work

\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
MINNESOTA**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	140,457	2,092,283	63,023,161	\$30,122
By Industry:				
Agric Services, Forestry, and Fish	3,253	22,610	436,620	\$19,311
Mining	207	7,938	366,880	\$46,218
Construction	13,778	93,501	3,456,924	\$36,972
Manufacturing	9,315	435,561	17,091,807	\$39,241
Transportation and Public Utilities	6,741	118,383	4,408,505	\$37,239
Wholesale Trade	15,570	150,372	6,279,755	\$41,761
Retail Trade	28,631	448,035	6,837,488	\$15,261
Finance, Insurance, Real Estate	14,302	145,067	6,232,843	\$42,965
Services	48,660	670,816	17,912,339	\$26,702
Government	7,335	331,311	10,300,768	\$31,091
Federal	1,567	34,168	1,401,561	\$41,020
State	1,279	64,714	2,342,740	\$36,201
Local	4,489	232,429	6,556,467	\$28,208

Note: Employment by place of work

\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
MISSOURI**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	146,202	2,174,271	60,406,220	\$27,782
By Industry:				
Agric Services, Forestry, and Fish	3,195	23,007	414,954	\$18,036
Mining	318	4,721	180,731	\$38,282
Construction	16,376	121,069	3,941,093	\$32,552
Manufacturing	8,611	416,935	15,266,776	\$36,617
Transportation and Public Utilities	7,739	158,993	5,618,067	\$35,335
Wholesale Trade	15,267	149,956	5,435,874	\$36,250
Retail Trade	31,112	474,447	6,974,964	\$14,701
Finance, Insurance, Real Estate	14,115	149,566	5,329,150	\$35,631
Services	49,469	675,577	17,244,611	\$25,526
Government	9,629	382,584	10,629,541	\$27,784
Federal	1,537	58,759	2,395,914	\$40,775
State	1,846	88,307	2,318,353	\$26,253
Local	6,246	235,518	5,915,274	\$25,116

Note: Employment by place of work

\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
WISCONSIN**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	133,125	2,239,065	60,171,437	\$26,873
By Industry:				
Agric Services, Forestry, and Fish	3,037	24,592	482,058	\$19,602
Mining	174	2,577	96,033	\$37,265
Construction	15,188	108,887	3,657,154	\$33,587
Manufacturing	11,001	610,883	21,689,657	\$35,505
Transportation and Public Utilities	7,010	119,161	3,717,927	\$31,201
Wholesale Trade	12,863	133,414	4,616,515	\$34,603
Retail Trade	28,937	471,963	6,366,687	\$13,490
Finance, Insurance, Real Estate Services	11,164 43,751	138,539 629,049	4,745,255 14,800,151	\$34,252 \$23,528
Government	6,949	339,750	10,305,731	\$30,333
Federal	1,256	29,569	1,112,705	\$37,631
State	659	68,847	2,362,058	\$34,309
Local	5,034	241,334	6,830,968	\$28,305

Note: Employment by place of work

\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
AREA TOTAL**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	804,925	12,550,529	372,956,549	\$29,716
By Industry:				
Agric Services, Forestry, and Fish	17,456	131,988	2,603,172	\$19,723
Mining	1,668	28,920	1,241,965	\$42,945
Construction	85,394	614,518	21,982,921	\$35,773
Manufacturing	55,124	2,689,584	102,627,397	\$38,157
Transportation and Public Utilities	40,094	776,194	28,252,070	\$36,398
Wholesale Trade	82,125	865,394	33,996,765	\$39,285
Retail Trade	166,914	2,629,333	39,534,662	\$15,036
Finance, Insurance, Real Estate Services	75,136 281,014	900,066 3,914,532	37,839,071 104,878,526	\$42,040 \$26,792
Government	37,479	2,038,948	62,770,365	\$30,786
Federal	6,474	240,747	9,838,944	\$40,868
State	4,899	398,320	13,606,493	\$34,160
Local	26,106	1,399,881	39,324,928	\$28,092

Note: Employment by place of work

\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

**EMPLOYMENT AND WAGES  
ANNUAL AVERAGES 1997  
UNITED STATES**

Industry	Establishments	Employment	Payroll (\$1,000)	Wage
Total Private Industry Employment*	7,058,127	102,049,368	3,067,263,075	\$30,057
By Industry:				
Agric Services, Forestry, and Fish	191,629	1,765,379	30,835,224	\$17,467
Mining	28,004	595,872	29,790,539	\$49,995
Construction	708,603	5,637,064	178,927,919	\$31,741
Manufacturing	406,457	18,656,897	714,549,336	\$38,299
Transportation and Public Utilities	300,843	6,170,763	232,209,451	\$37,631
Wholesale Trade	660,252	6,657,129	262,657,924	\$39,455
Retail Trade	1,458,098	21,926,464	348,126,199	\$15,877
Finance, Insurance, Real Estate	628,772	6,952,150	311,872,484	\$44,860
Services	2,675,469	33,687,650	958,293,999	\$28,446
Government	248,363	18,863,747	602,008,569	\$31,914
Federal	52,165	2,820,775	120,839,354	\$42,839
State	65,409	4,213,276	137,029,762	\$32,523
Local	130,789	11,829,696	344,139,453	\$29,091

Note: Employment by place of work

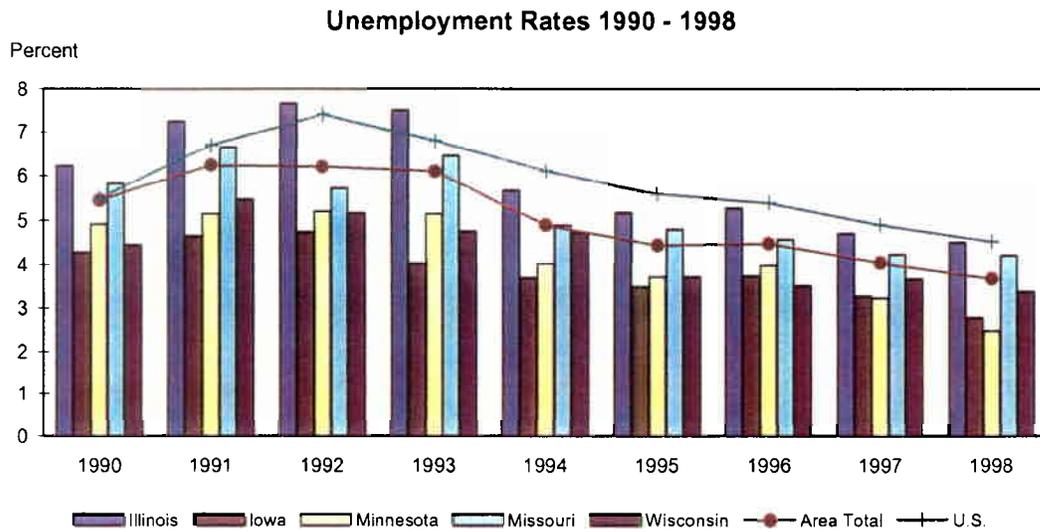
\* Includes data for nonclassifiable establishments, not shown separately

Source: Bureau of Labor Statistics, *Employment and Wages Annual Averages, 1997*

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**UNEMPLOYMENT RATES  
UPPER MISSISSIPPI RIVER AREA  
1990 - 1998**

Year	Illinois	Iowa	Minnesota	Missouri	Wisconsin	Area Total	U.S.
1990	6.2	4.3	4.9	5.8	4.4	5.4	5.5
1991	7.2	4.6	5.1	6.7	5.5	6.2	6.7
1992	7.6	4.7	5.2	5.7	5.2	6.2	7.4
1993	7.5	4.0	5.1	6.5	4.7	6.1	6.8
1994	5.7	3.7	4.0	4.9	4.7	4.9	6.1
1995	5.2	3.5	3.7	4.8	3.7	4.4	5.6
1996	5.3	3.8	4.0	4.6	3.5	4.5	5.4
1997	4.7	3.3	3.3	4.2	3.7	4.1	4.9
1998	4.5	2.8	2.5	4.2	3.4	3.7	4.5
1990's Average	6.0	3.9	4.2	5.3	4.3	5.1	5.9

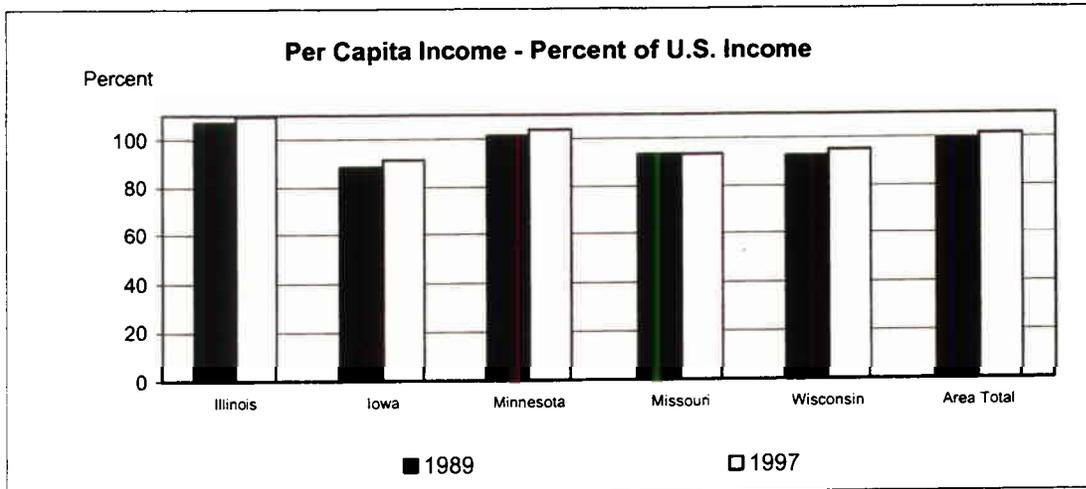
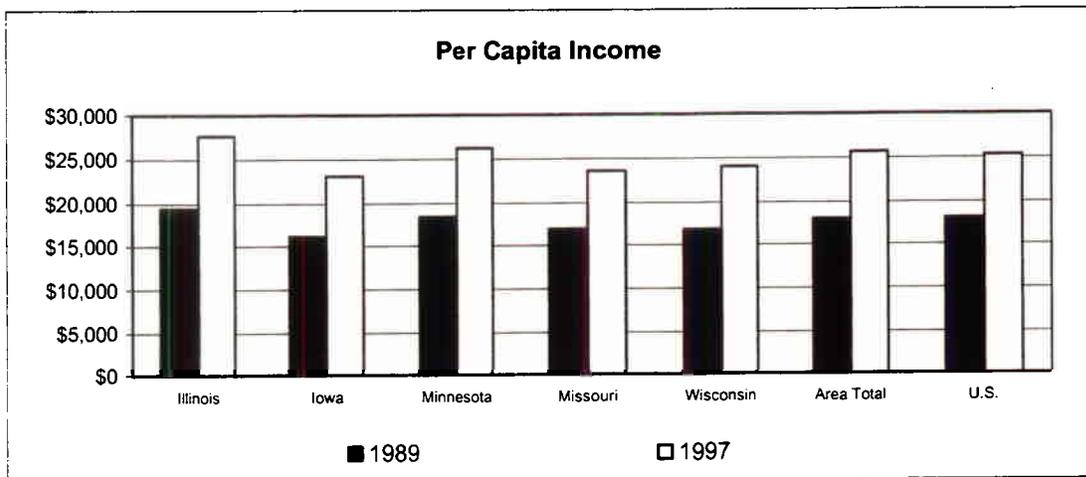


Source: Bureau of Labor Statistics

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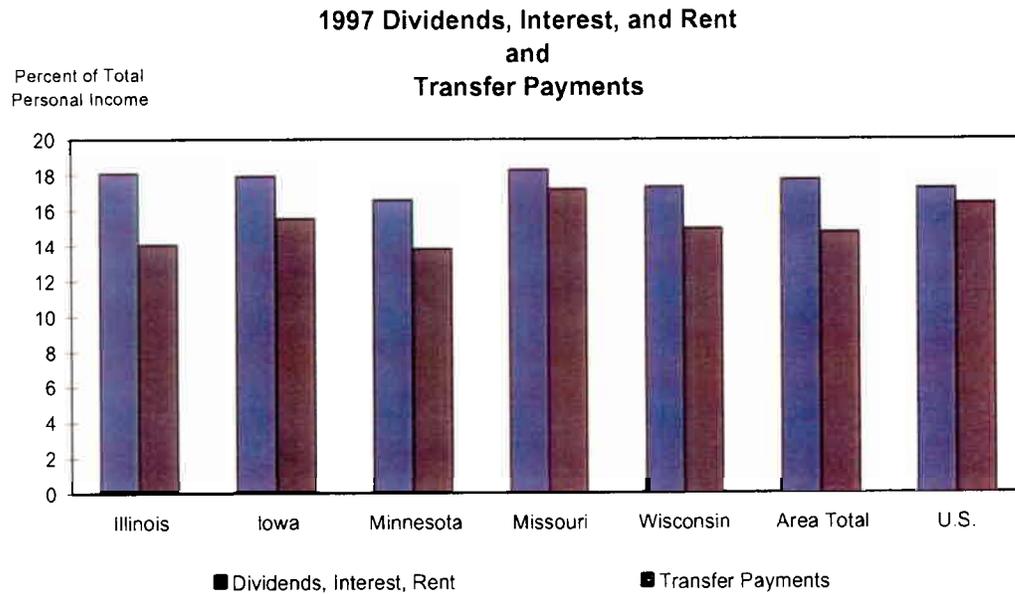
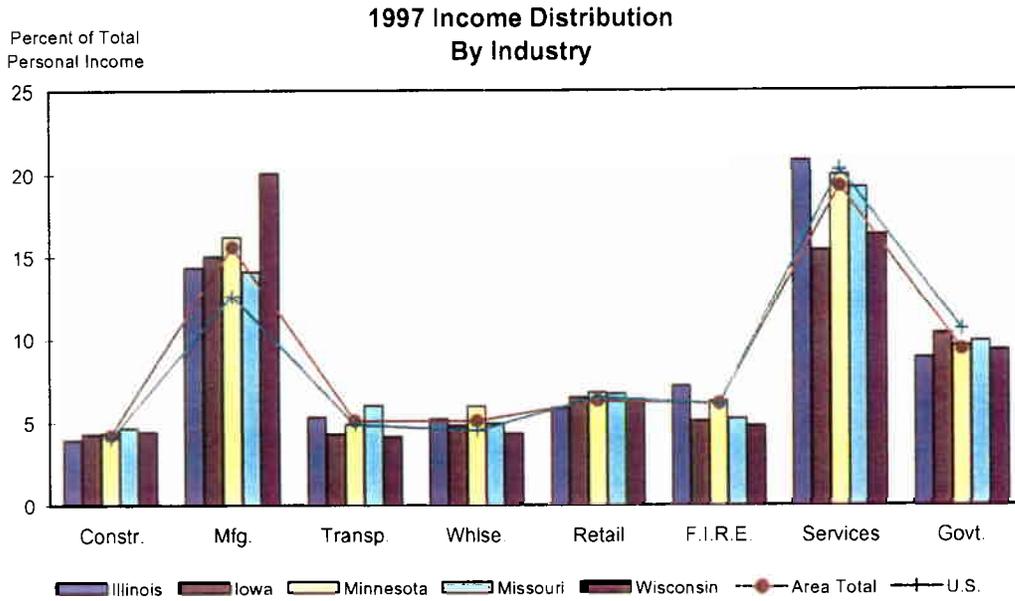
**PER CAPITA INCOME COMPARISONS  
UPPER MISSISSIPPI RIVER AREA**

Area	Per Capita Income		Percent of U.S.		Constant 1992 \$		Percent Change
	1989	1997	1989	1997	1989	1997	Constant 1992 \$ 1989 To 1997
Illinois	\$19,427	\$27,688	107.0	109.5	\$21,970	\$24,565	11.8
Iowa	\$16,058	\$23,120	88.5	91.4	\$18,160	\$20,512	13.0
Minnesota	\$18,404	\$26,243	101.4	103.8	\$20,813	\$23,283	11.9
Missouri	\$16,961	\$23,629	93.4	93.4	\$19,181	\$20,964	9.3
Wisconsin	\$16,827	\$24,048	92.7	95.1	\$19,030	\$21,335	12.1
Area Total	\$18,058	\$25,674	99.5	101.5	\$20,422	\$22,778	11.5
United States	\$18,153	\$25,288	100.0	100.0	\$20,529	\$22,436	9.3



Source: Bureau of Economic Analysis

# TOTAL PERSONAL INCOME



**INCOME AND EARNINGS  
ILLINOIS**

Item (\$1,000)	1969	1973	1979	1989	1997
Total Personal Income	48,261,750	66,435,504	116,427,929	221,652,684	331,965,611
Nonfarm Personal Income	47,311,337	64,577,459	114,619,678	219,820,328	330,293,927
Farm Income	950,413	1,858,045	1,808,251	1,832,356	1,671,684
Population	11,039,000	11,260,248	11,422,782	11,409,782	11,989,352
Per Capita Personal Income (Dollars)	4,372	5,900	10,193	19,427	27,688
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	39,215,846	53,090,415	89,923,707	160,120,471	241,850,917
Less: Personal Contribution for Social Insurance	1,619,408	2,541,953	4,560,536	10,393,060	15,632,953
Plus: Adjustment for Residence	125,100	-3,235	283,420	-166,057	-834,430
Equals: Net Earnings by Place of Residence	37,721,538	50,545,227	85,646,591	149,561,354	225,383,534
Plus: Dividends, Interest and Rent	6,942,381	9,114,337	17,511,469	44,073,684	59,989,024
Plus: Transfer Payments	3,597,831	6,775,940	13,269,869	28,017,646	46,593,053
<i>Earnings by Place of Work</i>					
<i>By Type:</i>					
Wages and Salaries	32,787,091	43,563,081	72,355,334	130,712,432	196,086,753
Other Labor Income	1,898,791	3,167,324	7,535,882	14,152,281	20,269,936
Proprietors' Income	4,529,964	6,360,010	10,032,491	15,255,758	25,494,228
Farm	849,514	1,729,544	1,570,185	1,560,924	1,341,830
Nonfarm	3,680,450	4,630,466	8,462,306	13,694,834	24,152,398
<i>By Industry:</i>					
Farm	950,413	1,858,045	1,808,251	1,832,356	1,671,684
Nonfarm	38,265,433	51,232,370	88,115,456	158,288,115	240,179,233
Private	33,663,699	44,402,795	77,262,162	138,054,714	210,647,783
Agric. Service, Forestry, Fisheries, Other	120,034	171,955	252,035	661,883	1,125,991
Mining	273,301	375,644	1,006,596	922,629	735,378
Construction	2,556,628	3,373,298	5,530,302	9,828,428	13,163,711
Manufacturing	12,685,010	16,016,887	25,889,483	34,409,129	47,810,276
Durable Goods	8,436,512	10,826,152	17,505,548	21,209,404	29,070,618
Nondurable Goods	4,248,498	5,190,735	8,383,935	13,199,725	18,739,658
Transportation and Public Utilities	2,970,657	4,176,898	7,013,297	11,700,685	17,772,512
Wholesale Trade	2,855,895	3,728,192	7,180,103	13,365,362	17,357,275
Retail Trade	4,140,312	5,414,603	8,556,907	14,465,429	19,568,495
Finance, Insurance, Real Estate	2,186,536	3,016,822	6,178,155	11,693,927	23,927,456
Services	5,875,326	8,128,496	15,655,284	41,007,242	69,186,689
Government and Government Enterprises	4,601,734	6,829,575	10,853,294	20,233,401	29,531,450
Federal, Civilian	997,644	1,313,165	1,942,055	3,561,898	4,610,713
Military	412,373	406,061	535,157	1,076,167	1,198,694
State and Local	3,191,717	5,110,349	8,376,082	15,595,336	23,722,043

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
ILLINOIS**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	98.0	97.2	98.4	99.2	99.5
Farm Income	2.0	2.8	1.6	0.8	0.5
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	81.3	79.9	77.2	72.2	72.9
Less: Personal Contribution for Social Insurance	3.4	3.8	3.9	4.7	4.7
Plus: Adjustment for Residence	0.3	(0.0)	0.2	(0.1)	(0.3)
Equals: Net Earnings by Place of Residence	78.2	76.1	73.6	67.5	67.9
Plus: Dividends, Interest and Rent	14.4	13.7	15.0	19.9	18.1
Plus: Transfer Payments	7.5	10.2	11.4	12.6	14.0
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
By Type:					
Wages and Salaries	83.6	82.1	80.5	81.6	81.1
Other Labor Income	4.8	6.0	8.4	8.8	8.4
Proprietors' Income	11.6	12.0	11.2	9.5	10.5
Farm	2.2	3.3	1.7	1.0	0.6
Nonfarm	9.4	8.7	9.4	8.6	10.0
By Industry:					
Farm	2.4	3.5	2.0	1.1	0.7
Nonfarm	97.6	96.5	98.0	98.9	99.3
Private	85.8	83.6	85.9	86.2	87.1
Agric. Service, Forestry, Fisheries, Other	0.3	0.3	0.3	0.4	0.5
Mining	0.7	0.7	1.1	0.6	0.3
Construction	6.5	6.4	6.1	6.1	5.4
Manufacturing	32.3	30.2	28.8	21.5	19.8
Durable Goods	21.5	20.4	19.5	13.2	12.0
Nondurable Goods	10.8	9.8	9.3	8.2	7.7
Transportation and Public Utilities	7.6	7.9	7.8	7.3	7.3
Wholesale Trade	7.3	7.0	8.0	8.3	7.2
Retail Trade	10.6	10.2	9.5	9.0	8.1
Finance, Insurance, Real Estate	5.6	5.7	6.9	7.3	9.9
Services	15.0	15.3	17.4	25.6	28.6
Government and Government Enterprises	11.7	12.9	12.1	12.6	12.2
Federal, Civilian	2.5	2.5	2.2	2.2	1.9
Military	1.1	0.8	0.6	0.7	0.5
State and Local	8.1	9.6	9.3	9.7	9.8

Source: Bureau of Economic Analysis

**INCOME AND EARNINGS  
IOWA**

Item (\$1,000)	1969	1973	1979	1989	1997
Total Personal Income	10,187,313	15,340,995	26,154,776	44,490,221	65,992,877
Nonfarm Personal Income	8,945,309	12,626,433	24,610,009	42,381,573	63,061,627
Farm Income	1,242,004	2,714,562	1,544,767	2,108,648	2,931,250
Population	2,805,000	2,864,031	2,916,803	2,770,590	2,854,330
Per Capita Personal Income (Dollars)	3,632	5,356	8,967	16,058	23,120
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	8,012,170	12,064,376	19,370,332	30,940,071	46,896,711
Less: Personal Contribution for Social Insurance	327,323	522,898	1,033,326	2,122,719	3,339,934
Plus: Adjustment for Residence	71,716	67,830	37,481	240,175	373,777
Equals: Net Earnings by Place of Residence	7,756,563	11,609,308	18,374,487	29,057,527	43,930,554
Plus: Dividends, Interest and Rent	1,529,015	2,240,539	4,667,091	8,917,185	11,812,539
Plus: Transfer Payments	901,735	1,491,148	3,113,198	6,515,509	10,249,784
<i>Earnings by Place of Work</i>					
<i>By Type:</i>					
Wages and Salaries	5,425,328	7,505,792	14,257,067	23,032,019	35,824,603
Other Labor Income	290,067	523,780	1,423,679	2,579,659	3,857,141
Proprietors' Income	2,296,775	4,034,804	3,689,586	5,328,393	7,214,967
Farm	1,148,891	2,567,898	1,271,344	1,847,918	2,647,130
Nonfarm	1,147,884	1,466,906	2,418,242	3,480,475	4,567,837
<i>By Industry:</i>					
Farm	1,242,004	2,714,562	1,544,767	2,108,648	2,931,250
Nonfarm	6,770,166	9,349,814	17,825,565	28,831,423	43,965,461
Private	5,781,529	7,938,129	15,338,262	24,056,036	37,129,095
Agric. Service, Forestry, Fisheries, Other	100,953	111,852	129,900	249,891	351,324
Mining	29,416	37,992	78,081	65,109	86,511
Construction	501,312	664,132	1,393,343	1,499,700	2,843,765
Manufacturing	1,900,162	2,618,814	5,136,664	7,140,187	9,941,942
Durable Goods	1,118,983	1,649,797	3,280,085	4,387,653	6,161,001
Nondurable Goods	781,179	969,017	1,856,579	2,752,534	3,780,941
Transportation and Public Utilities	512,176	762,995	1,323,137	1,939,083	2,836,301
Wholesale Trade	425,835	595,599	1,442,841	2,104,571	3,200,525
Retail Trade	951,561	1,300,713	2,012,668	2,954,686	4,315,661
Finance, Insurance, Real Estate	354,873	483,768	955,417	1,892,282	3,371,892
Services	1,005,241	1,362,264	2,866,211	6,210,527	10,181,174
Government and Government Enterprises	988,637	1,411,685	2,487,303	4,775,387	6,836,366
Federal, Civilian	154,928	224,010	354,207	623,238	842,365
Military	19,963	29,121	37,085	108,437	128,279
State and Local	813,746	1,158,554	2,096,011	4,043,712	5,865,722

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
IOWA**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	87.8	82.3	94.1	95.3	95.6
Farm Income	12.2	17.7	5.9	4.7	4.4
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	78.6	78.6	74.1	69.5	71.1
Less: Personal Contribution for Social Insurance	3.2	3.4	4.0	4.8	5.1
Plus: Adjustment for Residence	0.7	0.4	0.1	0.5	0.6
Equals: Net Earnings by Place of Residence	76.1	75.7	70.3	65.3	66.6
Plus: Dividends, Interest and Rent	15.0	14.6	17.8	20.0	17.9
Plus: Transfer Payments	8.9	9.7	11.9	14.6	15.5
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
By Type:					
Wages and Salaries	67.7	62.2	73.6	74.4	76.4
Other Labor Income	3.6	4.3	7.3	8.3	8.2
Proprietors' Income	28.7	33.4	19.0	17.2	15.4
Farm	14.3	21.3	6.6	6.0	5.6
Nonfarm	14.3	12.2	12.5	11.2	9.7
By Industry:					
Farm	15.5	22.5	8.0	6.8	6.3
Nonfarm	84.5	77.5	92.0	93.2	93.7
Private	72.2	65.8	79.2	77.8	79.2
Agric. Service, Forestry, Fisheries, Other	1.3	0.9	0.7	0.8	0.7
Mining	0.4	0.3	0.4	0.2	0.2
Construction	6.3	5.5	7.2	4.8	6.1
Manufacturing	23.7	21.7	28.5	23.1	21.2
Durable Goods	14.0	13.7	16.9	14.2	13.1
Nondurable Goods	9.7	8.0	9.6	8.9	8.1
Transportation and Public Utilities	6.4	6.3	6.8	6.3	6.0
Wholesale Trade	5.3	4.9	7.4	6.8	6.8
Retail Trade	11.9	10.8	10.4	9.5	9.2
Finance, Insurance, Real Estate	4.4	4.0	4.9	6.1	7.2
Services	12.5	11.3	14.8	20.1	21.7
Government and Government Enterprises	12.3	11.7	12.8	15.4	14.6
Federal, Civilian	1.9	1.9	1.8	2.0	1.8
Military	0.2	0.2	0.2	0.4	0.3
State and Local	10.2	9.6	10.8	13.1	12.5

Source: Bureau of Economic Analysis

**INCOME AND EARNINGS  
MINNESOTA**

Item (\$1,000)	1969	1973	1979	1989	1997
Total Personal Income	14,111,915	20,865,437	37,435,471	79,838,356	123,010,147
Nonfarm Personal Income	13,359,178	18,646,382	36,162,230	77,855,968	122,021,133
Farm Income	752,737	2,219,055	1,273,241	1,982,388	989,014
Population	3,758,000	3,885,164	4,038,150	4,338,056	4,687,408
Per Capita Personal Income (Dollars)	3,755	5,371	9,270	18,404	26,243
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	11,407,843	16,833,783	29,167,370	59,697,526	93,276,133
Less: Personal Contribution for Social Insurance	472,862	770,404	1,556,525	4,041,576	6,717,016
Plus: Adjustment for Residence	-33,031	-38,842	-91,287	-456,692	-879,571
Equals: Net Earnings by Place of Residence	10,901,950	16,024,537	27,519,558	55,199,258	85,679,546
Plus: Dividends, Interest and Rent	1,956,927	2,619,895	5,482,864	14,254,700	20,361,706
Plus: Transfer Payments	1,253,038	2,221,005	4,433,049	10,384,398	16,968,895
<i>Earnings by Place of Work</i>					
<i>By Type:</i>					
Wages and Salaries	9,066,225	12,352,063	23,143,676	47,902,088	77,224,195
Other Labor Income	496,202	869,494	2,384,235	5,143,096	7,835,557
Proprietors' Income	1,845,416	3,612,226	3,639,459	6,652,342	8,216,381
Farm	682,059	2,101,726	1,058,398	1,716,115	598,305
Nonfarm	1,163,357	1,510,500	2,581,061	4,936,227	7,618,076
<i>By Industry:</i>					
Farm	752,737	2,219,055	1,273,241	1,982,388	989,014
Nonfarm	10,655,106	14,614,728	27,894,129	57,715,138	92,287,119
Private	9,124,620	12,274,887	24,051,830	49,571,361	80,426,169
Agric. Service, Forestry, Fisheries, Other	51,482	68,111	123,327	266,590	405,708
Mining	144,536	197,360	516,851	337,873	462,019
Construction	856,309	1,053,717	2,078,452	3,498,029	5,399,247
Manufacturing	2,881,859	3,710,070	7,109,065	13,844,731	19,931,603
Durable Goods	1,705,412	2,175,690	4,312,054	8,369,999	11,745,690
Nondurable Goods	1,176,447	1,534,380	2,797,011	5,474,732	8,185,913
Transportation and Public Utilities	851,697	1,285,871	2,333,377	4,157,255	6,057,614
Wholesale Trade	814,486	1,138,929	2,477,712	4,366,518	7,386,631
Retail Trade	1,333,515	1,786,683	3,112,522	5,666,657	8,410,993
Finance, Insurance, Real Estate	572,221	783,493	1,587,028	3,930,620	7,771,011
Services	1,618,515	2,250,653	4,713,496	13,503,088	24,601,343
Government and Government Enterprises	1,530,486	2,339,841	3,842,299	8,143,777	11,860,950
Federal, Civilian	261,146	367,809	597,304	1,088,445	1,541,059
Military	55,732	64,017	81,246	173,638	195,002
State and Local	1,213,608	1,908,015	3,163,749	6,881,694	10,124,889

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
MINNESOTA**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	94.7	89.4	96.6	97.5	99.2
Farm Income	5.3	10.6	3.4	2.5	0.8
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	80.8	80.7	77.9	74.8	75.8
Less: Personal Contribution for Social Insurance	3.4	3.7	4.2	5.1	5.5
Plus: Adjustment for Residence	(0.2)	(0.2)	(0.2)	(0.6)	(0.7)
Equals: Net Earnings by Place of Residence	77.3	76.8	73.5	69.1	69.7
Plus: Dividends, Interest and Rent	13.9	12.6	14.6	17.9	16.6
Plus: Transfer Payments	8.9	10.6	11.8	13.0	13.8
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
<i>By Type:</i>					
Wages and Salaries	79.5	73.4	79.3	80.2	82.8
Other Labor Income	4.3	5.2	8.2	8.6	8.4
Proprietors' Income	16.2	21.5	12.5	11.1	8.8
Farm	6.0	12.5	3.6	2.9	0.6
Nonfarm	10.2	9.0	8.8	8.3	8.2
<i>By Industry:</i>					
Farm	6.6	13.2	4.4	3.3	1.1
Nonfarm	93.4	86.8	95.6	96.7	98.9
Private	80.0	72.9	82.5	83.0	86.2
Agric. Service, Forestry, Fisheries, Other	0.5	0.4	0.4	0.4	0.4
Mining	1.3	1.2	1.8	0.6	0.5
Construction	7.5	6.3	7.1	5.9	5.8
Manufacturing	25.3	22.0	24.4	23.2	21.4
Durable Goods	14.9	12.9	14.8	14.0	12.6
Nondurable Goods	10.3	9.1	9.6	9.2	8.8
Transportation and Public Utilities	7.5	7.6	8.0	7.0	6.5
Wholesale Trade	7.1	6.8	8.5	7.3	7.9
Retail Trade	11.7	10.6	10.7	9.5	9.0
Finance, Insurance, Real Estate	5.0	4.7	5.4	6.6	8.3
Services	14.2	13.4	16.2	22.6	26.4
Government and Government Enterprises	13.4	13.9	13.2	13.6	12.7
Federal, Civilian	2.3	2.2	2.0	1.8	1.7
Military	0.5	0.4	0.3	0.3	0.2
State and Local	10.6	11.3	10.8	11.5	10.9

Source: Bureau of Economic Analysis

**INCOME AND EARNINGS  
MISSOURI**

Item (\$1,000)	1969	1973	1979	1989	1997
Total Personal Income	16,493,080	23,542,734	42,439,840	86,428,708	127,794,524
Nonfarm Personal Income	16,022,802	22,299,497	41,233,827	85,584,676	126,800,453
Farm Income	470,278	1,243,237	1,206,013	844,032	994,071
Population	4,640,000	4,774,601	4,889,327	5,095,844	5,408,455
Per Capita Personal Income (Dollars)	3,555	4,931	8,680	16,961	23,629
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	13,977,465	19,324,688	33,269,602	62,650,962	92,444,037
Less: Personal Contribution for Social Insurance	578,490	910,568	1,676,289	4,093,902	6,332,745
Plus: Adjustment for Residence	-752,562	-745,433	-1,334,716	-2,450,734	-3,651,332
Equals: Net Earnings by Place of Residence	12,646,413	17,668,687	30,258,597	56,106,326	82,459,960
Plus: Dividends, Interest and Rent	2,301,870	3,198,173	6,611,575	17,798,426	23,372,589
Plus: Transfer Payments	1,544,797	2,675,874	5,569,668	12,523,956	21,961,975
<i>Earnings by Place of Work</i>					
<i>By Type:</i>					
Wages and Salaries	11,482,494	15,244,808	26,236,321	50,146,981	75,214,638
Other Labor Income	634,840	1,073,619	2,570,565	5,438,091	8,120,015
Proprietors' Income	1,860,131	3,006,261	4,462,716	7,065,890	9,109,384
Farm	400,215	1,147,471	1,043,702	681,888	792,938
Nonfarm	1,459,916	1,858,790	3,419,014	6,384,002	8,316,446
<i>By Industry:</i>					
Farm	470,278	1,243,237	1,206,013	844,032	994,071
Nonfarm	13,507,187	18,081,451	32,063,589	61,806,930	91,449,966
Private	11,568,363	15,343,138	27,706,147	53,191,278	78,815,660
Agric. Service, Forestry, Fisheries, Other	53,456	76,498	115,979	308,354	453,897
Mining	89,807	119,026	263,585	210,728	238,754
Construction	879,799	1,160,344	2,177,303	3,782,931	6,001,297
Manufacturing	3,847,146	4,834,938	8,319,326	13,770,503	18,063,472
Durable Goods	2,320,095	2,969,822	5,121,561	8,112,896	10,146,311
Nondurable Goods	1,527,051	1,865,116	3,197,765	5,657,607	7,917,161
Transportation and Public Utilities	1,249,303	1,812,191	3,280,221	5,577,326	7,751,001
Wholesale Trade	1,051,553	1,389,166	2,655,478	4,659,085	6,350,645
Retail Trade	1,626,713	2,159,613	3,538,860	6,055,683	8,648,856
Finance, Insurance, Real Estate	756,589	986,516	1,761,341	3,978,020	6,754,096
Services	2,013,997	2,804,846	5,594,054	14,848,648	24,553,642
Government and Government Enterprises	1,938,824	2,738,313	4,357,442	8,615,652	12,634,306
Federal, Civilian	609,220	813,554	1,240,542	2,189,006	2,776,762
Military	213,794	240,049	234,674	509,617	632,437
State and Local	1,115,810	1,684,710	2,882,226	5,917,029	9,225,107

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
MISSOURI**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	97.1	94.7	97.2	99.0	99.2
Farm Income	2.9	5.3	2.8	1.0	0.8
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	84.7	82.1	78.4	72.5	72.3
Less: Personal Contribution for Social Insurance	3.5	3.9	3.9	4.7	5.0
Plus: Adjustment for Residence	(4.6)	(3.2)	(3.1)	(2.8)	(2.9)
Equals: Net Earnings by Place of Residence	76.7	75.0	71.3	64.9	64.5
Plus: Dividends, Interest and Rent	14.0	13.6	15.6	20.6	18.3
Plus: Transfer Payments	9.4	11.4	13.1	14.5	17.2
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
By Type:					
Wages and Salaries	82.2	78.9	78.9	80.0	81.4
Other Labor Income	4.5	5.6	7.7	8.7	8.8
Proprietors' Income	13.3	15.6	13.4	11.3	9.9
Farm	2.9	5.9	3.1	1.1	0.9
Nonfarm	10.4	9.6	10.3	10.2	9.0
By Industry:					
Farm	3.4	6.4	3.6	1.3	1.1
Nonfarm	96.6	93.6	96.4	98.7	98.9
Private	82.8	79.4	83.3	84.9	85.3
Agric. Service, Forestry, Fisheries, Other	0.4	0.4	0.3	0.5	0.5
Mining	0.6	0.6	0.8	0.3	0.3
Construction	6.3	6.0	6.5	6.0	6.5
Manufacturing	27.5	25.0	25.0	22.0	19.5
Durable Goods	16.6	15.4	15.4	12.9	11.0
Nondurable Goods	10.9	9.7	9.6	9.0	8.6
Transportation and Public Utilities	8.9	9.4	9.9	8.9	8.4
Wholesale Trade	7.5	7.2	8.0	7.4	6.9
Retail Trade	11.6	11.2	10.6	9.7	9.4
Finance, Insurance, Real Estate	5.4	5.1	5.3	6.3	7.3
Services	14.4	14.5	16.8	23.7	26.6
Government and Government Enterprises	13.9	14.2	13.1	13.8	13.7
Federal, Civilian	4.4	4.2	3.7	3.5	3.0
Military	1.5	1.2	0.7	0.8	0.7
State and Local	8.0	8.7	8.7	9.4	10.0

Source: Bureau of Economic Analysis

**INCOME AND EARNINGS  
WISCONSIN**

Item (\$1,000)	1969	1973	1979	1989	1997
Total Personal Income	16,188,407	22,715,904	42,367,247	81,719,074	125,081,359
Nonfarm Personal Income	15,519,137	21,748,467	40,914,171	80,159,293	124,916,334
Farm Income	669,270	967,437	1,453,076	1,559,781	165,025
Population	4,378,000	4,518,461	4,665,911	4,856,568	5,201,226
Per Capita Personal Income (Dollars)	3,698	5,027	9,080	16,827	24,048
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	12,769,145	17,693,730	31,990,612	57,438,938	88,417,405
Less: Personal Contribution for Social Insurance	545,923	875,754	1,636,595	3,586,850	5,793,589
Plus: Adjustment for Residence	244,461	305,745	508,501	1,245,304	2,066,891
Equals: Net Earnings by Place of Residence	12,467,683	17,123,721	30,862,518	55,097,392	84,690,707
Plus: Dividends, Interest and Rent	2,273,162	3,072,349	6,015,809	14,839,763	21,656,369
Plus: Transfer Payments	1,447,562	2,519,834	5,488,920	11,781,919	18,734,283
<i>Earnings by Place of Work</i>					
<i>By Type:</i>					
Wages and Salaries	10,262,397	14,146,080	25,476,902	45,954,109	73,775,228
Other Labor Income	606,002	1,050,686	2,583,576	5,257,229	8,207,629
Proprietors' Income	1,900,746	2,496,964	3,930,134	6,227,600	6,434,548
Farm	587,645	858,872	1,209,018	1,207,373	-386,221
Nonfarm	1,313,101	1,638,092	2,721,116	5,020,227	6,820,769
<i>By Industry:</i>					
Farm	669,270	967,437	1,453,076	1,559,781	165,025
Nonfarm	12,099,875	16,726,293	30,537,536	55,879,157	88,252,380
Private	10,459,378	14,270,526	26,577,562	48,028,921	76,515,297
Agnic. Service, Forestry, Fisheries, Other	51,206	68,786	128,868	307,160	484,719
Mining	32,229	44,818	112,440	81,059	128,379
Construction	854,164	1,106,158	1,995,881	3,271,435	5,618,983
Manufacturing	4,578,732	6,053,627	11,065,117	17,107,340	25,155,417
Durable Goods	3,071,035	4,113,349	7,574,865	10,674,913	15,628,296
Nondurable Goods	1,507,697	1,940,278	3,490,252	6,432,427	9,527,121
Transportation and Public Utilities	752,448	1,097,352	1,964,953	3,374,427	5,174,689
Wholesale Trade	643,421	907,804	1,866,117	3,465,598	5,458,834
Retail Trade	1,468,007	1,974,656	3,222,607	5,376,906	7,991,352
Finance, Insurance, Real Estate	516,906	733,571	1,449,472	3,175,215	6,026,513
Services	1,562,265	2,283,754	4,772,107	11,869,781	20,476,411
Government and Government Enterprises	1,640,497	2,455,767	3,959,974	7,850,236	11,737,083
Federal, Civilian	209,967	299,392	495,647	880,838	1,248,493
Military	40,701	51,355	59,933	176,011	189,943
State and Local	1,389,829	2,105,020	3,404,394	6,793,387	10,298,647

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
WISCONSIN**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	95.9	95.7	96.6	98.1	99.9
Farm Income	4.1	4.3	3.4	1.9	0.1
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	78.9	77.9	75.5	70.3	70.7
Less: Personal Contribution for Social Insurance	3.4	3.9	3.9	4.4	4.6
Plus: Adjustment for Residence	1.5	1.3	1.2	1.5	1.7
Equals: Net Earnings by Place of Residence	77.0	75.4	72.8	67.4	67.7
Plus: Dividends, Interest and Rent	14.0	13.5	14.2	18.2	17.3
Plus: Transfer Payments	8.9	11.1	13.0	14.4	15.0
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
<i>By Type:</i>					
Wages and Salaries	80.4	79.9	79.6	80.0	83.4
Other Labor Income	4.7	5.9	8.1	9.2	9.3
Proprietors' Income	14.9	14.1	12.3	10.8	7.3
Farm	4.6	4.9	3.8	2.1	(0.4)
Nonfarm	10.3	9.3	8.5	8.7	7.7
<i>By Industry:</i>					
Farm	5.2	5.5	4.5	2.7	0.2
Nonfarm	94.8	94.5	95.5	97.3	99.8
Private	81.9	80.7	83.1	83.6	86.5
Agric. Service, Forestry, Fisheries, Other	0.4	0.4	0.4	0.5	0.5
Mining	0.3	0.3	0.4	0.1	0.1
Construction	6.7	6.3	6.2	5.7	6.4
Manufacturing	35.9	34.2	34.6	29.8	28.5
Durable Goods	24.1	23.2	23.7	18.6	17.7
Nondurable Goods	11.8	11.0	10.9	11.2	10.8
Transportation and Public Utilities	5.9	6.2	6.1	5.9	5.9
Wholesale Trade	5.0	5.1	5.8	6.0	6.2
Retail Trade	11.5	11.2	10.1	9.4	9.0
Finance, Insurance, Real Estate	4.0	4.1	4.5	5.5	6.8
Services	12.2	12.9	14.9	20.7	23.2
Government and Government Enterprises	12.8	13.9	12.4	13.7	13.3
Federal, Civilian	1.6	1.7	1.5	1.5	1.4
Military	0.3	0.3	0.2	0.3	0.2
State and Local	10.9	11.9	10.6	11.8	11.6

Source: Bureau of Economic Analysis

**INCOME AND EARNINGS  
UPPER MISSISSIPPI RIVER AREA**

Item (\$1,000)	1969	1973	1979	1989	1997
Total Personal Income	105,242,465	148,900,574	264,825,283	514,129,043	773,844,518
Nonfarm Personal Income	101,157,763	139,898,238	257,539,915	505,801,838	767,093,474
Farm Income	4,084,702	9,002,336	7,285,348	8,327,205	6,751,044
Population	26,620,000	27,302,505	27,932,973	28,470,840	30,140,771
Per Capita Personal Income (Dollars)	3,954	5,454	9,481	18,058	25,674
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	85,382,469	119,006,992	203,721,623	370,847,968	562,885,203
Less: Personal Contribution for Social Insurance	3,544,006	5,621,577	10,463,271	24,238,107	37,816,237
Plus: Adjustment for Residence	-344,316	-413,935	-596,601	-1,588,004	-2,924,665
Equals: Net Earnings by Place of Residence	81,494,147	112,971,480	192,661,751	345,021,857	522,144,301
Plus: Dividends, Interest and Rent	15,003,355	20,245,293	40,288,808	99,883,758	137,192,227
Plus: Transfer Payments	8,744,963	15,683,801	31,874,704	69,223,428	114,507,990
<i>Earnings by Place of Work</i>					
<i>By Type:</i>					
Wages and Salaries	69,023,535	92,811,824	161,469,300	297,747,629	458,125,417
Other Labor Income	3,925,902	6,684,903	16,497,937	32,570,356	48,290,278
Proprietors' Income	12,433,032	19,510,265	25,754,386	40,529,983	56,469,508
Farm	3,668,324	8,405,511	6,152,647	7,014,218	4,993,982
Nonfarm	8,764,708	11,104,754	19,601,739	33,515,765	51,475,526
<i>By Industry:</i>					
Farm	4,084,702	9,002,336	7,285,348	8,327,205	6,751,044
Nonfarm	81,297,767	110,004,656	196,436,275	362,520,763	556,134,159
Private	70,597,589	94,229,475	170,935,963	312,902,310	483,534,004
Agric. Service, Forestry, Fisheries, Other	377,131	497,202	750,109	1,793,878	2,821,639
Mining	569,289	774,840	1,977,553	1,617,398	1,651,041
Construction	5,648,212	7,357,649	13,175,281	21,880,523	33,027,003
Manufacturing	25,892,909	33,234,336	57,519,655	86,271,890	120,902,710
Durable Goods	16,652,037	21,734,810	37,794,113	52,754,865	72,751,916
Nondurable Goods	9,240,872	11,499,526	19,725,542	33,517,025	48,150,794
Transportation and Public Utilities	6,336,281	9,135,307	15,914,985	26,748,778	39,592,117
Wholesale Trade	5,791,190	7,759,690	15,622,251	27,961,134	39,753,910
Retail Trade	9,520,108	12,636,268	20,443,564	34,519,361	48,935,357
Finance, Insurance, Real Estate	4,387,125	6,004,170	11,931,413	24,670,064	47,850,968
Services	12,075,344	16,830,013	33,601,152	87,439,286	148,999,259
Government and Government Enterprises	10,700,178	15,775,181	25,500,312	49,618,453	72,600,155
Federal, Civilian	2,232,905	3,017,930	4,629,755	8,343,425	11,019,392
Military	742,563	790,603	948,095	2,043,870	2,344,355
State and Local	7,724,710	11,966,648	19,922,462	39,231,158	59,236,408

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
UPPER MISSISSIPPI RIVER AREA**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	96.1	94.0	97.2	98.4	99.1
Farm Income	3.9	6.0	2.8	1.6	0.9
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	81.1	79.9	76.9	72.1	72.7
Less: Personal Contribution for Social Insurance	3.4	3.8	4.0	4.7	4.9
Plus: Adjustment for Residence	(0.3)	(0.3)	(0.2)	(0.3)	(0.4)
Equals: Net Earnings by Place of Residence	77.4	75.9	72.8	67.1	67.5
Plus: Dividends, Interest and Rent	14.3	13.6	15.2	19.4	17.7
Plus: Transfer Payments	8.3	10.5	12.0	13.5	14.8
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
<i>By Type:</i>					
Wages and Salaries	80.8	78.0	79.3	80.3	81.4
Other Labor Income	4.6	5.6	8.1	8.8	8.6
Proprietors' Income	14.6	16.4	12.6	10.9	10.0
Farm	4.3	7.1	3.0	1.9	0.9
Nonfarm	10.3	9.3	9.6	9.0	9.1
<i>By Industry:</i>					
Farm	4.8	7.6	3.6	2.2	1.2
Nonfarm	95.2	92.4	96.4	97.8	98.8
Private	82.7	79.2	83.9	84.4	85.9
Agric. Service, Forestry, Fisheries, Other	0.4	0.4	0.4	0.5	0.5
Mining	0.7	0.7	1.0	0.4	0.3
Construction	6.6	6.2	6.5	5.9	5.9
Manufacturing	30.3	27.9	28.2	23.3	21.5
Durable Goods	19.5	18.3	18.6	14.2	12.9
Nondurable Goods	10.8	9.7	9.7	9.0	8.6
Transportation and Public Utilities	7.4	7.7	7.8	7.2	7.0
Wholesale Trade	6.8	6.5	7.7	7.5	7.1
Retail Trade	11.1	10.6	10.0	9.3	8.7
Finance, Insurance, Real Estate	5.1	5.0	5.9	6.7	8.5
Services	14.1	14.1	16.5	23.6	26.5
Government and Government Enterprises	12.5	13.3	12.5	13.4	12.9
Federal, Civilian	2.6	2.5	2.3	2.2	2.0
Military	0.9	0.7	0.5	0.6	0.4
State and Local	9.0	10.1	9.8	10.6	10.5

Source: Bureau of Economic Analysis

**INCOME AND EARNINGS  
UNITED STATES**

Item (\$Million)	1969	1973	1979	1989	1997
Total Personal Income	772,952	1,101,241	2,047,659	4,480,624	6,770,650
Nonfarm Personal Income	754,726	1,065,317	2,016,745	4,437,068	6,725,875
Farm Income	18,226	35,924	30,914	43,556	44,775
Population (1,000)	201,298	211,349	224,569	246,819	267,744
Per Capita Personal Income (Dollars)	3,840	5,211	9,118	18,153	25,288
<i>Derivation of Personal Income by Place of Work:</i>					
Earnings by Place of Work	619,495	868,143	1,556,345	3,212,991	4,824,055
Less: Personal Contribution for Social Insurance	26,013	42,376	80,661	210,125	325,765
Plus: Adjustment for Residence	-176	-263	-427	-740	-3,812
Equals: Net Earnings by Place of Residence	593,306	825,504	1,475,257	3,002,126	4,494,478
Plus: Dividends, Interest and Rent	109,299	147,560	300,895	852,535	1,165,828
Plus: Transfer Payments	70,347	128,177	271,507	625,963	1,110,344
<i>Earnings by Place of Work</i>					
By Type:					
Wages and Salaries	512,168	703,767	1,249,958	2,586,070	3,886,261
Other Labor Income	28,417	49,136	124,138	272,996	392,712
Proprietors' Income	78,910	115,240	182,249	353,925	545,082
Farm	14,358	31,052	22,541	32,803	29,321
Nonfarm	64,552	84,188	159,708	321,122	515,761
By Industry:					
Farm	18,226	35,924	30,914	43,556	44,775
Nonfarm	601,269	832,219	1,525,431	3,169,435	4,779,280
Private	500,634	685,779	1,284,944	2,664,511	4,064,270
Agric. Service, Forestry, Fisheries, Other	2,810	4,256	7,563	19,264	30,233
Mining	6,392	9,309	27,908	32,261	42,619
Construction	40,676	58,537	103,932	201,007	274,893
Manufacturing	173,842	220,373	394,145	648,198	856,058
Durable Goods	110,431	140,550	252,898	404,935	526,522
Nondurable Goods	63,411	79,823	141,247	243,263	329,536
Transportation and Public Utilities	43,384	64,034	117,844	214,298	330,559
Wholesale Trade	36,919	51,710	103,189	209,753	305,592
Retail Trade	67,236	92,886	159,236	310,225	439,206
Finance, Insurance, Real Estate	33,445	46,514	91,777	222,638	411,415
Services	95,930	138,160	279,350	806,867	1,373,695
Government and Government Enterprises	100,635	146,440	240,487	504,924	715,010
Federal, Civilian	25,885	35,295	56,623	102,360	134,273
Military	14,423	17,629	21,615	44,469	47,609
State and Local	60,327	93,516	162,249	358,095	533,128

Source: Bureau of Economic Analysis

**PERCENT DISTRIBUTION OF INCOME AND EARNINGS  
UNITED STATES**

Item	Percent 1969	Percent 1973	Percent 1979	Percent 1989	Percent 1997
Total Personal Income	100.0	100.0	100.0	100.0	100.0
Nonfarm Personal Income	97.6	96.7	98.5	99.0	99.3
Farm Income	2.4	3.3	1.5	1.0	0.7
<i>Derivation of Personal Income by Place of Work as a Percent of Total Income:</i>					
Earnings by Place of Work	80.1	78.8	76.0	71.7	71.2
Less: Personal Contribution for Social Insurance	3.4	3.8	3.9	4.7	4.8
Plus: Adjustment for Residence	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)
Equals: Net Earnings by Place of Residence	76.8	75.0	72.0	67.0	66.4
Plus: Dividends, Interest and Rent	14.1	13.4	14.7	19.0	17.2
Plus: Transfer Payments	9.1	11.6	13.3	14.0	16.4
<i>Earnings by Place of Work as a Percent of Total Earnings</i>					
<i>By Type:</i>					
Wages and Salaries	82.7	81.1	80.3	80.5	80.6
Other Labor Income	4.6	5.7	8.0	8.5	8.1
Proprietors' Income	12.7	13.3	11.7	11.0	11.3
Farm	2.3	3.6	1.4	1.0	0.6
Nonfarm	10.4	9.7	10.3	10.0	10.7
<i>By Industry:</i>					
Farm	2.9	4.1	2.0	1.4	0.9
Nonfarm	97.1	95.9	98.0	98.6	99.1
Private	80.8	79.0	82.6	82.9	84.3
Agric. Service, Forestry, Fisheries, Other	0.5	0.5	0.5	0.6	0.6
Mining	1.0	1.1	1.8	1.0	0.9
Construction	6.6	6.7	6.7	6.3	5.7
Manufacturing	28.1	25.4	25.3	20.2	17.7
Durable Goods	17.8	16.2	16.2	12.6	10.9
Nondurable Goods	10.2	9.2	9.1	7.6	6.8
Transportation and Public Utilities	7.0	7.4	7.6	6.7	6.9
Wholesale Trade	6.0	6.0	6.6	6.5	6.3
Retail Trade	10.9	10.7	10.2	9.7	9.1
Finance, Insurance, Real Estate	5.4	5.4	5.9	6.9	8.5
Services	15.5	15.9	17.9	25.1	28.5
Government and Government Enterprises	16.2	16.9	15.5	15.7	14.8
Federal, Civilian	4.2	4.1	3.6	3.2	2.8
Military	2.3	2.0	1.4	1.4	1.0
State and Local	9.7	10.8	10.4	11.1	11.1

Source: Bureau of Economic Analysis

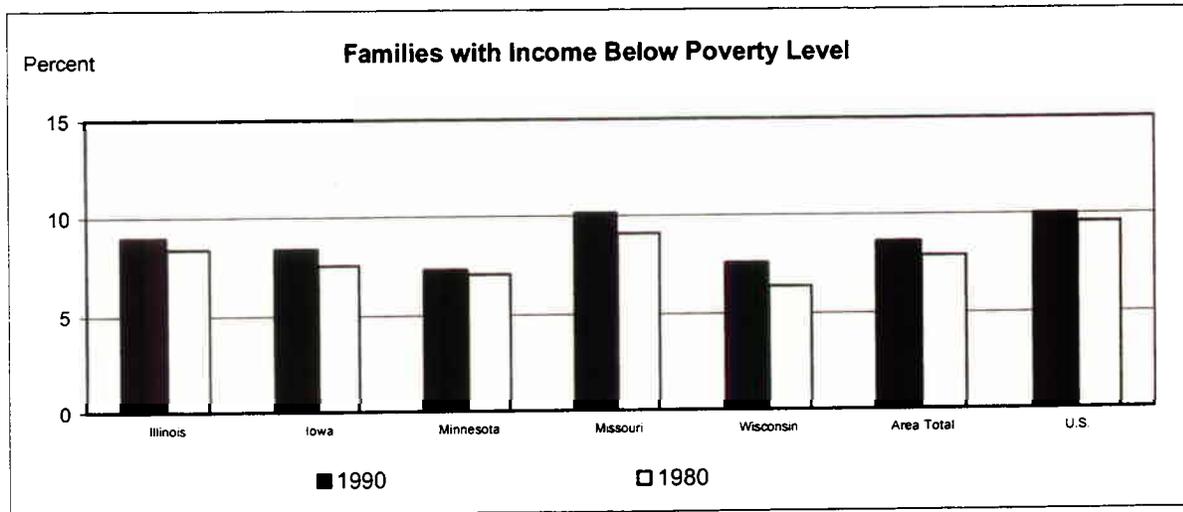
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**INCOME AND POVERTY STATUS  
FAMILIES  
UPPER MISSISSIPPI RIVER AREA**

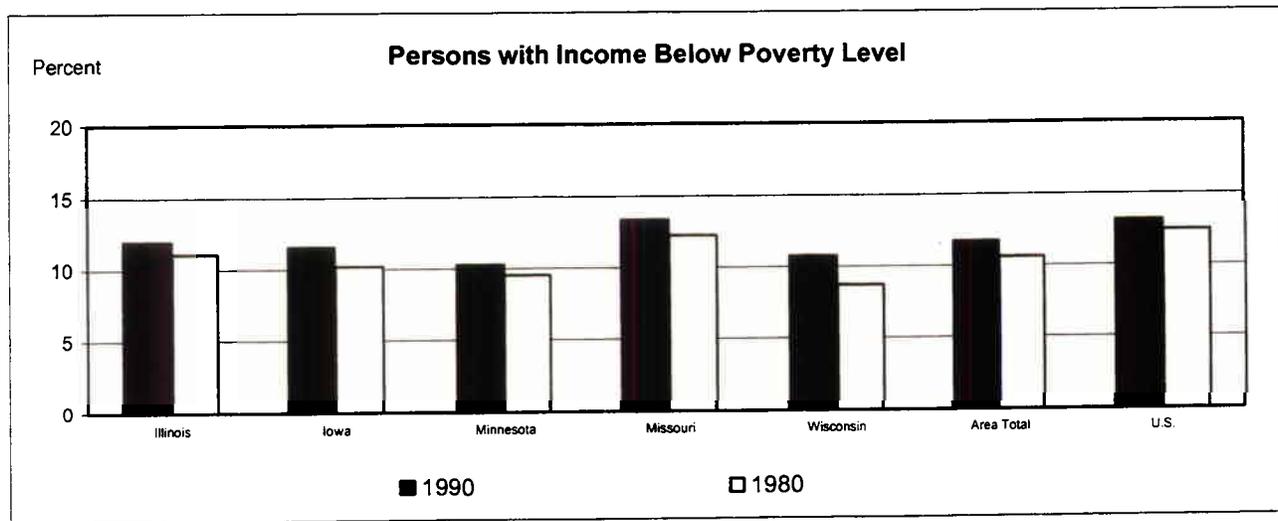
Area	1990 Data			1980 Data		
	Total Number of Families	Families with Income in 1989 Below Poverty Level	Percent of All Families	Total Number of Families	Families with Income in 1979 Below Poverty Level	Percent of All Families
Illinois	2,944,521	264,413	9.0	2,945,108	247,448	8.4
Iowa	746,331	62,747	8.4	773,311	58,265	7.5
Minnesota	1,138,581	82,888	7.3	1,043,532	73,356	7.0
Missouri	1,378,020	139,463	10.1	1,316,955	119,835	9.1
Wisconsin	1,284,297	97,466	7.6	1,215,023	77,140	6.3
Area Total	7,491,750	646,977	8.6	7,293,929	576,044	7.9
United States (1,000)	65,049	6,488	10.0	59,190	5,670	9.6



Source: U.S. Bureau of the Census

**INCOME AND POVERTY STATUS  
PERSONS  
UPPER MISSISSIPPI RIVER AREA**

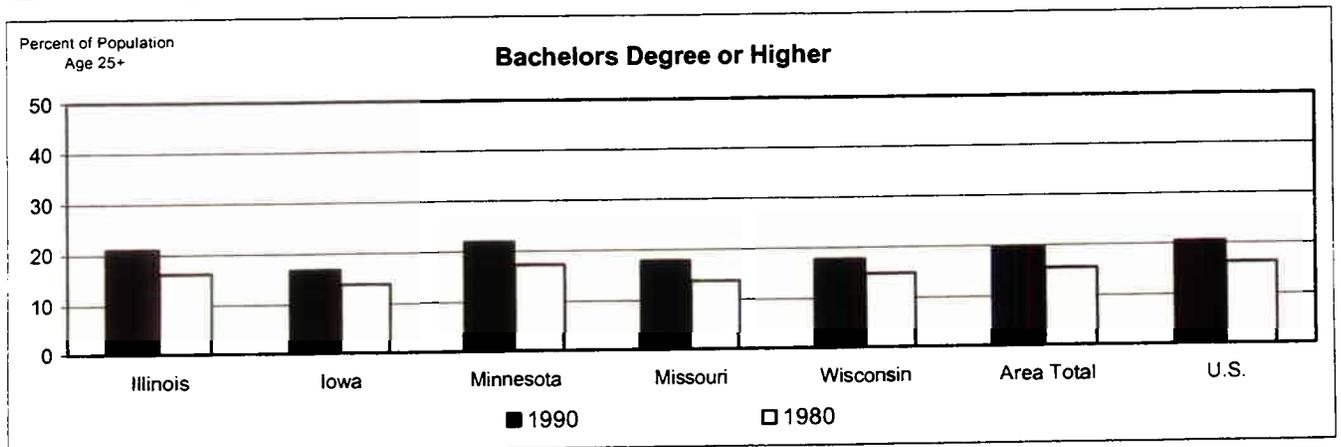
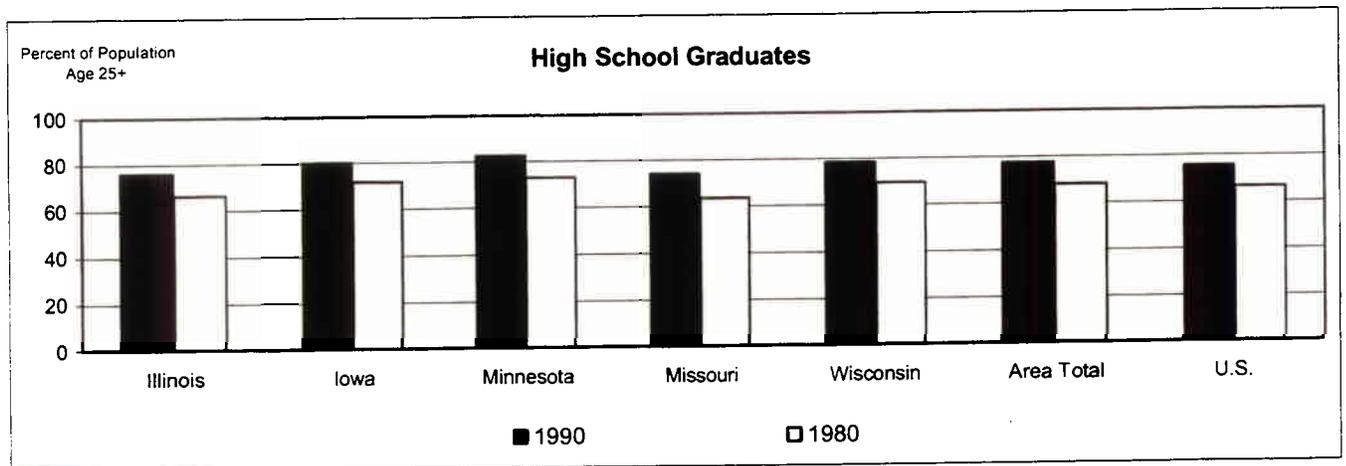
Area	1990 Data			1980 Data		
	Persons For Whom Poverty Status Has Been Determined	Persons with Income in 1989 Below Poverty Level	Percent of All Persons	Persons For Whom Poverty Status Has Been Determined	Persons with Income in 1979 Below Poverty Level	Percent of All Persons
Illinois	11,143,856	1,326,731	11.9	11,166,068	1,230,541	11.0
Iowa	2,676,958	307,420	11.5	2,820,271	286,173	10.1
Minnesota	4,259,456	435,331	10.2	3,960,608	374,956	9.5
Missouri	4,970,573	663,075	13.3	4,787,950	582,252	12.2
Wisconsin	4,754,103	508,545	10.7	4,582,005	397,813	8.7
Area Total	27,804,946	3,241,102	11.7	27,316,902	2,871,735	10.5
United States (1,000)	241,978	31,743	13.1	220,846	27,393	12.4



Source: U.S. Bureau of the Census

## EDUCATION STATUS OF PERSONS 25 YEARS AND OVER UPPER MISSISSIPPI RIVER AREA

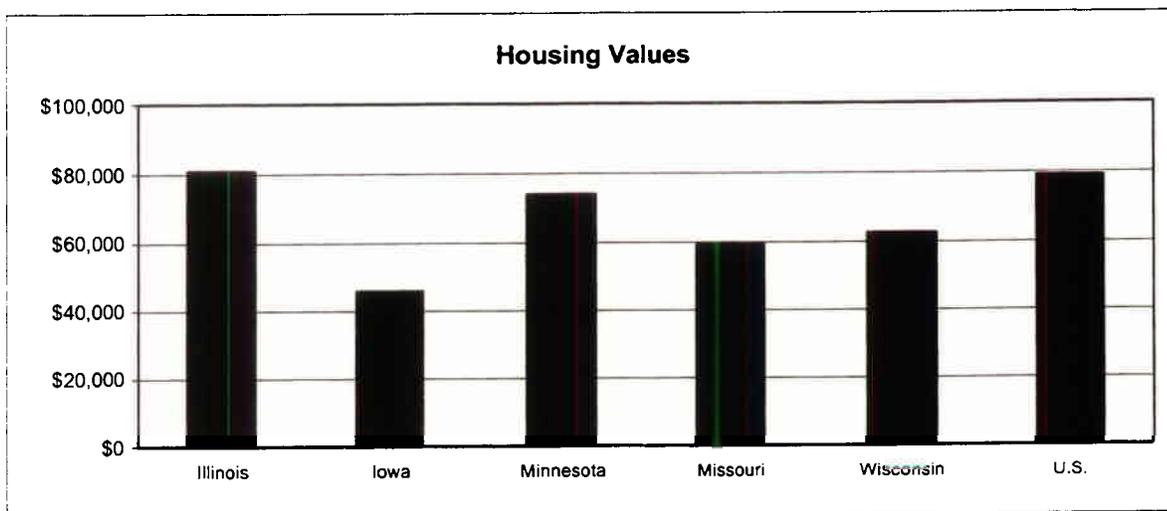
Area	1990 Data					1980 Data				
	Persons 25 Years and Over	High School Graduate Or Higher		Bachelors Degree Or Higher		Persons 25 Years and Over	High School Graduate Or Higher		Bachelors Degree Or Higher	
		Percent	Number	Percent	Number		Percent	Number	Percent	Number
Illinois	7,293,930	76.2	5,558,141	21.0	1,534,996	6,678,759	66.5	4,441,519	16.2	1,082,285
Iowa	1,776,798	80.1	1,422,998	16.9	299,392	1,700,102	71.5	1,216,146	13.9	237,055
Minnesota	2,770,562	82.4	2,281,797	21.8	604,584	2,345,701	73.1	1,713,553	17.4	407,281
Missouri	3,291,579	73.9	2,433,211	17.8	585,761	2,918,656	63.5	1,854,059	13.9	405,515
Wisconsin	3,094,226	78.6	2,432,154	17.7	548,970	2,705,388	69.6	1,883,095	14.8	401,076
Area Total	18,227,095	77.5	14,128,301	19.6	3,573,703	16,348,606	67.9	11,108,372	15.5	2,533,212
United States	158,868,436	75.2	119,524,718	20.3	32,310,253	132,835,687	66.5	88,300,490	16.2	21,558,480



Source: U.S. Bureau of the Census

**HOUSING PROFILE**  
**1990**  
**UPPER MISSISSIPPI RIVER AREA**

Area	Total Occupied Housing Units	Owner Occupied			Renter Occupied		
		Housing Units	Percent of Total	Median Value	Housing Units	Percent of Total	Median Contract Rent
Illinois	4,202,240	2,699,182	64.2	\$80,900	1,503,058	35.8	\$369
Iowa	1,064,325	745,377	70.0	\$45,900	318,948	30.0	\$261
Minnesota	1,647,853	1,183,673	71.8	\$74,000	464,180	28.2	\$384
Missouri	1,961,206	1,348,746	68.8	\$59,800	612,460	31.2	\$282
Wisconsin	1,822,118	1,215,350	66.7	\$62,500	606,768	33.3	\$331
Area Total	10,697,742	7,192,328	67.2		3,505,414	32.8	
United States	91,947,410	59,030,237	64.2	\$79,098	32,917,173	35.8	\$374



Source: U.S. Bureau of the Census

## Endnotes

1. Authority for the Upper Mississippi River and Illinois Waterway System Navigation Study is contained in Section 216 of the Flood Control Act of 1970 (Public Law 91-611).

2. U.S. Army Corps of Engineers; Rock Island, St. Louis and St. Paul Districts. *Upper Mississippi River—Illinois Waterway System Navigation Study*, Draft Summary of Large-Scale Measures Screening, October 1999.

3. U.S. Army Corps of Engineers; Rock Island, St. Louis and St. Paul Districts. *Upper Mississippi River—Illinois Waterway System Navigation Study*, Summary of Small-Scale Measures Screening, April 1999.

4. *Economic and Environmental Principles and Guidelines For Water and Related Land Resources Implementation Studies*, U.S. Water Resources Council, March 1983.

5. Tennessee Valley Authority survey data indicate that, at a large TVA construction site, about 30 percent of the construction workers moved their families to the area near the construction site.

6. "USACE Hires a Team for Lock Mitigation," *Marine News*, November 15, 1999, page 11.

7. To test for reasonableness of present-value calculations, the present value of the benefit stream for each option was referenced against present value of total cost. It became apparent that the study methodology which used the USACE input-output model produced consistent estimates for each of the options. This is because, in reference to the base case input-output model calculations, each alternative was generated by "shocking" the model in precisely the same manner to reflect the expenditures associated with each option. Since the input-output model is linear, then the relationship between the present value of total cost and total income should be relatively stable. The average ratio of benefits to cost, which is not to be confused with the NED benefit-cost ratio, stands at about 1.2.

8. Tennessee Valley Authority, *Yellow Creek Nuclear Plant Socioeconomic Monitoring and Mitigation Report YCNP—SMR-8* (November 30, 1982), Appendix B.

9. Mooring cells are known to lower transportation costs and generate large project benefits. In a TVA, May 1997, study in cooperation with the USACE Nashville District, adding one mooring cell at the downstream approach of Kentucky Lock and Dam was estimated to have a benefit-cost ratio of 22:1 but was lowered to 11:1 to reflect the lockmaster's most conservative estimate of time and delay. Discounted benefits were estimated to be \$4.8 million in 1997 dollars, not including regional benefits which would be the water-compelled rate effect. Doubling the 4.8 to yield 9.6 puts the TVA/USACE estimate near the average benefit per cell in Option A of 7.1 (35.5/5).

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2. Authority for the Upper Mississippi River-Illinois Waterway System Navigation Study is contained in Section 216 of the Flood Control Act of 1970 (Public Law 91-611).
3. Environmental Systems Research Institute. *ESRI Data & Maps* (CD #1), "Places" and "States" geodatabases, 1998
4. Inland Navigation Needs Assessment
5. Midwest Area River Coalition (MARC) 2000 Newsletter
6. Rand McNally. *Road Atlas*, 1999.
7. Rand McNally. *Road Atlas*, 1994.
8. Tennessee Valley Authority, *Tennessee River Efficiency and Tax Model*, 1998.
9. Tennessee Valley Authority, *Yellow Creek Nuclear Plant Socioeconomic Monitoring and Mitigation Report YCNP—SMR-8* (November 30, 1982), Appendix B.
10. "USACE Hires a Team for Lock Mitigation," *Marine News*, November 15, 1999, page 11.
11. U.S. Army Corps of Engineers, Northwestern Division, Missouri River Region. *Missouri River Master Water Control Manual, Review and Update Study*, August 1998.
12. U.S. Army Corps of Engineers, *NDC Publications and U.S. Waterway* (CD), "Ports" and "Milept" geodatabases, April 1998, Vol. 4.
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15. U.S. Army Corps of Engineers, Rock Island, St. Louis and St. Paul Districts. *Upper Mississippi River—Illinois Waterway System Navigation Study, Summary of Small-Scale Measures Screening*, April 1999.
16. U.S. Bureau of Transportation Statistics, *106th Congressional District Boundaries* (CD 106), geodatabase, April 1999.
17. U.S. Department of Agriculture, Economic Research Service. Website: [www.econ.ag.gov/epubs/other/usfact/](http://www.econ.ag.gov/epubs/other/usfact/)

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19. U.S. Department of Commerce, Bureau of Economic Analysis. Regional Economic Information System 1969–1997. May 1999.
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21. U.S. Water Resources Council, *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, March 1983.