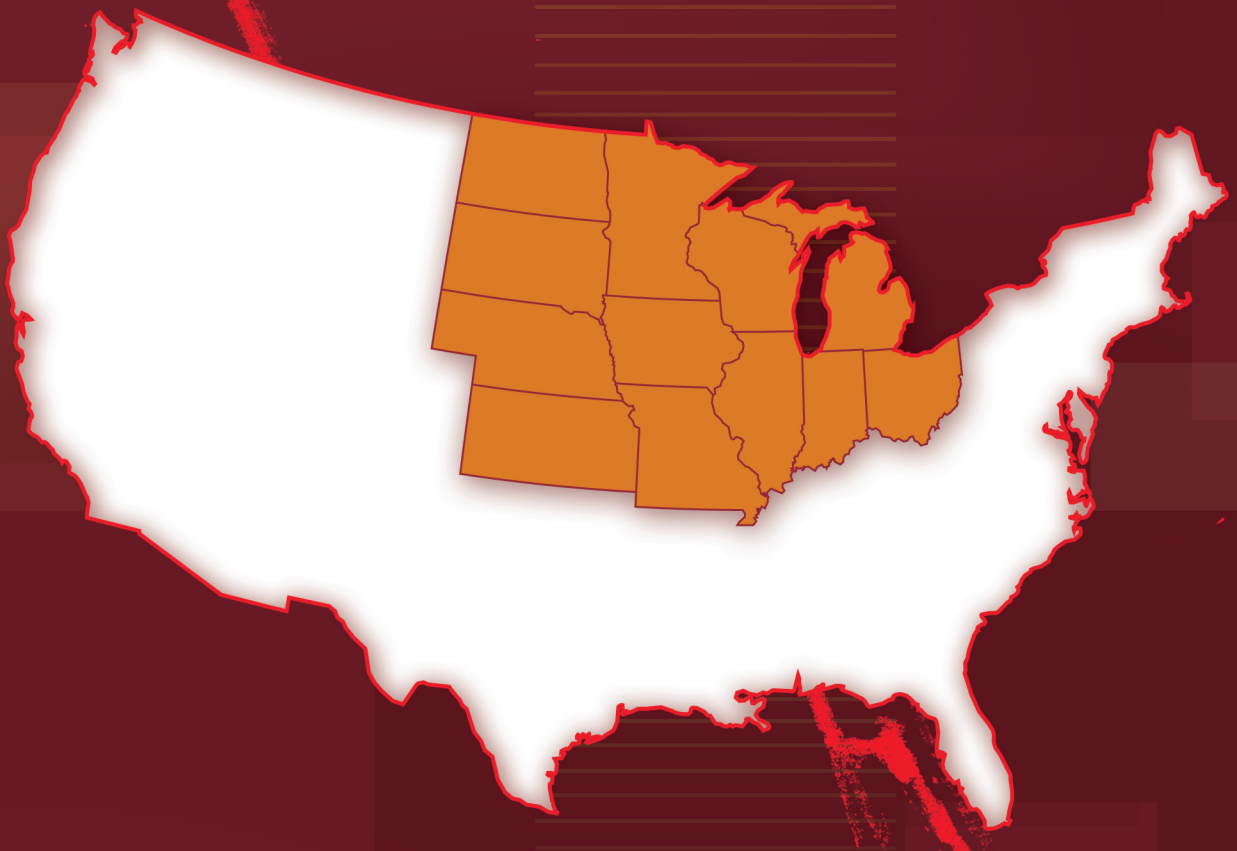
THE MIDWEST CHALLENGE: MATCHING JOBS WITH EDUCATION IN THE POST-RECESSION ECONOMY



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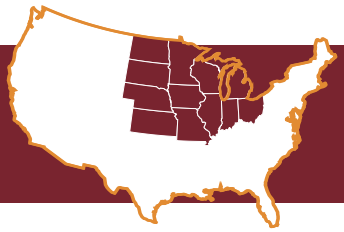

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- Bob Sheets for his methodological comments and insight on the impact of changing educational requirements through time;
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That said, all errors remain the responsibility of the authors.

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THE MIDWEST CHALLENGE: MATCHING JOBS WITH EDUCATION IN THE POST-RECESSION ECONOMY

Summary

The Midwestern economy continues to undergo industrial transformation that began in the late 1970s. The most recent downturn in manufacturing and agriculture was especially devastating, as both these industries are mainstays of the region. We find, however, that while agriculture and manufacturing employment continue to decline in the aggregate and as a share of all jobs, output in these industries will grow, mostly from increases in productivity.

In Ohio, Illinois, Michigan, and other Midwest manufacturing states, manufacturing employment will decline by 4 percent on average by 2018. In the agricultural states like Kansas, Nebraska, and the Dakotas, agricultural employment will decline by 1 percent. However, more than 1.3 million replacement and retirement job openings in manufacturing and agriculture will become available as the Midwest slowly regains traction through 2018.

Because of the continuing decline in manufacturing and agriculture, the Midwest has lost many of its middle-wage, middle-skill level jobs. This "hollowing out" of the middle is, however, more precisely described as a general decline in the demand for less-skilled occupations—and not the decimation of the middle as it is widely interpreted. We find that many of these lost jobs that required only a high school education or less and relatively low skills will not come back at all, lost to automation or overseas competitors. The newly created jobs are in occupations such as healthcare, and science, technology, engineering, and math (STEM). The writing is on the wall: the fastest-growing occupations and industries are those associated with the highest proportions of postsecondary education.

The overall demand for postsecondary education and training will continue to grow. This is true not only of high-tech industries, but even in wholesale and retail trade or personal services, where more than 50 percent of the workforce requires some postsecondary education beyond high school.

Not all postsecondary education and training, however, will result in good jobs that pay living wages. Our ability to match postsecondary programs with job opportunities remains underdeveloped. This deficiency contributes to the continuing mismatch between the postsecondary education production system, the actual training that people need to get, and the jobs that are available. We should use information systems to better align education and training with workforce outcomes.[1]

[1] *See: What's It Worth?: The Economic Value of College Majors (2011); The College Payoff: Education, Occupations, Lifetime Earnings (2011).*

The Midwest Challenge: Matching Jobs with Education in the Post-Recession Economy

No one has had it worse than the Midwest. Job losses in the "great recession" of 2007 spared no region, but the bulk of industries hardest hit were in the Midwestern states.

This is the second of a series of reports detailing the job and educational demand prospects for workers, by major census regions. When compared to all other regions, the loss of jobs in the Midwest has been substantial and painful, mostly due to its industrial composition. Although the great recession of 2007 has ravaged every corner of the United States, the middle of the country ranks first among equals when it comes to economic hardship. The reason is simple: manufacturing and agriculture were both devastated by the recent downturn, and both are mainstays of the Midwest economy. Manufacturing, for decades, has been concentrated in such "Rust Belt" states as Michigan, Ohio, and Indiana, while agriculture is a crucial piece of the economies in the "Plains" states of Kansas, Nebraska, and the Dakotas. Both of those economic sectors were already losing jobs as a result of broad economic trends, including mechanization and increased global competition. The recession only made things worse by depressing agricultural prices, obliterating demand for big-ticket consumer items, and accelerating the destruction of manufacturing positions.

TABLE 1. SELECTED STATE INDICATORS (2009)

State	Manufacturing as a percentage of Real GDP*	Manufacturing as a percentage of Jobs**	Percentage change in real GDP by state (2008-2009)*	Per capita personal income by state (2010)*	Unemployment rate (March 2011, provisional)**
Illinois	13%	9.9%	-3.4%	$43,159	8.8%
Indiana	27%	16.3%	-3.6%	$34,943	8.5%
Iowa	19%	13.7%	-0.2%	$38,281	6.1%
Kansas	15%	12.2%	-1.1%	$39,737	6.8%
Michigan	17%	12.6%	-5.2%	$35,597	10.3%
Minnesota	14%	11.2%	-2.3%	$42,843	6.6%
Missouri	13%	9.2%	-2.2%	$36,979	9.1%
Nebraska	12%	9.8%	0.3%	$39,557	4.2%
North Dakota	10%	6.1%	3.9%	$40,596	3.6%
Ohio	18%	12.4%	-2.7%	$36,395	8.9%
South Dakota	10%	9.3%	2.2%	$38,865	4.9%
Wisconsin	20%	16.1%	-2.1%	$38,432	7.4%

*Source *Bureau of Economic Analysis, NAICS-based real GDP by state statistics.*
***Bureau of Labor Statistics*

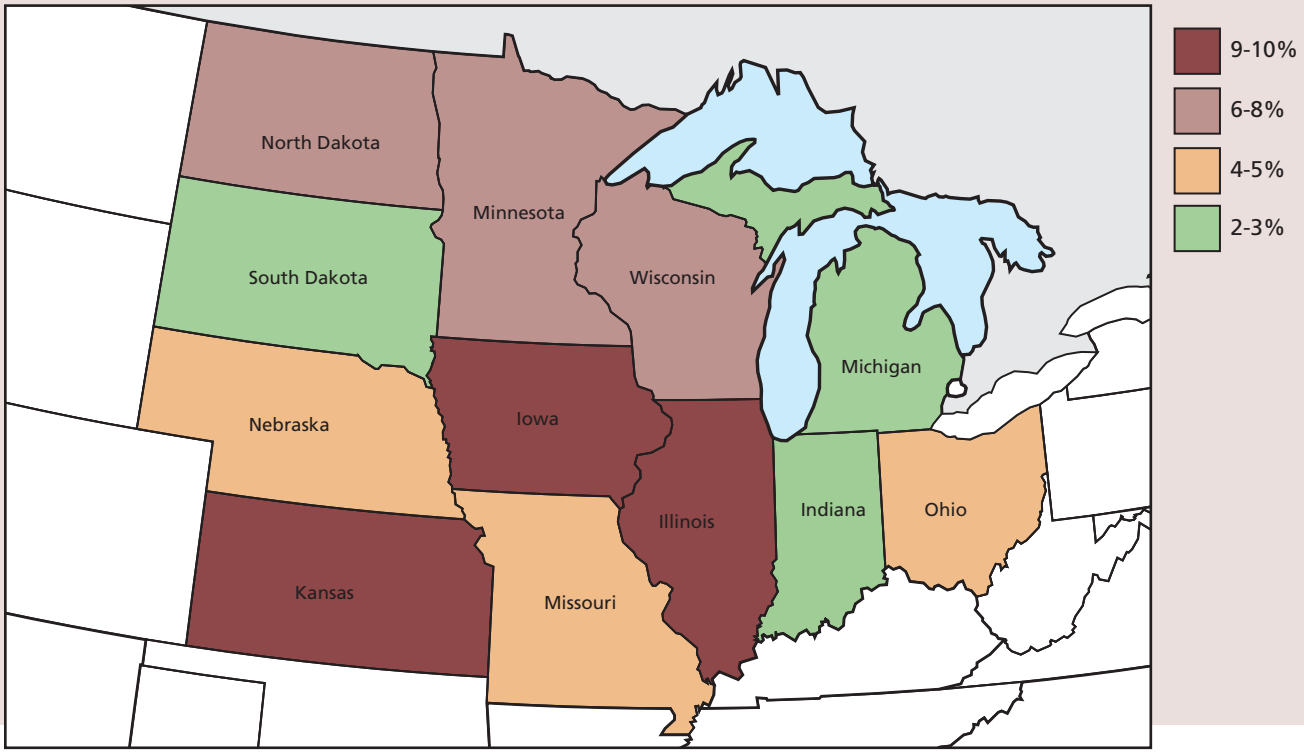
Even though the share of manufacturing jobs in the Midwest economy has been declining since the 1960s (when it measured 39 percent), the region still qualifies as a factory hub. The national average for manufacturing employment is roughly 9 percent, but the Midwest rate is close to 12 percent. That share is even higher in certain individual states: 16 percent in both Indiana and

Wisconsin; 13.7 percent in Michigan; and 12.4 percent in Ohio.[2] The recession hit those states particularly hard—especially those dependent on the auto industry, which was devastated when consumer demand evaporated.

Like other industries, manufacturing will improve as the national economy recovers—though never to the extent of its past heyday. Post-recession growth in that sector will result from greater productivity, not from expansion of the workforce. Our projections show that manufacturing output will grow from roughly $4.0 trillion in 2008 to $4.9 trillion in 2018, ranking it as America's largest industry when measured by contributions to national output.

But that will not translate to job growth. In fact, even as manufacturing's output explodes over the next decade, its workforce will contract. We project that nationally, employment in the sector will shrink from 13.6 million jobs in 2008 to roughly 13 million in 2018. That is not to say there will be no employment opportunities, though. The picture is more complex than that. In fact, we project there will be roughly 2 million job openings for the nation in manufacturing due to the retirement of Baby Boom generation workers. Even as the overall number of manufacturing jobs declines, retirements will create openings—even shortages—in particular segments of the industry.

FIGURE 1: KANSAS, ILLINOIS, AND IOWA LEAD JOB GROWTH THROUGH 2018



Job losses in this recession are not one-dimensional. There is a cyclical component where some jobs will eventually "bounce back," such as in construction and retail. But we are also simultaneously observing structural change in the economy as old-line manufacturing industries are being replaced by new service industries. Autor (2010) describes this loss of traditionally well-paying manufacturing jobs as the hollowing out of the middle of the American job market,

[2] *Thirty-one percent of all manufacturing employment in the U.S. is concentrated in the Midwest region.*

"with expanding job opportunities in both high-skill, high-wage occupations and low-skill, low-wage occupations, coupled with contracting opportunities in middle-wage, middle-skill white-collar and blue-collar jobs." On the surface, much of this analysis is true, but much is also exaggerated. The alleged hollowing out has been more aptly described by Schmitt and Boushey (2010) as a general decline in the demand for less-skilled occupations. Such is the case, especially in the worst recession since the Great Depression. Indeed, the unemployment rate even for holders of Bachelor's degrees and above peaked at 5.1 percent in November 2010. In addition, if we track the prevalence of manufacturing jobs across time (defined at one point in time as well-paying), we find that manufacturing jobs declined as a percentage of employment and as a result, their relatively higher wages no longer feature in the hierarchy of good-paying opportunities. A more complete picture of the economy should detail the middle wage service occupations that have replaced manufacturing.

Another troubling fact is the mismatch between the skills that will be needed for jobs being created and the education backgrounds of would-be workers. Schmitt and Boushey find that a number of college graduates are making less than high school graduates. But this is true of the economy as a whole. Occupations matter, industries matter, and degree types matter. Employment mismatch highlights the fact that colleges need to better streamline their programs so as to emphasize employability—both in fields and in jobs that pay a living wage.

As we slowly come out of this recession, the competition for talent will be reflected in the wage premiums that employers will offer. Workers hired for those jobs vacancies, though, will not look the same as those hired for such positions in decades past. Trends in hiring for manufacturing jobs have favored skilled workers with postsecondary credentials in recent years, and that will not change. The days when someone could get a well-paying job in manufacturing with relatively few skills upon entry are long gone—and they aren't coming back.

The decline in manufacturing is not the only economic maelstrom buffeting the region. A decline in commodity prices has also hurt agriculture revenues, which contribute roughly 10 percent of the Gross Domestic Product (GDP) of both North and South Dakota, and 6 percent and 3 percent to the GDP of Iowa and Kansas, respectively. In addition, agriculture has experienced some of the same productivity trends as manufacturing. Improved technology means that the industry can produce more agricultural goods with fewer and fewer workers. As a result, the Plains states that are most reliant on agriculture (the Dakotas, Nebraska, Kansas, and Iowa) are experiencing population shifts away from rural and towards urban areas.

Some of the Plains states are also dependent on natural resource industries like mining. These industries were not particularly hard hit by the recession, but they are not growing and are not expected to be substantial sources of job opportunities during the recovery.

Weak housing market prevents workers from following jobs

Coupled with the employment woes, home prices across the Midwest have continued to plunge—showing the steepest decline of all the nation's census regions (8.1 percent), more than 3 percentage points worse than the national average from the last quarter of 2010. Job losses in manufacturing also precipitated further decline in the housing market as foreclosure rates

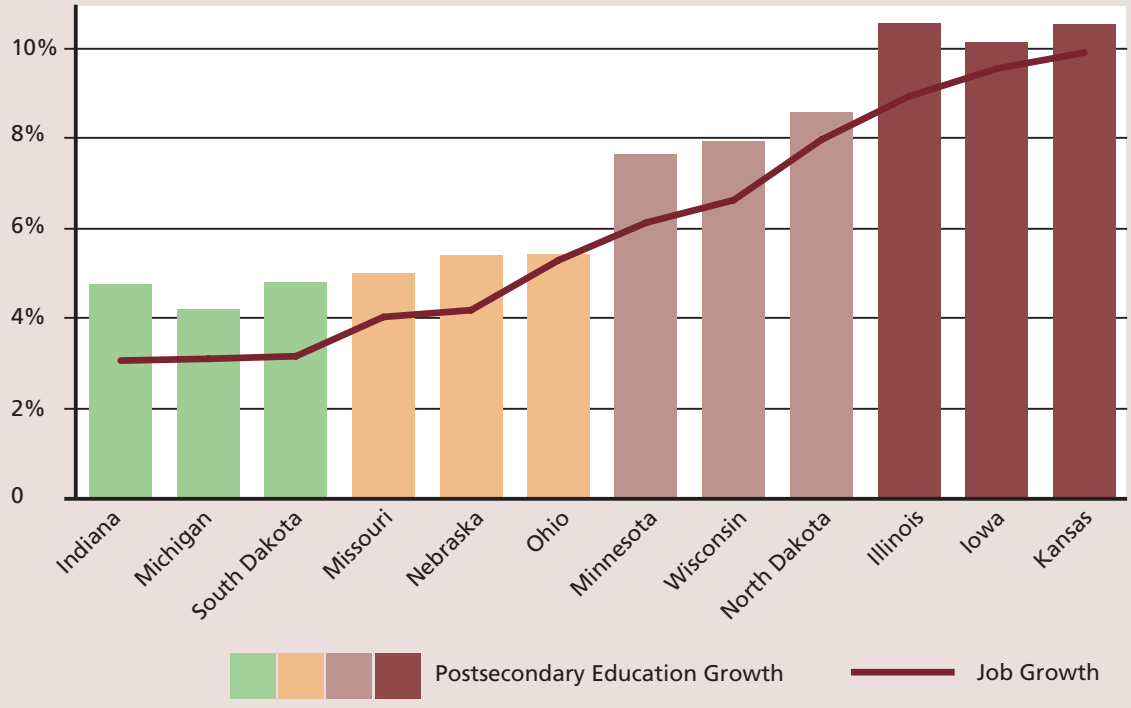
increased.[3] As a result, workers have been thwarted in their efforts to move from the Midwest to more active labor markets because they haven't been able to sell their homes.

Added up then, there is little question that economic distress has been more pronounced in the Midwest than in other regions.

Some Midwestern States Transition More Successfully Than Others

Still, the Midwest is not a monolith—its states are neither equally nor totally dependent on manufacturing and agriculture. Some Midwestern states are making the transition from the older industrial economy to the new knowledge economy more successfully than others. The plains states (North and South Dakota, Nebraska, and Kansas), especially, have diversified substantial portions of their economies into the private education services and healthcare services industries. As a result, they have moved faster down the road to recovery. They have lower unemployment than the rest of the Midwest, and even lower than national average. The Mississippi River states (Minnesota, Wisconsin, Iowa, Missouri, and Illinois) have struggled, but they also have recently begun to show signs of recovery. Not so in the Rust Belt (Ohio, Indiana, and Michigan), though. Growth has slowed there as a result of ongoing restructuring in the auto industry.

FIGURE 2: THE GROWTH IN DEMAND FOR POSTSECONDARY EDUCATION IS ON PAR WITH JOB GROWTH



[3] *According to RealtyTrac's April 2011 Foreclosure Market Report, Michigan is sixth in the nation in terms of rates of foreclosure by state (one out of every 349 housing units).*

The most robust industries and occupations in the Midwest, as with the nation as a whole, are those that require at least some postsecondary education and training. The fastest-growing employment sectors in the region are STEM (science, technology, engineering, and math) occupations; education occupations; as well as healthcare professional and technical occupations, which include doctors, nurses, and medical technicians.

Those trends are part of a nationwide shift toward a service economy, which has affected the Midwest, too (although more slowly than other parts of the country). In fact, healthcare services are now the number one employer in Missouri, Nebraska, and North Dakota, while wholesale and retail trade leads employment by industry in South Dakota.

Occupations in these industries tend to require at least some (and frequently quite a bit) of education and training beyond high school.[4] You can chart the nation's economic transformation by looking at the share of jobs that require postsecondary credentials. Between 1973 and 2008, the share of such jobs in the U.S. economy increased from 28 percent to 59 percent. According to our projections, the future promises more of the same. The share of "postsecondary jobs" will increase from 59 percent to 63 percent nationally through 2018.

TABLE 2. PROJECTED JOB VACANCIES THROUGH 2018

State	Job Vacancies	Postsecondary	HS Graduates	HS Dropouts
Illinois	2,000,000	1,300,000	530,000	203,000
Indiana	930,000	506,000	328,000	96,000
Iowa	527,000	319,000	169,000	39,000
Kansas	482,000	301,000	136,000	45,000
Michigan	1,300,000	836,000	388,000	103,000
Minnesota	902,000	620,000	227,000	55,000
Missouri	898,000	523,000	287,000	88,000
Nebraska	321,000	207,000	89,000	25,000
North Dakota	120,000	80,000	33,000	7,000
Ohio	1,700,000	967,000	600,000	142,000
South Dakota	141,000	85,000	45,000	11,000
Wisconsin	925,000	558,000	297,000	70,000
Total	**10,246,000**	**6,302,000**	**3,129,000**	**884,000**

Source: Georgetown University Center on Education and the Workforce forecasts of educational demand through 2018

This is actually good news for the Midwest. Compared to the rest of the country, the region has a relatively educated and skilled workforce, which could help it capitalize on the impending recovery. Added to this stock of skilled workers, the region's host of world-class hospitals, public colleges, and private universities could provide a strong foundation for growth and development. Already, hospitals and universities are some of the Midwest's largest employers. More than half

[4] *Seventy-five percent of jobs in healthcare services require postsecondary education, while 59 percent of jobs in wholesale and retail trade today require postsecondary education.*

of the 1 million workers employed by the 10 largest companies (by number of employees) work in healthcare services or private education services. A full 20 percent of all job vacancies in the U.S. economy through 2018 will be in the Midwest region. The key for the Midwest's successful recovery will be an understanding of how to direct this highly skilled workforce toward the industries and occupations with the greatest needs and expected growth.

Looking Forward: An Overview

In the next several sections of this report, we will provide a state-by-state assessment of the Midwest's economic performance by examining each state's major industries, largest employers, unemployment, public and private job growth rates, GDP, and educational attainment relative to labor market growth and changes.

BRIEF NOTE ON METHODOLOGY

We have a four-step approach to forecasting educational demand:
Step One: Forecasting Educational Distributions within Occupations
Step Two: Estimating Long-Term Employment Projections (the Macro Economy)
Step Three: Estimating Change in the Occupational Structure
Step Four: Projecting Educational Demand to 2018

Our method is distinct from that of the Bureau of Labor Statistics (BLS) in that it uses time series information on the changing education requirements of workers within occupations to determine the future demand for those education needs.

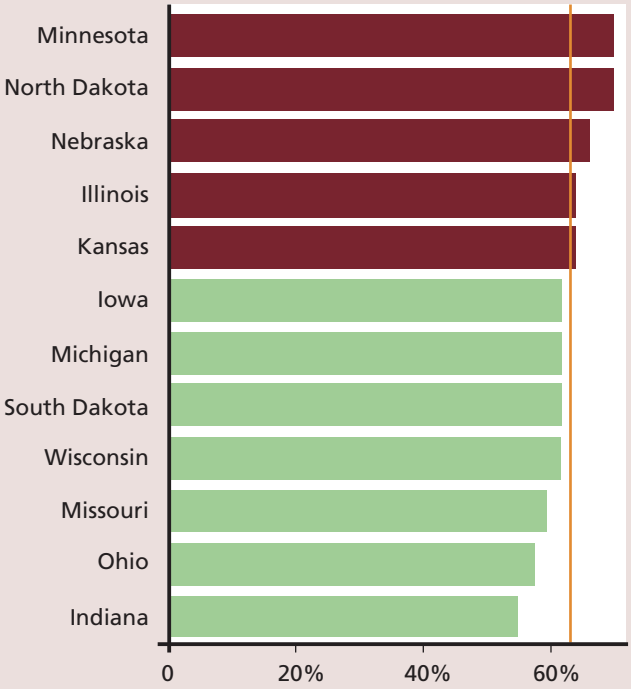
The BLS does not analyze educational demand, nor do they project these estimates. Instead they use the subjective assessment of analysts to "assign" the most significant education and training requirements for employment in 753 occupations. To some extent, BLS' limited efforts are a function of their limited goals. The footnoted fine print to the BLS data tables states—at great length—that their purpose is to represent the most significant education and training requirement within occupations.

Our estimates therefore are an attempt to more adequately reflect the changing education requirements of occupations through time, as revealed by the increasing demands of employers and the wage premiums offered to postsecondary workers. We use the actual distribution of earnings across occupations to determine the demand for postsecondary education in the labor market. We reason that since the wages of people with postsecondary education are high and/or rising relative to people without postsecondary education within an occupation, postsecondary education confers an advantage.

Appendix 8 of this report provides a comparison of the BLS state education requirements data to state level ACS data. The stark difference between what BLS says is demanded and what ACS counts as the education level of incumbents illustrates the extent to which BLS grossly underestimates true educational demand.

For a more complete discussion of our technical methods,
visit our website at **cew.georgetown.edu/jobs2018**

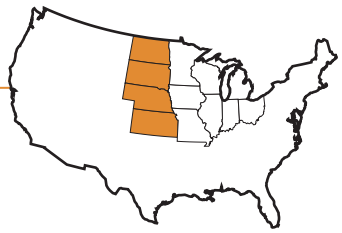
FIGURE 3: FIVE MIDWESTERN STATES WILL EXCEED THE NATIONAL AVERAGE IN THE PROPORTION OF JOBS REQUIRING POSTSECONDARY EDUCATION AND TRAINING BY 2018



We find that educational demand in the Midwest over the next decade will be as diverse as the states themselves. Nationally, we project that, by 2018, about 63 percent of all jobs will require some form of postsecondary education and training. Five Midwestern states—Minnesota, North Dakota, Nebraska, Illinois, and Kansas (70%, 70%, 66%, 64% and 64% respectively)—will exceed this average. Four states—Iowa, Michigan, South Dakota, and Wisconsin (62%, 62%, 62%, and 61% respectively)—fall just below the national trend. Due to a variety of economic factors explained in greater detail later in this report, Missouri, Ohio, and Indiana will rank below the national average in the share of jobs that require postsecondary credentials (59%, 57%, and 55%, respectively).

In the final section of this report, we will discuss a proposal that could harness the Midwest's enormous economic potential: a career development system that would more adequately connect workers (including the unemployed, recent graduates, and those switching careers) to real time job vacancies in order to ease the transition back into the workforce during the recovery. In addition to pairing workers with jobs, the system would help workers understand how their skills could transfer to other occupations and industries, and advise them on what extra education they might need to make a successful transition. In this system, workers would have access to detailed information regarding the economic benefits of education in general, and of particular courses and curricula in particular. With more complete information, individuals would be able to connect their training and retraining to market demand and to potential earnings.

Such a system, paired with investment in postsecondary education and strategic economic planning, would allow the region to make the most of its workforce and transition successfully to the post-recession economy.



THE PLAINS STATES

Kansas

Although the recession began on Wall Street, the neighborhood streets of Kansas have been far from immune. From 2008 to 2009, the Sunflower State suffered its greatest year-to-year employment decrease since 1946, as total nonfarm employment declined by 3.3 percent, and private sector employment dropped by almost 60,000. Despite those losses, however, the Kansas economy did not look as bleak as the national picture. By early 2010, in fact, Kansas had already shown signs of a turnaround. Although unemployment went from 4.4 percent in 2008 to 6.7 percent in 2009, it remained steady at 6.8 by March 2011—two points lower than the national average of 8.8. That recovery picked up where pre-recession trends had left off. From 2006 to 2009, Kansas's year-to-year change in private employment compared favorably with that of other states in the Midwest and the rest of the nation.

Kansas lost jobs in the manufacturing; professional and business services; trade; transportation and utilities; and construction industries. The decline in manufacturing was more pronounced than in the other industries, though, as it shed more than 19,600 jobs in 2009. That was more than twice as large as the decline in the professional and business services industry, and three times larger than the dip in the trade, transportation and utilities, and construction industries (Kansas Economic Report, 2010).

TABLE 3: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN KANSAS (2008 AND 2018)

	2008	2018	% change
High school dropouts	142,000	155,000	9%
High school graduates	432,000	470,000	9%
Some college	367,000	402,000	10%
Associate's	131,000	145,000	11%
Bachelor's	311,000	345,000	11%
Graduate	131,000	147,000	12%

Kansas' major employers in 2010, provided by the Kansas Department of Labor, reflect both old-line industries and the emerging economy dominated by healthcare services and private education services. Aeronautical manufacturing companies such as the Hawker Beechcraft Corporation and the Cessna Aircraft Company continue the Midwestern tradition of manufacturing but require increased skills and education of their workers. Meanwhile, employers such as the University of Kansas, Stormvont-Vail Healthcare, and several public school districts reflect the growing dominance of these services industries. Finally, the federal government, in the form of the Postal Service, Department of Defense and the Department of Veterans' Affairs, continues to employ large numbers of Kansans.

However, the biggest companies are not the full story. Information on the fastest growing companies tells us about the direction of the state and sources of new opportunities. Inc.com ranks InfoSync Services (#325) and Vin Solutions (#447) among the 5,000 fastest growing companies in the nation. These companies are in information services and professional and business services, two fast-growing industries. These industries are growing at a similar pace across the country, accelerating changes in the demand for postsecondary workers to operate and manage these enterprises, and Kansas is no exception.

Computer and mathematical science occupations; community and social services occupations; and farming, fishing and forestry occupations are projected to grow the fastest through 2018, at rates of 22 percent, 21 percent, and 20 percent, respectively.

Between 2008 and 2018, new jobs in Kansas requiring postsecondary education and training will grow by 99,000, whereas jobs for high school graduates and dropouts will grow by 51,000. For the same time period, the state will have 482,000 openings from job creation and retirements. Of these, 301,000 will require postsecondary credentials, 136,000 will require high school diplomas, and 45,000 will require no diploma.

In the share of jobs that will require a Bachelor's degree by 2018, Kansas ranks 15th nationwide, versus 32nd in jobs for high school dropouts. By 2018, about 1 million jobs in Kansas, or 64 percent of the total, will require postsecondary education and training.

Nebraska

The overall unemployment rate in Nebraska was 4.2 percent in March 2011, which was still well below the national level of 8.8 percent (U.S. Bureau of Labor Statistics, 2011). Nebraska's private sector lost about 25,000 jobs in 2009, but the state's year-to-year rate of employment losses was lower than other Midwestern states and the United States as a whole.

Through 2018, the fastest-growing occupations are projected to be healthcare support, computer and mathematical sciences, and community and social services. They will grow at rates of 20 percent, 18 percent, and 18 percent, respectively.

Thousands of Nebraskans are employed by its diverse range of major employers, from Tyson Foods, Inc., a food manufacturer, to hospitals and healthcare organizations, and federal and

state government offices (Nebraska Department of Economic Development, 2011 & ReferenceUSA Database, 2011).

The state's fastest-growing companies indicate the source of many new job opportunities in the coming years. Like much of the Midwest, Nebraska is branching out into industries where high growth is expected. Two of Inc.com's fastest-growing companies located in Nebraska, the Five Nines Technology Group (#527) and DocuLynx (#689), provide technology solutions that help companies adjust to a changing marketplace. Fortune ranked Nebraska-headquartered retailer Buckle the 58th fastest-growing company thanks to growing online sales.

TABLE 4: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN NEBRASKA (2008 AND 2018)

	2008	2018	% change
High school dropouts	81,000	87,000	7%
High school graduates	287,000	307,000	7%
Some college	254,000	274,000	8%
Associate's	117,000	127,000	9%
Bachelor's	207,000	225,000	9%
Graduate	80,000	89,000	11%

In Nebraska, 66 percent of all jobs—some 750,000—will require at least some postsecondary training by 2018. Between 2008 and 2018, new jobs requiring postsecondary training will grow by 56,000, while those for high school graduates and dropouts will grow by 25,000. Overall, Nebraska will create 321,000 job vacancies, counting both new jobs and old positions vacated by retirees. Of these new opportunities, 207,000 will be for workers with postsecondary credentials; 89,000 for high school graduates; and 25,000 for high school dropouts.

Nationally, Nebraska ranks 17th in the share of its jobs that will require a Bachelor's degree by 2018 and 36th in jobs for high school dropouts.

North Dakota

Unlike most U.S. states, the recession seems to have had only a minimal effect on North Dakota's economy. Minor job losses were recorded in the second half of 2009, but the state's year-to-year rate of growth and private sector employment have been significantly better than those in other Midwestern states and the nation as a whole.

North Dakota's unemployment rate was 3.6 percent in March 2011, well below the national rate of 8.8 percent. A variety of national and global economic factors have favored some industries in the state, especially mining. Mining wages have increased by 80 percent over the last 10 years, and there have been upturns in other occupations important to North Dakota, including transportation, trade, and utilities. Even though mining is a significant piece of the economy, North Dakota's largest industry is healthcare services, which had 48,400 jobs in 2008. Retail trade is the next largest industry by employment (North Dakota Workforce Review, 2009).

In 2009, seven of the state's top 10 employers were in the healthcare services industry; major employers in other industries included Microsoft and U.S. Bank (North Dakota Workforce Intelligence Network). The prevalence of healthcare-related employers indicates that this industry is a vital sector of the state's economy. North Dakota is also home to Appareo Systems, which is the nation's fastest-growing engineering firm according to Inc.com (#159). North Dakota's significant and growing employers already reflect its transition away from production industries and toward high-skill service industries such as information services and financial services, and toward highly skilled occupations such as engineering.

TABLE 5: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN NORTH DAKOTA (2008 AND 2018)

	2008	2018	% change
High school dropouts	21,000	23,000	10%
High school graduates	108,000	114,000	6%
Some college	97,000	102,000	5%
Associate's	57,000	60,000	5%
Bachelor's	85,000	89,000	5%
Graduate	24,000	25,000	4%

Healthcare support occupations are projected to grow by 11 percent between 2008 and 2018. STEM occupations are the fastest-growing occupations (engineers and technicians at 16%, and computers and science occupations by 26%).

About 277,000 jobs in North Dakota—70 percent of the total—will require some training beyond high school by 2018.

Between 2008 and 2018, new jobs in North Dakota requiring postsecondary education and training will grow by 14,000, whereas jobs for high school graduates and dropouts will grow by only 6,000. In addition, the state is projected to create a total of 120,000 job vacancies, both from newly created jobs and retirements from existing jobs. Of these openings, 80,000 will require individuals with postsecondary credentials, 33,000 will require at least high school diplomas, and 7,000 will be open to high school dropouts.

Nationally, North Dakota ranks 6th in the share of its jobs that will require a Bachelor's degree by 2018, and 51st in jobs for high school dropouts.

South Dakota

Much like its neighbor to the north, South Dakota held up well as the recession swept through the country. South Dakota's unemployment rate was 4.9 percent in March 2011, nearly four points less than the national average of 8.8 percent. The state also ranked near the top for GDP growth in 2008 and had the 10th-largest GDP growth last year among all 50 states.

Agriculture, historically, has been the backbone of South Dakota's economy. Indeed, agriculture contributes an estimated $3.5 billion to the state's economy, and accounts for 9.4 percent of the state's GDP (U.S. Bureau of Labor Statistics, 2011).

TABLE 6: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN SOUTH DAKOTA (2008 AND 2018)

	2008	2018	% change
High school dropouts	34,000	37,000	9%
High school graduates	145,000	156,000	8%
Some college	98,000	107,000	9%
Associate's	54,000	59,000	9%
Bachelor's	89,000	98,000	10%
Graduate	28,000	31,000	11%

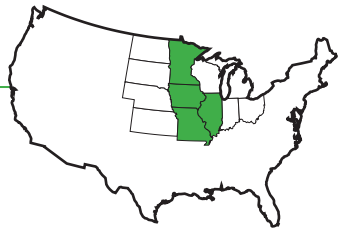
In 2010, four of the top 10 largest private employers in South Dakota, including Avera and Sanford Health, were associated with the healthcare services industry and related support systems.
Financial services companies Citibank and Wells Fargo, and wholesale and retail trade companies also employ thousands of South Dakota residents. With the impending retirement of Baby Boomers, healthcare will become even more important to South Dakota in coming years, and so will the postsecondary credentials that healthcare workers will hold.

By 2018, 62 percent of all jobs in South Dakota (294,000) will require some training beyond high school.

Between 2008 and 2018, new jobs in South Dakota requiring postsecondary education and training will grow by 25,000, while jobs for high school graduates and dropouts will increase by 14,000.

Over this same period, the state will add 141,000 job, both from new job opportunities and vacancies arising from retirements. Of these vacancies, 85,000 will favor candidates with postsecondary qualifications, 45,000 will favor high school graduates, and 11,000 will be suitable for high school dropouts. South Dakota ranks 19th in the share of its jobs that will require a Bachelor's degree by 2018, and 41st in jobs for high school dropouts.

THE MISSISSIPPI RIVER STATES



Illinois

The GDP of Illinois was estimated at $634 billion in 2008, with 0.25 percent real growth compared to the year before (JP Morgan Chase, 2010). Illinois is home to Chicago, the nation's third-largest city and the biggest in the Midwest. Traditionally, most of the state's economic activity is concentrated in this urban powerhouse. Chicago, as well as the rest of the state, has a diverse economy, as evidenced by the state's largest private employers, which range from financial services to pharmaceutical and insurance companies.

According to the Illinois Department of Employment Security, in 2009 significant wholesale and retail trade companies in Illinois included Wal-Mart, Jewel-Osco, and Walgreens. This indicates the importance of an industry that has increased its postsecondary employment from 32 percent in 1983 to 53 percent in 2008. Long-time Illinois-based companies State Farm Insurance and Caterpillar also employ large numbers, and telecommunications companies such as SBC and Motorola underscore the growing importance of communications technology to all industries.

Illinois' largest employers show where the jobs are now, but growing companies point to the state's economic future. Three of Fortune's 25 fastest-growing companies are based in Illinois, and two of those, SXC Health Solutions (#6), and Allscripts-Misys Healthcare Solutions (#22) develop and apply new technology to healthcare. This high-growth area reflects the need to cut costs and improve quality of care as healthcare needs continue to grow. Developing these state-of-the-art systems will require innovation as well as both medical and technological expertise. Illinois' workers will require more and more education to compete in the "college economy" that these companies represent.

Illinois' unemployment rate was 8.8 percent in March 2011, on par with the national average. In addition, the private sector lost 225,000 jobs between 2008 and 2009, making Illinois the Midwestern state with the most private job losses. Due to the collapse of the national housing market, the state's construction industry took a significant hit, losing an estimated 22,824 jobs in Illinois since 2003 (Economic Information and Analysis Division, 2009). The next biggest layoffs were in the manufacturing, professional and business services, and leisure and hospitality industries.

Manufacturing's decline did not begin with the recession but was accelerated by it. The industry had been losing jobs between 2001 and 2008 due to a combination of factors, including increased productivity, outsourcing, and higher skill requirements necessary for existing manufacturing jobs.

The retail trade industry was also hit hard by the recession. Mass layoffs, high commodity prices, and tight credit markets combined to reduce household spending and consumer confidence, forcing individuals to reprioritize their spending. The retail sector, in turn, paid the price in jobs.

TABLE 7: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN ILLINOIS (2008 AND 2018)

	2008	2018	% change
High school dropouts	661,000	699,000	6%
High school graduates	1,711,000	1,820,000	6%
Some college	1,393,000	1,510,000	8%
Associate's	563,000	621,000	10%
Bachelor's	1,318,000	1,468,000	11%
Graduate	689,000	783,000	14%

Although the recession devastated the job picture in certain industries, we do project growth between now and 2018—and jobs will grow fastest for those with postsecondary credentials. Like its Midwestern neighbors, Illinois is expected to witness a significant increase in the proportion of STEM occupations through 2018. Healthcare support; computer and mathematical science occupations; and healthcare professional and technical occupations will grow fastest. We project growth of 29 percent, 28 percent, and 24 percent, respectively.

By 2018, Illinois will have 4.4 million jobs (64 percent of the total) that require some training beyond high school. Between 2008 and 2018, the state is expected to create 2 million openings, both from newly created jobs and retirement from existing positions. Of these vacancies, 1.3 million will be for those with postsecondary credentials, 530,000 for high school graduates, and 203,000 for high school dropouts. New jobs in the state that require postsecondary education and training will grow by 418,000 between 2008 and 2018, while jobs targeting high school graduates and dropouts will grow by only 148,000.

Illinois ranks 13th in the share of its jobs that will require a Bachelor's degree by 2018, and 24th in jobs for high school dropouts.

Iowa

Despite some signs of recovery, Iowa is still fighting to regain its pre-December 2007 levels of economic performance. From December 2007 to September 2010, the state's unemployment rate has increased steadily, creeping upward from 3.9 percent to 6.8 percent, with private sector job losses totaling 40,000 in 2009. Although that was considerably lower than the national average, it is high for Iowa. In 2009, the number of jobless Iowans was 35,000 higher than during the previous downturn in 2004. By March 2011, however, the state saw promising signs of recovery; the unemployment rate had dipped slightly to 6.1 percent, more than 2 points below the national average of 8.8 percent.

Iowa's economic output was $136 billion in 2008, with a $28.2 billion contribution from manufacturing. That was the largest share of any industry.

During the recession, four of the state's major industries—retail trade; leisure and hospitality; information services; and manufacturing—all lost significant numbers of jobs. These industries account for nearly half of all jobs in Iowa. Manufacturing and construction suffered the sharpest declines when, between 2008 and 2009, both suffered job losses of more than 10 percent. Even during the recession, though, some industries showed slight signs of growth. The education and health services industries held their own, even posting minor gains. The natural resources and mining industry also scraped by with no change in employment.

As of 2010, according to a report by the Iowa Workforce Development Employment Statistics Bureau (2010), Iowa's largest private employers still included manufacturers such as Deere & Co. and Tyson Fresh Meats. But major insurance companies Allied/Nationwide and Principal Financial, and hospitals and health corporations such as Iowa Health System and Mercy Medical Center also employed large numbers. Although the most Iowans work in these traditional industries, Iowa is also home to Inc.com's 40th fastest growing company, Involta. This information services company provides data storage and is part of an industry that will require 91 percent of its workers to have postsecondary education by 2018.

Projections into 2018 reveal that computer and mathematical science occupations should post strong job growth, estimated at 22 percent. Healthcare support occupations will also see growth of 22 percent, followed by personal services occupations at 20 percent.

TABLE 8: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN IOWA (2008 AND 2018)

	2008	2018	% change
High school dropouts	124,000	135,000	9%
High school graduates	537,000	583,000	9%
Some college	378,000	414,000	10%
Associate's	196,000	216,000	10%
Bachelor's	316,000	349,000	10%
Graduate	109,000	122,000	12%

By 2018, 1.1 million jobs in Iowa, or 62 percent of the total, will require some education or training beyond high school.

Iowa is expected to create 527,000 job vacancies between 2008 and 2018, both from newly created jobs and retirements from existing positions. Of these openings, 319,000 will be for individuals holding postsecondary degrees, 169,000 for high school graduates, and 39,000 for high school dropouts. Between 2008 and 2018, new jobs in Iowa requiring postsecondary credentials will grow by 101,000, while jobs for high school graduates and dropouts will increase by 57,000.

Iowa ranks 22nd in the share of its jobs that will require a Bachelor's degree by 2018, and 43rd in jobs for high school dropouts.

Minnesota

Minnesota held up relatively well during the recession compared to other states in the Midwest and the rest of the country. Unemployment reached 7 percent in September 2010 and has since dipped slightly to 6.6 percent by March 2011. Although that represented a significant increase from previous years, Minnesota's jobless rate has remained below the national average of 8.8 percent.

The state shed about 75,000 private sector jobs in 2009, but maintained a year-to-year rate of decline that is lower than the rest of the region and the country as a whole (Creighton University, 2009).

Minnesota had a GDP growth rate of 5.3 percent in the beginning of the recession (2006-2007) (Minnesota Department of Employment and Economic Development, 2010).

As Minnesota climbs out of the recession—and as markets attempt to repair some of the damage incurred between 2007 and 2009—we forecast job gains for some sectors and continued contraction for others. Construction jobs have been particularly vulnerable, especially in metropolitan areas, with job loss rates near 23 percent over a two-year period.

The largest employers in the state are more diverse than other states in the region; they include government, retail, financial services, healthcare services, and private education services. Twin Cities Business reported that, as of 2009, the state and federal governments are the first and third largest employers in the state, respectively. However, they are joined by major healthcare companies, including the world-famous Mayo Clinic, as well as the University of Minnesota, the Target Corporation, Wells Fargo, and 3M.

The fastest-growing employers in Minnesota show that the state's economy and the job opportunities it will provide are becoming even more diverse and education intensive. According to the Minneapolis-St. Paul Star Tribune (2011), Minnesota-based companies that saw the most employment growth between 2009 and 2010 were Capella Education Company, a proprietary higher education group; Datalink Corporation and Compellent Technologies Inc., which is in information services; and Synovis Life Technologies Inc. and AGA Medical Holdings, Inc., which provide high-tech healthcare products.

TABLE 9: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN MINNESOTA (2008 AND 2018)

	2008	2018	% change
High school dropouts	185,000	189,000	2%
High school graduates	759,000	782,000	3%
Some college	703,000	743,000	6%
Associate's	348,000	374,000	7%
Bachelor's	672,000	729,000	8%
Graduate	264,000	293,000	11%

By 2018, 70 percent of all jobs in Minnesota (2.1 million) will require some training beyond high school. Between 2008 and 2018, new jobs in Minnesota requiring postsecondary education and training will grow by 152,000, while jobs for high school graduates and dropouts will grow by just 28,000.

Through 2018, we project that Minnesota will create 902,000 job vacancies, both from newly created jobs and existing positions that become vacant due to retirement. Of those openings, 620,000 will be for workers with postsecondary credentials, 227,000 for high school graduates, and 55,000 for high school dropouts.

Minnesota ranks 5th in the share of its jobs that will require a Bachelor's degree by 2018, and 48th in jobs for high school dropouts.

Missouri

Missouri's economy was shaken by the recession, although it was showing some signs of stabilization by 2009: home prices stopped falling, jobless claims numbers held steady, and consumer confidence was positive.

The state's GDP exceeded $238 billion in 2008, primarily due to contributions by agriculture, government and public education services, trade, transportation and utilities, and a number of service industries.

Missouri's unemployment rate was 9.1 percent in March 2011, slightly above the national average of 8.8 percent. By the official end of the recession in June 2009, Missouri's total nonfarm employment had declined by 2.7 percent compared to the previous year. Manufacturing lost 11.6 percent of its workers (34,000 jobs), with losses spread fairly evenly across all sub-sectors (Missouri Economic Research and Information Center, 2009; The Council of State Governments, 2011).

Private sector jobs declined by 75,000 between 2008 and 2009, although Missouri's private sector losses were lower than many other states in the Midwest and the rest of the country. Private education services and healthcare services industries stood against the recessionary tide, growing by about 8,500 jobs in 2009.

Since 2003, professional and business services, government and public education services, private education services, and healthcare services have seen their shares of the state economy grow, while manufacturing and financial services have declined in share.

Missouri's largest private employers reflect the growing dominance of healthcare services and private education services. Six of the 10 largest private employers in the state are in the healthcare services and private education servicess, according to the Missouri Economic Research and Information Center (2011). These are Barnes-Jewish Hospital, Lester E. Cox Medical Centers, St. John's Mercy Health, St. John's Regional Health, St. Louis University, and Washington University. Other major employers are the Boeing Company, and several wholesale and retail trade companies.

The largest employers do not tell the full story about the source of emerging industries and opportunities in the state. Several niche manufacturers, as well as a financial services company

have seen major growth in the last year. Several of Fortune's fastest-growing companies are headquartered in Missouri, including Olin (#40), which supplies ammunition to the military and to police (among the protective services jobs projected to grow through 2018), Stifel Financial (#65), food manufacturer Ralcorp Holdings (#75), and Panera Bread Company (#99).

Healthcare and STEM occupations will lead job growth through 2018. In Missouri, computer and mathematical science occupations will grow by 16 percent, followed by community and social services occupations at 13 percent, with healthcare support occupations close behind at 12 percent.

TABLE 10: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN MISSOURI (2008 AND 2018)

	2008	2018	% change
High school dropouts	297,000	305,000	3%
High school graduates	965,000	991,000	3%
Some college	686,000	711,000	4%
Associate's	231,000	243,000	5%
Bachelor's	538,000	568,000	6%
Graduate	263,000	282,000	7%

In 2018, 59 percent of Missouri's jobs will be for workers with at least some postsecondary education and training. Missouri is expected to create 898,000 vacancies, both from new jobs and from retirements. Of those vacancies, 523,000 will be for employees with postsecondary credentials, 287,000 for high school graduates, and 88,000 for high school dropouts.

Between 2008 and 2018, new jobs in Missouri requiring postsecondary education and training will grow by 86,000 while jobs for high school graduates and dropouts will grow by 34,000.

Missouri ranks 33rd in the share of its jobs that will require a Bachelor's degree by 2018 and 26th in jobs for high school dropouts.

Wisconsin

Since the sharp economic decline in 2009, Wisconsin's private sector has been gaining jobs, but at an unstable rate. The largest sectors of Wisconsin's economy are also those that have lost the most jobs in the recession: manufacturing and trade, transportation, and utilities account for 65 percent of the losses. Wisconsin's unemployment rate was at 7.4 percent in March 2011, below the national average of 8.8 percent.

Since December 2009, Wisconsin has gained about 25,400 jobs, bolstered by recovery in the manufacturing industry, which alone gained 10,900 jobs. Even though manufacturing was the largest private employer in Wisconsin during the last century, the sector has been slowly eroding

since 1999. By 2002, manufacturing had slipped to second place behind trade, transportation, and utilities. Still, the share of manufacturing jobs in Wisconsin is significantly greater than in the country as a whole—15.5 percent of total employment compared to 8.9 percent (Wisconsin Department of Workforce Development, 2006).

The top ten largest private employers in the state are clustered in the retail sales and healthcare services industries. According to Wisconsin's Department of Workforce Development (2006), five of the top 10 employers are healthcare companies and clinics. Wal-Mart, Menards, and Target employ large numbers of Wisconsin residents. Public employers such as the University of Wisconsin-Madison and the Milwaukee Public Schools also employ thousands of workers across different occupations.

Wisconsin is also home to several of Inc.com's fastest growing companies, which points to increasing diversity (and increased postsecondary demand) in the state's economy. Growing companies such as Zeon Solutions (#227), Interfacial Solutions (#304), Everything2go.com (#404), and Sajan (#778) are applying technology in new ways to everything from retail sales to language translation. In Wisconsin, healthcare support, computer and mathematical science, and healthcare technical and professional occupations are projected to grow at the fastest pace through 2018, with rates of 25 percent, 22 percent, and 23 percent, respectively.

TABLE 11: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN WISCONSIN (2008 AND 2018)

	2008	2018	% change
High school dropouts	231,000	241,000	4%
High school graduates	984,000	1,026,000	4%
Some college	664,000	704,000	6%
Associate's	338,000	366,000	8%
Bachelor's	554,000	600,000	8%
Graduate	231,000	255,000	10%

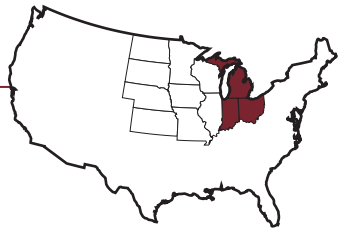
Through 2018, 61 percent of all jobs in the state will require some postsecondary training.

Jobs requiring postsecondary education will grow by 139,000, and those for high school graduates and dropouts by 52,000 between 2008 and 2018.

During the same period, the state will create 925,000 total vacancies from new jobs and retirements.

There will be 558,000 job vacancies for individuals with postsecondary credentials, 297,000 for high school graduates, and 70,000 for high school dropouts. Wisconsin ranks 26th in the share of its jobs that will require a Bachelor's degree by 2018, and 40th in jobs for high school dropouts.

THE RUST BELT



Indiana

Indiana's economy is still feeling the pinch of the recession. In September 2010, Indiana's unemployment rate was 10.1 percent, above the national average, but by March 2011 it had dropped to 8.5 percent, just below the national rate of 8.8 percent. The number of jobless workers between 2008 and 2009 was nearly twice as high as during the 2001 recession—and an estimated 140,000 workers have left Indiana's labor force since the recession hit its highest point in January 2009.

Indiana's economy is tightly tied to manufacturing, which accounted for 30.2 percent of GDP in 2008—the highest share of any state in the nation. Indiana's manufacturing industry has been suffering for years, and continues to lose jobs and close factories (Indiana Business Research Center, 2007).

Moreover, the expansion of private sector businesses in Indiana has lagged behind the rest of the country since 2000, but this was exacerbated by the recession. In addition to low performance on the private job creation measure, Indiana also ranks relatively low compared to other Midwestern states on such indicators as "technological innovation and competitiveness" and "entrepreneurial economy and infrastructure" (Council of State Governments, 2011).

The largest employers in Indiana are also those that favor postsecondary education and training. According to the Indiana Chamber of Commerce, Wal-Mart employs the most Indianans, but nearly all the rest of the top ten overall employers are in education-intensive industries of government and public education services (both federal and state), healthcare services (Indiana University Health, Franciscan Alliance, and Ascension Health, as well as Eli Lilly and Co., a pharmaceutical company), and education services (Indiana University and Purdue University).

The largest employers have the strength of numbers, but they are not always the major source of either economic or job growth in the same way that rapidly growing industries and companies are. Two Indiana companies are in the top 50 fastest-growing companies according to Inc.com, including KPaul (#10), a government supplier, and Appliance Zone (#39), which has used the Internet to change the way appliances are sold. Computer and mathematical science; community and social services; and healthcare support are the fastest growing occupations in the state, and are projected to have the highest numbers of job openings going forward.

TABLE 12: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN INDIANA (2008 AND 2018)

	2008	2018	% change
High school dropouts	362,000	330,000	-9%
High school graduates	1,119,000	1,132,000	1%
Some college	676,000	696,000	3%
Associate's	277,000	291,000	5%
Bachelor's	498,000	527,000	6%
Graduate	216,000	234,000	8%

The national trend of occupations increasingly demanding postsecondary education is true in Indiana, too. Fifty-five percent of all jobs in the state will require some postsecondary training by 2018. Between 2008 and 2018, Indiana will create 930,000 vacancies, both from newly created jobs and openings caused by retirements. Of those vacancies, 506,000 will be for individuals with postsecondary credentials, 328,000 for high school graduates and 96,000 for high school dropouts.

New jobs in Indiana requiring postsecondary education and training will grow by 79,000, while jobs for high school graduates and dropouts will grow by 16,000. Indiana ranks 42nd in the share of its jobs that will require a Bachelor's degree by 2018, and 22nd in jobs for high school dropouts.

Michigan

Michigan has been losing jobs since 2000, and 68 percent of these losses have been in manufacturing. Of the 72,000 jobs lost in Michigan between 2007 and 2008, most came from the transportation equipment manufacturing and automotive sectors.

Overall, Michigan's economic indicators remain grim, prompting a series of mass layoffs and job cutbacks. The number of unemployed workers rose drastically between 2007 and 2009, reaching 14 percent in April 2010—well above the national average. Michigan's economic woes are better captured by its GDP growth: despite having an estimated GDP of $376 billion in 2008, its annual GDP growth rate was declining by 2.8 percent (Bureau of Economic Analysis, 2011).

In terms of private sector employment, Michigan lost about 200,000 jobs in 2009, and the year-to-year decline rate is considerably higher than other Midwest states and the rest of the country.

There is widespread consensus that Michigan's economic hurdles are directly related to slumps in the automotive and housing markets. As the hub of the auto industry, Michigan's economy relied substantially on that sector for state revenues, sales, and employment. All three major auto manufacturers (GM, Ford, and Chrysler LLC) have seen their share of sales drop at dizzying rates. Although the auto industry has made some gains recently, these have been related to lower labor costs and higher productivity. With a critical industry in freefall, personal misfortune followed: home foreclosures increased by 125 percent between 2005 and 2006, and continue to increase (WWOCAR, 2008).

As in other Midwestern states, healthcare services and private education services in Michigan are exceptions to the downward trends. These industries saw their shares of employment increase from 2007 to 2008, and have contributed to increases in personal income as well (Michigan Department of Treasury, 2010). Moreover, in a bit of good news for Michigan, the unemployment rate dropped to 10.3 percent in December 2010—still well above the national average, but not nearly as high as the previous year.

Currently, nearly all of Michigan's largest employers are in the education and healthcare services industries. According to the ReferenceUSA Database (2011), the best source made publicly available, of those that employ over 10,000 Michigan residents, six of the nine are hospitals, and one, the University of Michigan at Ann Arbor, is providing the private education services that Michigan's labor force will increasingly need over the next several years.

Furthermore, rapidly growing companies in Michigan hint at its changed economic trajectory. Michigan's most rapidly growing companies are, according to Fortune (2011), both in post-secondary-intensive industries: Valassis Communications (#40) is in professional and business services, and Credit Acceptance (#53) is a financial services company.

Statewide, healthcare support, healthcare professional and technical, and community and social services occupations are projected to grow fastest in Michigan, at rates of 20 percent, 15 percent, and 14 percent, respectively.

TABLE 13: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN MICHIGAN (2008 AND 2018)

	2008	2018	% change
High school dropouts	350,000	354,000	1%
High school graduates	1,320,000	1,338,000	1%
Some college	1,101,000	1,129,000	3%
Associate's	433,000	452,000	4%
Bachelor's	810,000	850,000	5%
Graduate	423,000	452,000	7%

By 2018, about 2.9 million jobs in Michigan, 62 percent of the state's total employment, will require some training beyond high school.

Through 2018, new jobs in Michigan requiring postsecondary education and training will grow by 116,000, while jobs for high school graduates and dropouts will grow by an estimated 22,000.

Overall, Michigan will create 1.3 million job vacancies from job growth and retirements. Of these new vacancies, 836,000 will be for candidates with postsecondary education credentials, 388,000 for high school graduates, and 103,000 for high school dropouts.

Michigan ranks 34th in the share of jobs that will require a Bachelor's degree by 2018, and 35th in jobs for high school dropouts.

Ohio

Ohio had an estimated GDP of $446.3 billion in 2008, ranking it as the seventh largest state economy in the country. Even so, Ohio has been struggling since the early 2000s, and the recession dealt it a severe blow.

Private employment in Ohio was down 175,000 jobs at the peak of the recession, and the state's year-to-year decline has been greater than the U.S. average. In December 2010, Ohio's unemployment rate was 8.9 percent, just above the nation's rate of 8.8 percent.

Employment in Ohio's goods-producing industries has been declining quickly, and this trend is projected to continue. Manufacturing is expected to decline by 17.7 percent over the coming years, compared to 10.6 percent for the nation. Ohio's services industries, meanwhile, are increasing at rates lower than the national average. As a result, overall employment growth is projected to be considerably slower than the national rate.

Private education services and healthcare services industries are projected to account for more than one in every three new jobs, whereas more than one in every four new jobs will be added by the professional and business services industries. Also expanding are trade, transportation and utilities, government, and wholesale and retail trade.

The present economic and industrial conditions attest to the correlation between current employment job growth and demand for postsecondary education. Ohio's major employers reflect the growing preponderance of education and healthcare over traditional mainstays such as manufacturing. According to the Ohio Department of Development, in 2009 three out of the 10 largest employers in the state were healthcare companies: the Cleveland Clinic Health System, Catholic Healthcare Partners, and University Hospitals in Cleveland. The Ohio State University and JP Morgan Chase & Company also rank among the top 10 and employ thousands of Ohioans.

Ohio is home to a number of rapidly growing companies that make both Inc.com and Fortune's lists. They include financial services companies First Financial Bancorp (Fortune #54) and InsuranceAgents.com (Inc.com #68). The fastest growing occupations in Ohio are in healthcare support (25%), followed by computer and mathematical science (18%), and community and social services occupations (17%).

TABLE 13: SNAPSHOT OF EDUCATIONAL DEMAND FOR TOTAL JOBS IN OHIO (2008 AND 2018)

	2008	2018	% change
High school dropouts	484,000	490,000	1%
High school graduates	2,045,000	2,069,000	1%
Some college	1,225,000	1,264,000	3%
Associate's	523,000	553,000	6%
Bachelor's	960,000	1,012,000	5%
Graduate	477,000	509,000	7%

Before the next decade is over, 57 percent (about 3.3 million) of all jobs in Ohio will require some training beyond high school.

Between 2008 and 2018, new jobs in Ohio requiring postsecondary education and training will grow by 153,000, while jobs for high school graduates and dropouts will grow by just 30,000.

Over the same period, Ohio will create 1.7 million vacancies both from newly created jobs and retirements from existing positions.

Of these openings, 967,000 will be for workers with postsecondary credentials, 600,000 for high school graduates and 142,000 for high school dropouts.

Ohio ranks 36th in the share of its jobs that will require a Bachelor's degree by 2018, and 34th in jobs for high school dropouts.

BRIDGING THE GAP: DEVELOPING A CAREER DEVELOPMENT INFORMATION SYSTEM

The Midwest cannot afford to invest scarce resources in trying to regain the jobs that were lost in the recession—most of those have vanished permanently. In recent years, technological advances have allowed employers to mechanize many low-skill tasks and lay off the workers who once performed them. The jobs that remain are too complex for computers to perform, which means they must be filled by employees with higher levels of skill and education. That trend was in motion before 2007, but the recession sped it up. This process is especially painful for workers in sectors that are declining or slow to adapt to change: their old jobs are gone, but they aren't qualified to fill the new ones. As the economy continues to transition, a radical restructuring of the labor force will be required. Coupled with this process of structural change, impending Baby Boom retirements portend shortages in job-specific experience and training as replacement workers try to fill these vacancies.

Meeting this challenge will be particularly difficult in the face of shrinking state and federal budgets. States will be forced to leverage the current skills and competencies of existing workforces, and fill unmet demand for skilled workers as efficiently as possible. The first line of defense against economic stagnation is continued education. States play a vital role in developing tomorrow's workforce by promoting educational opportunity through the funding of public postsecondary institutions. Letting the current budgetary woes cut investment in these institutions is economic self-sabotage, impacting future growth and the ability of states to adapt to an increasingly skills-based economy.

A second key step for forward-thinking state governments will be to develop an information system to help both states and individuals make well-informed decisions about education and career choices based on the current and impending needs of the economy.

Despite the enormous potential, no such comprehensive system exists across states to help people match their educational preparation with their career ambitions—but not because it is an impossible task[6]. All the information to align postsecondary educational choices with careers is available, but it goes unused.

The forecasts in this report demonstrate that projecting education and job requirements is technically feasible. However, we should not settle for just projecting—we need to build analytical capacity to effectively answer the questions that educators, parents, young adults, and workers have been asking about what specific educational programs and degrees mean for their specific careers. The mechanism required should connect the college supply engine (transcript data), workforce development (unemployment wage records), and opportunities in real time (current job openings).

[6] *The state of Minnesota has Iseek. http://www.iseek.org/careers/index.html*

We need to inform decision makers, institutions, and individuals about the best ways to select the education and training required to achieve their occupational goals by answering a number of key questions:

1. Are some credentials worth more than others, and if so, by how much? Connecting wage records to transcript data will let us give a more nuanced answer than the standard hierarchical relationship between formal education levels and compensation differentials.

2. What are the successful education and career pathways? To what extent have the stepping stones of certificates achieved their goals of providing upward mobility for lower income Americans? An analysis of longitudinal survey data that traces individual attainment, occupational choice, and wage outcomes is the only way to test the long-run successes of individuals as they navigate their lives.

3. Are students able to define the distance in bite-sized, attainable clusters of courses between their current level of attainment and the attainment required to gain access to their desired profession? A "learning exchange" could connect students to current job openings and a sample of colleges and universities that offer the courses they need to attain that job.

4. How closely aligned are curricula to the knowledge, skills, abilities, work activities, and interests required by occupations? How effective are institutions of higher learning at preparing their students for the tasks and work activities that they will encounter in the workplace? For example, the O*NET database, created by the National O*NET Consortium and funded by the U.S. Department of Labor, specifies the full set of occupational competencies required for success in particular occupations and related clusters of similar careers. Currently, it is used primarily as a counseling tool for career planning, delivered online through a user-friendly interface. Its potential remains largely untapped.

5. The human capital landscape has evolved beyond traditional formal diplomas and degrees to include industry-based certifications and state-required licenses. How valuable are industrial-based certifications, how prevalent are they in the workforce, and what is their marginal value to formal education levels?

To see how such a system could work, consider a dislocated auto worker in Michigan seeking employment. Jobs in the auto industry are hard to come by these days, and she is unsure of her options. She has been looking for the same occupation, with no luck. With good career counseling and adequate information, she could define what skills she already has and what skills she would need to transfer to a new position. The system would also tell her how she could get those skills. With a few clicks and keystrokes on a computer, she could learn that by studying for 18 months toward a certificate available at her local community college, she could upgrade her skills and be qualified for a position that would pay her a living wage in a growing industry such as transportation, trade, or utilities. While the "mechanic-to-nurse" transition is unlikely, the "mechanic-to-utilities line worker" is not an impossible leap. Furthermore, state governments could access the same information at an aggregate level and know that utilities line jobs will be numerous in coming years, and respond by expanding existing programs and opening new ones to provide the necessary training for those jobs.

The current economic climate heightens the need to create a data system, and increase the efficient allocation of scarce resources, reduce job hunting time due to bad or irrelevant information and provide decision makers with the resources they need to make smart career decisions. To do otherwise risks leaving hundreds of thousands of workers behind as the economy recovers and builds for the future.

Developing such a system would be relatively inexpensive. Given that, the real question is not "can we afford to do this?" but "how can we afford not to?"

Bibliography

Acemoglu, Daron, and David Autor. June 2010. "Skills, Tasks and Technologies: Implications for Employment and Earnings." National Bureau of Economic Research Working Paper No. 16082. http://www.nber.org/papers/w16082.pdf.

Autor, David. April 2010. "The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings." *MIT Department of Economics, and National Bureau of Economic Research*. http://econ-www.mit.edu/files/5554.

Bureau of Economic Analysis, Regional Economic Accounts. Accessed February 2011. "NAICS-based Real GDP by State Statistics." *U.S. Department of Commerce*. http://www.bea.gov/regional/index.htm.

Bureau of Labor Statistics. September 2010. "Midwest Information Office." *U.S. Department of Labor.* http://www.bls.gov/ro5/news.htm.

Card, David. January 2009. "Immigration and Inequality." *National Bureau of Economic Research* Working Paper No. 14683. http://www.nber.org/papers/w14683.pdf.

Carnevale, Anthony P. and Stephen J. Rose and Ban Cheah. 2011. "The College Payoff: Education, Occupations and Lifetime Earnings." The Georgetown University Center on Education and the Workforce.

Carnevale, Anthony P. and Jeff Strohl and Michelle Melton. 2011. "What's it Worth?: The Economic Value of College Majors". The Georgetown University Center on Education and the Workforce.

Dun & Bradstreet, Inc. Accessed February 2011. "Dun & Bradstreet." http://www.dnb.com/about-dnb/14881789-1.html.

Economic Information and Analysis Division. June 2009. "Illinois Annual Economic Analysis Report 2008." *Illinois Department of Employment Security.* http://www.doleta.gov/Programs/2008 Reports AndPlans/Economic_Analysis_Reports/IL.pdf.

Economic Information and Analysis Division. February 2011. State of *Illinois Department of Employment Security.* Personal Correspondence with IDES Local Labor Market Economists.

Economic Outlook. January 2009. "The Purchasing Economy Survey Report." *Creighton University College of Business*. http://www.ernestgoss.com/Mountain_Jan10.pdf.

Employment Statistics Bureau. April-June 2009. "State of Iowa: 2010 Annual Profile." *Iowa Workforce Development, State of Iowa*. http://iwin.iwd.state.ia.us/pubs/countyprofile/stateofiowa.pdf.

Governor's Energy Policy Subcabinet Team. October 2010. "Final Report." *State of Kansas.* http://49.ae.3845.static.theplanet.com/files/2010_Energy_Report.pdf.

Indiana Business Research Center. Winter 2007. "Indiana Business Review: Outlook 2008." *Kelley School of Business, Indiana University* Volume 82, No. 4. http://www.ibrc.indiana.edu/ibr/2007/outlook/outlook_08.pdf.

Indiana Chamber of Commerce. Personal Correspondence. February 2011.

"infoUSA.com." Accessed February 2011. *Infogroup Reference Division.* http://www.infousa.com.

"ISEEK: Minnesota State Colleges and Universities." Accessed February 2011. *iSeek Solutions.* http://www.iseek.org/careers/index.html.

Labor Market Information Office. April 2010. "Minnesota Workforce Facts." *Minnesota Department of Employment and Economic Development*. http://www.positivelyminnesota.com/Data_Publications/Publications/LMI/PDFs/Minnesota_Workforce_Facts_-_2010.pdf.

Labor Market Information Services. February 2011. *Kansas Department of Labor.* Personal Correspondence.

Labor Market Information Services. Spring 2010. "2010 Kansas Economic Report." *Kansas Department of Labor.* http://www.dol.ks.gov/LMIS/economicReport/2010/Kansas_Economic_Report_2010.pdf.

Midwestern Legislative Conference Economic Development Committee, Resurgent Midwest, Insurgent Growth Initiative. February 2011. "In Search of Growth: An Economic Check Up of the Midwestern State." *The Council of State Governments.* http://www.csgmidwest.org/MLC/InSearchofGrowth.aspx.

Minnesota Economic Trends. June 2010. "After the Recession: Finding Work in a Changing Environment." *Labor Market Information, Office of the Minnesota Department of Employment and Economic Development*. http://www.positivelyminnesota.com/Data_Publications/Publications/LMI/PDFs/MN_Economic_Trends/June_2010/June_2010_MN_Economic_Trends.pdf.

Missouri Department of Economic Development, and the Missouri Economic Research and Information Center. May 2009. "2009 Missouri Economic Report." *State of Missouri.* http://www.missourieconomy.org/pdfs/MO_Econ_2007.pdf.

Missouri Economic Research and Information Center. February 2011. Personal Correspondence.

Nebraska Department of Economic Development. February 2011. Personal Correspondence.

Nebraska Workforce Development. January 2011. "Nebraska Occupational and Industry Projections." *Department of Labor, Office of Workforce Programs.* http://www.dol.nebraska.gov/nwd/dspdoc.cfm?fileid=25.

Nebraska Workforce Development. October 2008. "Nebraska Economic Outlook 2009." *Department of Labor, Office of Workforce Programs, Labor Market Information.* http://www.dol.nebraska.gov/nwd/lmi/2009%20Economic%20Outlook.pdf.

North Dakota Labor Market Information Center. November 2009. "North Dakota Workforce Review 2009." *Job Service North Dakota.* http://www.ndworkforceintelligence.com/admin/gsipub/htmlarea/uploads/lmi_ndwr2009edition.pdf.

North Dakota Workforce Intelligence Network. 2009. "North Dakota: The 100 Largest Employers in North Dakota for 2009." *State of North Dakota.* http://www.ndworkforceintelligence.com/admin/gsipub/htmlarea/uploads/lmi_le2009northdakota.pdf.

O*Net Consortium. February 2011. "O*NET Database." *U.S. Department of Labor.* http://www.onetonline.org/.

Office of Revenue and Tax Analysis. July 2010. "Michigan Economic Update." *Michigan Department of Treasury.* http://www.michigan.gov/documents/treasury/MEU-July2010_331757_7.pdf.

Policy Research and Strategic Planning Office. April 2009. "Ohio Major Employers." *Ohio Department of Development.* http://www.development.ohio.gov/research/files/b100000002.pdf.

"ReferenceUSA Database." Accessed February 2011. *Infogroup Reference Division.* http://www.referenceusa.com/Home/Home.

Regional Analysis. September 2010. "The State of Illinois' Economy." *JP Morgan Chase.* https://www.chase.com/ccpmweb/commercial/document/Illinois.pdf.

Schmitt, John, and Heather Boushey. December 2010. "The College Conundrum: Why the Benefits of a College Education May Not Be So Clear, Especially to Men." *Center for American Progress.* http://www.americanprogress.org/issues/issues/2010/12/pdf/college_conundrum.pdf.

South Dakota Governor's Office of Economic Development. February 2011. Personal Correspondence.

"Star Tribune 100: The 20th Annual Report." Accessed February 2011. *Minneapolis-St. Paul Star Tribune.* http://ww3.startribune.com/projects/st100/employeeView.php.

"The 2010 Inc.com 5000." Accessed February 2011. *Inc. Magazine.* http://www.inc.com/inc5000/2010/index.html.

The Big Book: Ranked Lists and Directories of MN Companies. June 2009. "Largest Employers-Top 25: Ranked by Minnesota Employees." *Twin Cities Business.* http://www.tcbmag.com/factfinder/bigbook/largestemployers-top25.aspx.

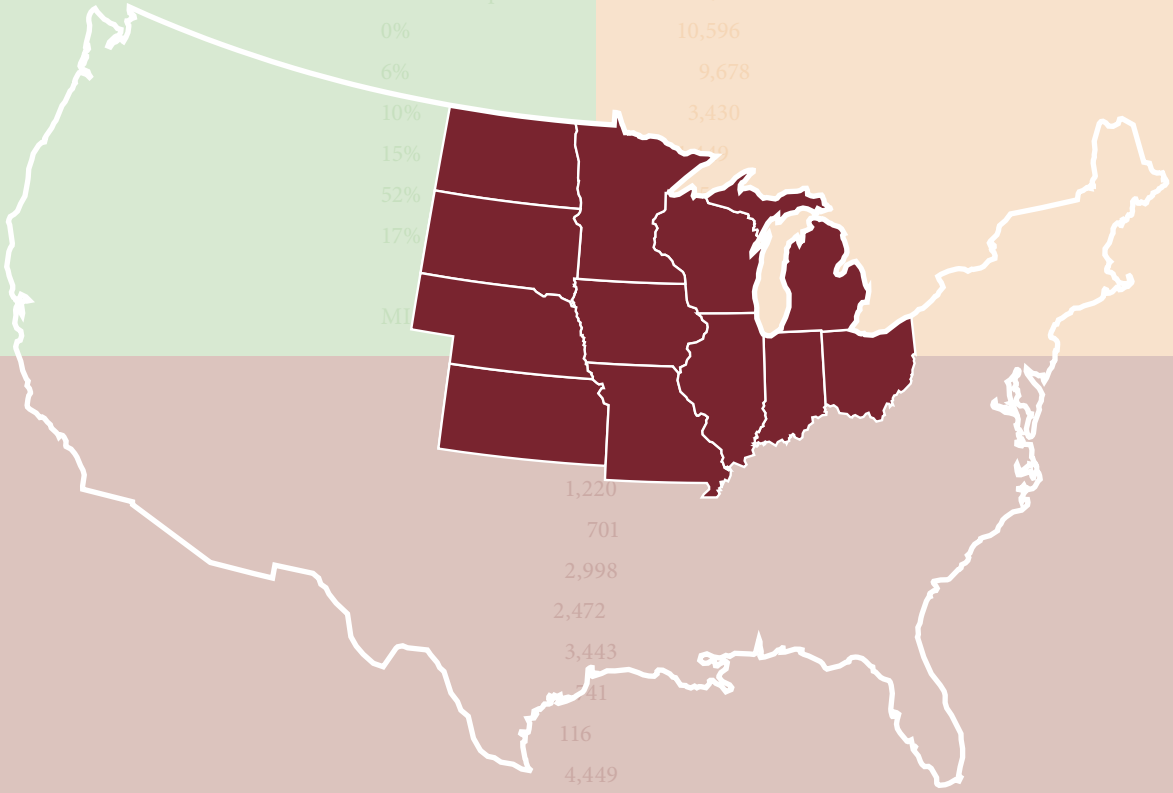
"The Fortune 500: Our Annual Ranking of America's Largest Corporations." February 2011. *CNN Money.* Accessed http://money.cnn.com/magazines/fortune/fortune500/2011/.

Western Wayne Oakland County Association of Realtors. August 2008. "2008 Analysis of Michigan Economic and Housing Market Conditions." *WWOCAR.* http://www.jumpstart-michigan.com/PDF%20Files/WWOCAR%20economic%20report%202008%20final.pdf.

Wisconsin Department of Workforce Development, Division of Workforce Solutions. June 2006. "Manufacturing in Wisconsin: An Industry Perspective." *State of Wisconsin.* http://dwd.wisconsin.gov/dwd/publications/dws/lmi/pdf/dwsi_15233_p.pdf.

Wisconsin Department of Workforce Development. February 2011. "Worknet: Wisconsin's Large Employer Search." *State of Wisconsin.* http://worknet.wisconsin.gov/WORKNET/LARGEMP.ASPX.

MIDWEST REGION



APPENDICES

Appendix 1: Midwest Region: Economic Indicators

- The unemployment rate peaked in June 2010 at 10 percent, but is now below the national average for the region as a whole.
- The consumer price index has been stable for the last six months for urban wage earners and clerical workers.

Data Series	July 2010	Aug 2010	Sept 2010	Oct 2010	Nov 2010	Dec 2010
Labor Force Data						
Civilian Labor Force (1)	34,459	34,406	34,422	34,412	34,447	34,463
Employment (1)	31,205	31,172	31,222	31,233	31,312	31,417
% change in employment		-0.1%	0.2%	-0.0%	0.3%	0.3%
Unemployment (1)	3,254	3,234	3,200	3,179	3,135	3,046
Unemployment Rate (2)	9.4	9.4	9.3	9.2	9.1	8.8
Consumer Price Index						
CPI-U, All items (3)	208	209	209	209	209	209
CPI-U, All items, 12-month % change	1.7	1.5	1.6	1.5	1.2	1.8
CPI-W, All items (4)	204	204	204	204	204	205
CPI-W, All items, 12-month % change	2	1.8	1.9	1.8	1.4	2

Footnotes
(1) Number of persons, in thousands, seasonally adjusted.
(2) In percent, seasonally adjusted.
(3) All Urban Consumers, Base: 1982-84=100, not seasonally adjusted.
(4) Urban Wage Earners and Clerical Workers, Base: 1982-84=100, not seasonally adjusted.

Data extracted on: February 8, 2011
Source: U.S. Bureau of Labor Statistics

Appendix 2: Midwest States: Unemployment Rates

Monthly Rankings Seasonally Adjusted Unemployment Rates March 2011*		
Rank	State	Rate, %
1	North Dakota	3.6
2	Nebraska	4.2
3	South Dakota	4.9
4	Iowa	6.1
5	Minnesota	6.6
6	Kansas	6.8
7	Wisconsin	7.4
8	Indiana	8.5
9	Illinois	8.8
10	Ohio	8.9
11	Missouri	9.1
12	Michigan	10.3
*Provisional		
Source: Bureau of Labor Statistics		

Appendix 3: Real GDP by state (2009 U.S. dollars, in millions)

	Illinois	Indiana	Iowa	Kansas	Michigan	Minnesota
Natural Resources	7,883	4,643	7,427	5,667	3,947	5,664
Construction	25,715	10,184	4,964	4,296	12,171	10,596
Manufacturing	68,852	64,863	23,775	16,765	52,953	31,557
Wholesale and Retail Trade Services	75,665	29,457	15,681	15,809	45,954	31,108
Transportation and Utilities Services	32,774	14,793	7,178	6,827	16,858	10,936
Information Services	22,556	5,892	4,025	7,070	9,277	9,183
Financial Services	69,877	19,788	23,075	8,367	27,168	27,271
Professional and Business Services	89,049	20,141	8,372	12,064	48,204	32,117
Private Education Services	8,071	2,438	1,220	701	2,998	2,472
Healthcare Services	44,565	20,588	9,295	9,250	32,246	23,435
Leisure and Hospitality Services	22,007	9,538	4,177	3,735	12,910	8,667
Personal Services	16,942	6,846	3,266	3,261	9,976	6,468
Government and Public Education Services	63,798	27,633	16,212	18,811	46,284	27,954
Total	547,754	236,804	128,667	112,623	320,946	227,428

	Missouri	Nebraska	North Dakota	Ohio	South Dakota	Wisconsin	Total
Natural Resources	3,617	5,115	3,663	4,481	3,189	4,081	59,377
Construction	9,678	3,430	1,449	15,483	1,398	8,826	108,190
Manufacturing	27,949	9,225	2,743	73,538	3,296	42,347	417,863
Wholesale and Retail Trade Services	30,257	9,899	4,407	58,423	4,678	27,965	349,303
Transportation and Utilities Services	12,702	7,714	2,249	24,302	1,598	11,794	149,725
Information Services	12,476	2,606	1,010	13,412	932	7,565	96,004
Financial Services	16,471	8,984	2,153	45,228	7,297	24,994	280,673
Professional and Business Services	29,276	7,928	1,876	55,813	1,977	21,531	328,348
Private Education Services	3,443	741	116	4,449	253	2,271	29,173
Healthcare Services	19,576	6,322	2,661	41,694	3,240	21,635	234,507
Leisure and Hospitality Services	10,142	2,319	956	14,927	1,404	7,631	98,413
Personal Services	6,949	2,108	756	11,758	942	6,353	75,625
Government and Public Education Services	31,310	11,658	4,366	55,244	4,619	27,432	335,321
Total	213,846	78,049	28,405	418,752	34,823	214,425	2,562,522

Source: Bureau of Economic Analysis, Regional Economic Accounts. NAICS-based real GDP by state statistics.

Appendix 4: Education Distribution by Industry, 2018

STATE	Industry	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
ILLINOIS	Natural Resources	10%	38%	22%	12%	15%	3%	60,900
	Construction	15%	39%	25%	7%	11%	2%	469,300
	Manufacturing	16%	31%	20%	7%	18%	8%	971,300
	Wholesale and Retail Trade Services	9%	30%	26%	9%	22%	5%	873,400
	Transportation and Utilities Services	8%	36%	29%	9%	14%	4%	438,100
	Information Services	2%	15%	24%	9%	36%	14%	167,300
	Financial Services	2%	16%	21%	8%	39%	14%	584,100
	Professional and Business Services	8%	16%	17%	7%	32%	20%	804,200
	Private Education Services	2%	8%	11%	6%	30%	43%	596,200
	Healthcare Services	5%	17%	23%	16%	23%	17%	879,700
	Leisure and Hospitality Services	18%	32%	22%	7%	17%	4%	472,600
	Personal Services	11%	31%	24%	8%	16%	9%	304,700
	Government and Public Education Services	1%	15%	29%	13%	28%	13%	279,100
TOTAL		594,200	1,654,900	1,499,700	621,100	1,620,000	911,100	6,901,000
INDIANA	Natural Resources	19%	42%	17%	7%	12%	3%	40,800
	Construction	14%	46%	20%	8%	9%	2%	234,800
	Manufacturing	10%	40%	22%	8%	16%	5%	668,000
	Wholesale and Retail Trade Services	9%	39%	25%	9%	16%	3%	395,700
	Transportation and Utilities Services	8%	44%	26%	9%	11%	2%	185,200
	Information Services	4%	23%	26%	9%	31%	7%	62,600
	Financial Services	3%	22%	26%	10%	32%	7%	194,800
	Professional and Business Services	7%	23%	20%	9%	28%	12%	257,000
	Private Education Services	2%	15%	12%	5%	31%	35%	273,600
	Healthcare Services	4%	21%	23%	20%	21%	11%	434,500
	Leisure and Hospitality Services	16%	36%	26%	6%	13%	2%	208,200
	Personal Services	11%	34%	22%	9%	16%	7%	139,000
	Government and Public Education Services	1%	24%	28%	13%	25%	9%	115,600
TOTAL		254,400	1,026,800	713,000	316,600	628,500	270,700	3,210,000

**PSVC - Postsecondary vocational certificate.*

STATE	Industry	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
IOWA	Natural Resources	9%	41%	21%	12%	16%	2%	**61,700**
	Construction	9%	44%	26%	11%	9%	1%	**130,400**
	Manufacturing	10%	38%	22%	11%	15%	4%	**312,000**
	Wholesale and Retail Trade Services	5%	35%	27%	13%	17%	3%	**243,900**
	Transportation and Utilities Services	5%	39%	27%	12%	14%	2%	**95,600**
	Information Services	3%	16%	30%	16%	30%	6%	**42,700**
	Financial Services	1%	15%	24%	14%	40%	6%	**156,700**
	Professional and Business Services	5%	20%	24%	14%	25%	11%	**122,800**
	Private Education Services	1%	11%	12%	7%	38%	32%	**165,700**
	Healthcare Services	3%	18%	24%	22%	20%	12%	**253,700**
	Leisure and Hospitality Services	10%	37%	27%	11%	14%	2%	**93,300**
	Personal Services	6%	27%	24%	13%	20%	10%	**76,600**
	Government and Public Education Services	1%	19%	25%	16%	27%	11%	**63,900**
TOTAL		**98,600**	**509,900**	**426,600**	**243,700**	**391,700**	**148,600**	**1,819,000**
KANSAS	Natural Resources	15%	34%	21%	11%	17%	2%	**49,400**
	Construction	18%	39%	25%	6%	11%	2%	**114,100**
	Manufacturing	11%	34%	24%	8%	18%	5%	**261,600**
	Wholesale and Retail Trade Services	7%	31%	29%	9%	21%	4%	**211,600**
	Transportation and Utilities Services	6%	37%	28%	10%	14%	4%	**87,400**
	Information Services	1%	15%	24%	11%	36%	14%	**48,300**
	Financial Services	3%	15%	27%	8%	38%	9%	**109,400**
	Professional and Business Services	7%	16%	20%	8%	32%	16%	**148,900**
	Private Education Services	1%	11%	13%	6%	35%	34%	**172,200**
	Healthcare Services	4%	17%	23%	18%	23%	15%	**224,500**
	Leisure and Hospitality Services	18%	29%	27%	6%	17%	2%	**82,600**
	Personal Services	8%	31%	24%	13%	16%	8%	**70,300**
	Government and Public Education Services	1%	15%	30%	13%	30%	11%	**83,600**
TOTAL		**125,900**	**410,100**	**396,100**	**160,800**	**394,100**	**177,100**	**1,664,000**

**PSVC - Postsecondary vocational certificate.*

STATE	Industry	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
MICHIGAN	Natural Resources	24%	39%	20%	6%	10%	2%	**53,400**
	Construction	12%	41%	30%	7%	9%	2%	**272,700**
	Manufacturing	7%	32%	25%	8%	18%	10%	**900,500**
	Wholesale and Retail Trade Services	7%	35%	29%	9%	17%	3%	**598,100**
	Transportation and Utilities Services	6%	38%	32%	9%	12%	3%	**212,200**
	Information Services	2%	19%	30%	11%	31%	8%	**92,300**
	Financial Services	2%	19%	31%	10%	30%	8%	**280,200**
	Professional and Business Services	6%	19%	22%	10%	28%	15%	**426,700**
	Private Education Services	1%	12%	13%	6%	26%	41%	**399,700**
	Healthcare Services	3%	18%	26%	19%	20%	15%	**658,000**
	Leisure and Hospitality Services	12%	35%	29%	7%	13%	3%	**297,500**
	Personal Services	8%	35%	27%	9%	15%	7%	**200,700**
	Government and Public Education Services	1%	13%	27%	16%	30%	13%	**183,100**
TOTAL		275,300	1,225,200	1,175,400	466,500	910,700	521,900	4,575,000
MINNESOTA	Natural Resources	9%	41%	23%	13%	13%	2%	**62,300**
	Construction	8%	41%	28%	12%	10%	2%	**218,700**
	Manufacturing	8%	30%	22%	12%	22%	7%	**488,900**
	Wholesale and Retail Trade Services	4%	28%	27%	13%	24%	4%	**408,800**
	Transportation and Utilities Services	4%	31%	31%	12%	18%	3%	**151,000**
	Information Services	2%	17%	25%	12%	34%	9%	**71,500**
	Financial Services	1%	15%	24%	10%	40%	10%	**258,800**
	Professional and Business Services	5%	14%	18%	11%	36%	16%	**314,700**
	Private Education Services	1%	9%	13%	6%	32%	40%	**250,100**
	Healthcare Services	3%	16%	23%	19%	24%	15%	**468,800**
	Leisure and Hospitality Services	14%	30%	26%	9%	19%	3%	**178,600**
	Personal Services	6%	27%	27%	13%	19%	8%	**129,400**
	Government and Public Education Services	1%	13%	20%	17%	33%	17%	**108,300**
TOTAL		152,700	715,800	713,200	386,700	796,500	345,100	3,110,000

**PSVC - Postsecondary vocational certificate.*

STATE	Industry	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
MISSOURI	Natural Resources	16%	47%	15%	6%	13%	3%	**46,800**
	Construction	13%	44%	25%	7%	9%	1%	**248,200**
	Manufacturing	10%	39%	22%	7%	15%	6%	**404,800**
	Wholesale and Retail Trade Services	8%	36%	27%	7%	18%	4%	**417,000**
	Transportation and Utilities Services	8%	40%	28%	8%	14%	2%	**179,100**
	Information Services	2%	18%	23%	11%	36%	10%	**79,200**
	Financial Services	2%	21%	27%	7%	33%	10%	**230,600**
	Professional and Business Services	6%	20%	23%	9%	27%	15%	**294,600**
	Private Education Services	2%	10%	11%	5%	30%	41%	**277,300**
	Healthcare Services	5%	21%	24%	16%	20%	14%	**435,700**
	Leisure and Hospitality Services	15%	33%	27%	7%	15%	3%	**196,200**
	Personal Services	10%	33%	24%	8%	18%	8%	**138,300**
	Government and Public Education Services	1%	21%	28%	11%	27%	11%	**152,200**
TOTAL		226,500	896,400	736,100	266,400	638,900	335,700	3,100,000
NEBRASKA	Natural Resources	6%	38%	22%	15%	16%	2%	**47,000**
	Construction	14%	33%	27%	13%	11%	1%	**86,300**
	Manufacturing	19%	32%	23%	10%	13%	3%	**141,400**
	Wholesale and Retail Trade Services	7%	32%	27%	12%	19%	3%	**143,500**
	Transportation and Utilities Services	5%	33%	29%	11%	18%	4%	**70,800**
	Information Services	1%	15%	26%	11%	38%	8%	**22,000**
	Financial Services	1%	14%	27%	10%	42%	6%	**92,400**
	Professional and Business Services	6%	19%	21%	10%	31%	14%	**94,300**
	Private Education Services	1%	9%	12%	7%	36%	35%	**98,200**
	Healthcare Services	2%	17%	23%	18%	23%	16%	**159,500**
	Leisure and Hospitality Services	12%	35%	28%	8%	13%	4%	**57,200**
	Personal Services	7%	26%	25%	16%	18%	8%	**49,800**
	Government and Public Education Services	1%	14%	30%	12%	30%	12%	**46,500**
TOTAL		76,600	270,100	268,300	132,000	255,500	106,400	1,109,000

**PSVC - Postsecondary vocational certificate.*

STATE	Industry	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
NORTH DAKOTA	Natural Resources	4%	34%	25%	18%	18%	1%	32,400
	Construction	9%	39%	24%	17%	9%	1%	31,200
	Manufacturing	5%	35%	28%	13%	15%	3%	37,900
	Wholesale and Retail Trade Services	3%	29%	30%	15%	21%	2%	56,200
	Transportation and Utilities Services	3%	33%	22%	21%	19%	2%	25,800
	Information Services	1%	10%	44%	8%	32%	4%	7,800
	Financial Services	0%	14%	23%	18%	39%	6%	27,500
	Professional and Business Services	4%	12%	23%	18%	35%	9%	31,400
	Private Education Services	1%	11%	10%	8%	42%	28%	38,000
	Healthcare Services	1%	20%	21%	21%	27%	10%	63,200
	Leisure and Hospitality Services	6%	33%	27%	15%	18%	1%	21,000
	Personal Services	2%	28%	25%	17%	18%	10%	16,100
	Government and Public Education Services	1%	12%	26%	19%	33%	9%	24,500
TOTAL		13,200	100,900	99,100	68,200	103,000	28,600	413,000
OHIO	Natural Resources	15%	49%	15%	8%	11%	2%	53,900
	Construction	12%	49%	22%	7%	9%	1%	379,900
	Manufacturing	8%	42%	21%	8%	16%	6%	1,032,600
	Wholesale and Retail Trade Services	7%	38%	25%	8%	18%	3%	774,800
	Transportation and Utilities Services	8%	44%	26%	8%	12%	2%	311,000
	Information Services	1%	22%	24%	10%	33%	10%	116,800
	Financial Services	2%	22%	24%	9%	33%	9%	419,500
	Professional and Business Services	6%	22%	20%	10%	28%	15%	558,800
	Private Education Services	1%	14%	10%	5%	28%	42%	488,700
	Healthcare Services	4%	22%	23%	18%	20%	13%	906,600
	Leisure and Hospitality Services	12%	39%	26%	7%	14%	3%	366,800
	Personal Services	8%	39%	23%	9%	14%	7%	239,500
	Government and Public Education Services	1%	21%	29%	12%	25%	12%	248,200
TOTAL		355,000	1,883,300	1,299,100	578,200	1,171,100	610,300	5,897,000

**PSVC - Postsecondary vocational certificate.*

STATE	Industry	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
SOUTH DAKOTA	Natural Resources	8%	40%	21%	16%	15%	1%	**29,700**
	Construction	11%	44%	25%	11%	8%	1%	**33,400**
	Manufacturing	10%	42%	19%	12%	14%	2%	**51,300**
	Wholesale and Retail Trade Services	5%	39%	27%	11%	16%	2%	**64,900**
	Transportation and Utilities Services	4%	44%	21%	16%	14%	1%	**26,500**
	Information Services	3%	23%	28%	16%	26%	4%	**10,300**
	Financial Services	1%	24%	27%	10%	34%	3%	**42,400**
	Professional and Business Services	3%	14%	24%	16%	27%	15%	**34,200**
	Private Education Services	1%	13%	12%	7%	39%	28%	**39,300**
	Healthcare Services	2%	21%	21%	18%	24%	13%	**75,300**
	Leisure and Hospitality Services	8%	42%	25%	8%	14%	3%	**34,400**
	Personal Services	6%	32%	24%	14%	15%	9%	**18,600**
	Government and Public Education Services	1%	22%	24%	13%	28%	11%	**27,600**
TOTAL		23,300	150,000	110,400	62,600	104,500	37,100	488,000
WISCONSIN	Natural Resources	19%	45%	15%	8%	11%	2%	**69,800**
	Construction	9%	45%	27%	10%	8%	1%	**215,000**
	Manufacturing	9%	40%	21%	10%	15%	4%	**672,700**
	Wholesale and Retail Trade Services	6%	35%	26%	12%	19%	3%	**396,300**
	Transportation and Utilities Services	7%	39%	27%	11%	13%	2%	**165,400**
	Information Services	3%	20%	23%	13%	32%	10%	**67,800**
	Financial Services	1%	22%	24%	11%	34%	8%	**216,200**
	Professional and Business Services	6%	21%	18%	11%	30%	13%	**260,800**
	Private Education Services	1%	9%	10%	6%	32%	42%	**265,800**
	Healthcare Services	4%	21%	22%	19%	22%	14%	**445,100**
	Leisure and Hospitality Services	12%	34%	28%	10%	14%	3%	**178,600**
	Personal Services	7%	32%	26%	12%	16%	7%	**118,200**
	Government and Public Education Services	1%	15%	25%	19%	30%	10%	**120,300**
TOTAL		194,200	951,000	708,200	375,200	661,000	302,500	3,192,000

**PSVC - Postsecondary vocational certificate. Source: Center on Education and the Workforce Projections of Educational demand through 2018.*

Appendix 5: Education Distribution by Occupation, 2018

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
IOWA	Managerial and Professional	Management	3%	23%	11%	19%	33%	10%	101,500
		Business operations specialty	2%	18%	14%	23%	37%	7%	44,400
		Financial specialists	1%	8%	13%	11%	59%	9%	32,700
		Legal	0%	6%	12%	13%	10%	60%	7,500
	STEM	Computer and mathematical science	1%	7%	17%	18%	43%	14%	36,800
		Architects and technicians	0%	10%	45%	21%	21%	4%	4,300
		Engineers and technicians	0%	10%	15%	11%	49%	15%	16,100
		Life & physical scientists	1%	9%	8%	10%	44%	29%	10,100
		Social scientists	0%	6%	4%	10%	33%	48%	5,100
	Community Services and Arts	Community and social services	0%	7%	5%	10%	47%	31%	29,600
		Arts, design, entertainment, sports, and media	1%	9%	16%	18%	46%	11%	27,200
	Education	Education	0%	8%	5%	8%	47%	31%	113,300
	Healthcare	Healthcare professionals	0%	4%	33%	13%	25%	24%	92,200
		Healthcare support	6%	33%	13%	36%	9%	3%	55,900
	Food and Personal Services	Protective services	2%	24%	18%	28%	26%	3%	25,300
		Food preparation and serving	17%	44%	7%	25%	7%	0%	153,600
		Building and grounds cleaning and maintenance	18%	51%	6%	19%	6%	0%	65,500
		Personal care	7%	33%	11%	32%	14%	2%	55,900
	Sales and Office Support	Sales	5%	30%	12%	26%	25%	2%	205,400
		Office and adminis-trative support	4%	32%	15%	32%	15%	2%	261,200
	Blue Collar	Farming, fishing and forestry	16%	54%	5%	17%	7%	0%	17,000
		Construction and extraction	13%	49%	8%	24%	5%	1%	75,800
		Installation, maintenance and equipment repair	7%	40%	19%	28%	5%	1%	70,600
		Production	15%	50%	8%	21%	4%	1%	178,000
		Transportation and material moving	15%	54%	7%	20%	3%	0%	133,500

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
ILLINOIS	Managerial and Professional	Management	2%	14%	8%	18%	37%	20%	367,600
		Business operations specialty	2%	11%	8%	19%	41%	19%	240,200
		Financial specialists	1%	6%	7%	12%	53%	21%	161,800
		Legal	1%	3%	5%	9%	13%	69%	59,700
	STEM	Computer and mathematical science	1%	6%	9%	15%	47%	22%	193,400
		Architects and technicians	1%	7%	13%	14%	44%	22%	19,800
		Engineers and technicians	1%	6%	12%	12%	46%	24%	75,300
		Life & physical scientists	1%	8%	7%	10%	30%	44%	31,200
		Social scientists	0%	2%	2%	5%	33%	58%	28,800
	Community Services and Arts	Community and social services	1%	8%	5%	12%	36%	38%	91,200
		Arts, design, entertainment, sports, and media	2%	9%	8%	17%	49%	15%	106,600
	Education	Education	1%	5%	5%	8%	38%	43%	447,300
	Healthcare	Healthcare professionals	1%	6%	22%	13%	30%	30%	394,300
		Healthcare support	9%	31%	12%	37%	9%	3%	194,000
	Food and Personal Services	Protective services	4%	23%	15%	33%	21%	5%	163,900
		Food preparation and serving	26%	39%	6%	21%	7%	1%	526,000
		Building and grounds cleaning and maintenance	30%	41%	5%	18%	5%	1%	255,600
		Personal care	11%	34%	9%	28%	15%	4%	208,700
	Sales and Office Support	Sales	7%	24%	8%	24%	30%	7%	762,700
		Office and administrative support	5%	31%	12%	34%	15%	3%	1,077,600
	Blue Collar	Farming, fishing and forestry	25%	42%	6%	16%	9%	1%	17,600
		Construction and extraction	20%	43%	7%	23%	6%	1%	257,700
		Installation, maintenance and equipment repair	10%	40%	14%	28%	8%	1%	225,200
		Production	25%	43%	6%	20%	5%	1%	503,900
		Transportation and material moving	21%	47%	5%	20%	5%	1%	490,800

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
INDIANA	Managerial and Professional	Management	4%	21%	9%	21%	31%	13%	150,200
		Business operations specialty	2%	21%	9%	25%	35%	9%	59,200
		Financial specialists	0%	9%	11%	13%	55%	12%	49,900
		Legal	0%	8%	9%	12%	14%	57%	15,700
	STEM	Computer and mathematical science	0%	8%	13%	19%	44%	15%	52,700
		Architects and technicians	0%	10%	30%	17%	32%	12%	10,200
		Engineers and technicians	1%	10%	14%	13%	48%	15%	36,800
		Life & physical scientists	2%	9%	6%	11%	34%	37%	15,900
		Social scientists	0%	3%	1%	8%	31%	58%	6,800
	Community Services and Arts	Community and social services	1%	7%	5%	10%	41%	36%	46,500
		Arts, design, entertainment, sports, and media	2%	16%	12%	20%	40%	11%	42,800
	Education	Education	1%	9%	4%	10%	37%	39%	193,200
	Healthcare	Healthcare professionals	1%	6%	28%	14%	29%	21%	189,800
		Healthcare support	9%	36%	13%	35%	6%	2%	89,000
	Food and Personal Services	Protective services	4%	37%	13%	31%	14%	2%	62,400
		Food preparation and serving	23%	47%	5%	20%	5%	0%	285,700
		Building and grounds cleaning and maintenance	26%	49%	5%	15%	5%	0%	113,200
		Personal care	7%	40%	9%	30%	11%	3%	84,800
	Sales and Office Support	Sales	9%	35%	8%	25%	21%	3%	340,300
		Office and adminis-trative support	5%	38%	10%	32%	13%	2%	470,600
	Blue Collar	Farming, fishing and forestry	35%	44%	4%	12%	4%	1%	12,200
		Construction and extraction	19%	50%	7%	20%	4%	1%	140,100
		Installation, maintenance and equipment repair	11%	45%	14%	24%	5%	0%	144,600
		Production	18%	53%	5%	19%	4%	1%	339,100
		Transportation and material moving	19%	52%	5%	19%	4%	1%	257,200

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
KANSAS	Managerial and Professional	Management	3%	17%	8%	22%	34%	15%	99,000
		Business operations specialty	2%	14%	8%	23%	42%	12%	40,200
		Financial specialists	0%	8%	7%	13%	58%	14%	30,300
		Legal	2%	7%	5%	11%	11%	64%	8,800
	STEM	Computer and mathematical science	1%	7%	9%	20%	48%	15%	36,700
		Architects and technicians	0%	7%	15%	20%	44%	13%	5,200
		Engineers and technicians	1%	11%	10%	13%	47%	18%	25,000
		Life & physical scientists	3%	2%	3%	8%	46%	38%	7,800
		Social scientists	0%	0%	7%	2%	34%	56%	5,500
	Community Services and Arts	Community and social services	1%	7%	6%	11%	38%	37%	24,600
		Arts, design, entertainment, sports, and media	2%	9%	7%	23%	48%	12%	23,900
	Education	Education	1%	7%	6%	12%	40%	35%	111,400
	Healthcare	Healthcare professionals	0%	6%	24%	12%	30%	28%	88,000
		Healthcare support	11%	29%	11%	40%	8%	2%	49,700
	Food and Personal Services	Protective services	1%	19%	14%	37%	22%	7%	32,900
		Food preparation and serving	26%	38%	5%	22%	7%	1%	129,800
		Building and grounds cleaning and maintenance	29%	40%	4%	20%	5%	2%	60,000
		Personal care	8%	36%	10%	32%	12%	2%	47,900
	Sales and Office Support	Sales	6%	25%	7%	28%	29%	5%	178,500
		Office and administrative support	4%	32%	11%	35%	16%	3%	256,100
	Blue Collar	Farming, fishing and forestry	28%	40%	6%	16%	9%	1%	12,800
		Construction and extraction	19%	47%	6%	22%	5%	1%	82,800
		Installation, maintenance and equipment repair	8%	42%	11%	30%	7%	1%	71,000
		Production	19%	46%	6%	22%	6%	1%	131,600
		Transportation and material moving	16%	47%	6%	24%	6%	1%	104,100

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
MICHIGAN	Managerial and Professional	Management	3%	17%	8%	21%	34%	17%	220,100
		Business operations specialty	2%	14%	10%	22%	38%	15%	135,200
		Financial specialists	0%	6%	10%	15%	52%	17%	86,700
		Legal	0%	6%	8%	10%	17%	59%	29,300
	STEM	Computer and mathematical science	0%	6%	12%	17%	45%	20%	108,600
		Architects and technicians	1%	7%	24%	22%	30%	16%	11,700
		Engineers and technicians	0%	5%	11%	13%	44%	26%	115,700
		Life & physical scientists	1%	7%	8%	12%	32%	41%	21,400
		Social scientists	0%	3%	2%	5%	29%	61%	15,500
	Community Services and Arts	Community and social services	2%	7%	6%	13%	36%	36%	67,400
		Arts, design, entertainment, sports, and media	2%	14%	12%	22%	39%	10%	75,900
	Education	Education	1%	6%	6%	9%	35%	43%	274,300
	Healthcare	Healthcare professionals	0%	5%	25%	13%	28%	27%	284,800
		Healthcare support	8%	37%	12%	36%	6%	2%	167,600
	Food and Personal Services	Protective services	3%	18%	20%	35%	20%	3%	81,100
		Food preparation and serving	17%	42%	6%	25%	8%	1%	384,200
		Building and grounds cleaning and maintenance	21%	48%	5%	22%	3%	1%	162,500
		Personal care	11%	37%	9%	32%	10%	2%	139,600
	Sales and Office Support	Sales	7%	31%	9%	27%	22%	4%	515,200
		Office and administrative support	4%	33%	13%	35%	14%	2%	667,200
	Blue Collar	Farming, fishing and forestry	39%	37%	4%	14%	5%	1%	19,000
		Construction and extraction	16%	47%	6%	26%	5%	1%	152,300
		Installation, maintenance and equipment repair	9%	38%	13%	34%	6%	1%	171,300
		Production	14%	47%	7%	26%	5%	1%	387,700
		Transportation and material moving	16%	49%	5%	25%	4%	1%	280,700

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
MINNESOTA	Managerial and Professional	Management	2%	16%	9%	21%	37%	15%	189,900
		Business operations specialty	1%	13%	9%	21%	42%	13%	123,300
		Financial specialists	0%	6%	13%	13%	57%	11%	66,800
		Legal	0%	6%	7%	11%	19%	56%	20,800
	STEM	Computer and mathematical science	1%	4%	12%	18%	50%	15%	96,200
		Architects and technicians	0%	7%	31%	20%	31%	10%	11,100
		Engineers and technicians	0%	7%	14%	12%	50%	17%	44,800
		Life & physical scientists	1%	5%	8%	9%	43%	35%	18,700
		Social scientists	0%	1%	3%	8%	30%	57%	16,800
	Community Services and Arts	Community and social services	1%	8%	6%	12%	44%	29%	72,200
		Arts, design, entertainment, sports, and media	3%	10%	11%	18%	46%	12%	53,600
	Education	Education	0%	7%	4%	9%	39%	41%	177,700
	Healthcare	Healthcare professionals	0%	4%	27%	14%	29%	26%	189,700
		Healthcare support	4%	25%	18%	41%	9%	2%	114,700
	Food and Personal Services	Protective services	4%	13%	26%	23%	29%	5%	52,600
		Food preparation and serving	17%	42%	7%	23%	10%	1%	242,300
		Building and grounds cleaning and maintenance	19%	44%	7%	21%	8%	0%	99,800
		Personal care	7%	30%	13%	33%	16%	2%	119,200
	Sales and Office Support	Sales	3%	23%	11%	27%	31%	5%	332,200
		Office and administrative support	3%	29%	14%	34%	18%	2%	460,200
	Blue Collar	Farming, fishing and forestry	20%	42%	9%	20%	9%	1%	15,000
		Construction and extraction	11%	44%	13%	25%	6%	1%	114,100
		Installation, maintenance and equipment repair	6%	34%	20%	32%	6%	0%	96,800
		Production	15%	44%	10%	24%	5%	1%	215,100
		Transportation and material moving	14%	47%	7%	24%	7%	1%	167,400

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
MISSOURI	Managerial and Professional	Management	5%	19%	8%	22%	30%	16%	153,300
		Business operations specialty	2%	18%	9%	22%	36%	14%	75,100
		Financial specialists	1%	10%	7%	16%	50%	17%	62,300
		Legal	1%	7%	8%	11%	14%	60%	21,600
	STEM	Computer and mathematical science	0%	7%	9%	21%	47%	16%	74,700
		Architects and technicians	0%	5%	23%	23%	38%	10%	9,900
		Engineers and technicians	1%	8%	12%	13%	47%	19%	32,400
		Life & physical scientists	1%	11%	5%	10%	32%	41%	16,200
		Social scientists	0%	4%	5%	6%	38%	48%	9,600
	Community Services and Arts	Community and social services	2%	7%	5%	13%	38%	36%	41,700
		Arts, design, entertainment, sports, and media	2%	13%	9%	19%	44%	12%	46,500
	Education	Education	1%	6%	5%	9%	36%	44%	191,800
	Healthcare	Healthcare professionals	1%	8%	24%	16%	26%	25%	185,400
		Healthcare support	19%	39%	9%	28%	4%	2%	86,600
	Food and Personal Services	Protective services	4%	28%	11%	31%	22%	4%	61,100
		Food preparation and serving	23%	45%	5%	21%	6%	1%	263,600
		Building and grounds cleaning and maintenance	26%	48%	3%	18%	5%	1%	110,800
		Personal care	12%	38%	9%	25%	14%	2%	96,200
	Sales and Office Support	Sales	8%	30%	6%	26%	25%	4%	354,800
		Office and administrative support	4%	36%	8%	35%	14%	2%	497,300
	Blue Collar	Farming, fishing and forestry	31%	41%	4%	16%	6%	1%	12,800
		Construction and extraction	18%	50%	5%	21%	5%	1%	153,800
		Installation, maintenance and equipment repair	12%	44%	13%	25%	5%	1%	128,400
		Production	18%	50%	5%	21%	5%	1%	216,700
		Transportation and material moving	18%	52%	4%	21%	4%	1%	196,700

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
NEBRASKA	Managerial and Professional	Management	2%	23%	11%	21%	32%	11%	53,600
		Business operations specialty	1%	17%	11%	28%	33%	10%	29,200
		Financial specialists	0%	5%	12%	14%	60%	7%	20,700
		Legal	0%	6%	6%	6%	19%	63%	4,700
	STEM	Computer and mathematical science	0%	5%	13%	20%	48%	14%	26,900
		Architects and technicians	0%	7%	31%	22%	34%	8%	3,200
		Engineers and technicians	1%	9%	14%	7%	53%	16%	8,900
		Life & physical scientists	3%	11%	8%	8%	35%	33%	5,100
		Social scientists	0%	0%	1%	8%	38%	53%	4,300
	Community Services and Arts	Community and social services	0%	8%	8%	10%	38%	35%	18,000
		Arts, design, entertainment, sports, and media	2%	12%	13%	24%	41%	8%	16,600
	Education	Education	1%	5%	5%	10%	42%	38%	65,800
	Healthcare	Healthcare professionals	1%	4%	23%	13%	31%	27%	63,600
		Healthcare support	4%	34%	14%	41%	5%	3%	35,700
	Food and Personal Services	Protective services	4%	21%	7%	42%	24%	2%	16,800
		Food preparation and serving	19%	41%	9%	23%	7%	1%	90,000
		Building and grounds cleaning and maintenance	22%	42%	8%	21%	6%	1%	42,000
		Personal care	4%	36%	14%	32%	11%	3%	28,500
	Sales and Office Support	Sales	4%	26%	10%	28%	27%	4%	126,500
		Office and administrative support	3%	28%	13%	35%	18%	2%	177,400
	Blue Collar	Farming, fishing and forestry	20%	39%	13%	16%	11%	0%	10,700
		Construction and extraction	15%	43%	10%	24%	8%	0%	48,500
		Installation, maintenance and equipment repair	8%	33%	25%	26%	7%	1%	45,300
		Production	24%	40%	9%	21%	5%	1%	80,800
		Transportation and material moving	15%	47%	6%	26%	5%	2%	86,000

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
NORTH DAKOTA	Managerial and Professional	Management	2%	22%	15%	21%	34%	7%	26,300
		Business operations specialty	0%	15%	13%	21%	43%	9%	8,200
		Financial specialists	0%	8%	16%	12%	57%	9%	6,000
		Legal	0%	8%	21%	8%	12%	47%	1,600
	STEM	Computer and mathematical science	2%	4%	26%	11%	52%	4%	7,000
		Architects and technicians	0%	24%	30%	9%	26%	10%	1,200
		Engineers and technicians	0%	6%	24%	2%	58%	10%	4,200
		Life & physical scientists	3%	6%	13%	16%	45%	19%	2,400
		Social scientists	0%	2%	0%	0%	58%	39%	800
	Community Services and Arts	Community and social services	0%	6%	7%	10%	45%	32%	5,600
		Arts, design, entertainment, sports, and media	0%	5%	11%	21%	53%	10%	6,400
	Education	Education	0%	5%	5%	7%	53%	30%	24,300
	Healthcare	Healthcare professionals	0%	2%	24%	10%	37%	26%	22,600
		Healthcare support	3%	43%	14%	31%	9%	1%	13,700
	Food and Personal Services	Protective services	2%	21%	19%	21%	35%	2%	5,100
		Food preparation and serving	15%	39%	6%	29%	10%	1%	35,400
		Building and grounds cleaning and maintenance	14%	49%	11%	22%	4%	2%	16,500
		Personal care	7%	25%	15%	40%	13%	1%	15,700
	Sales and Office Support	Sales	4%	25%	15%	28%	25%	3%	48,300
		Office and adminis-trative support	1%	27%	19%	36%	16%	2%	62,200
	Blue Collar	Farming, fishing and forestry	19%	44%	15%	13%	8%	1%	4,600
		Construction and extraction	9%	41%	16%	28%	6%	1%	25,000
		Installation, maintenance and equipment repair	7%	25%	29%	27%	10%	3%	17,200
		Production	10%	46%	13%	26%	5%	0%	24,300
		Transportation and material moving	13%	48%	8%	24%	8%	0%	28,400

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
OHIO	Managerial and Professional	Management	4%	19%	7%	20%	33%	17%	262,100
		Business operations specialty	2%	18%	10%	21%	37%	12%	157,200
		Financial specialists	0%	10%	11%	13%	53%	14%	107,400
		Legal	0%	7%	8%	10%	11%	64%	37,600
	STEM	Computer and mathematical science	1%	8%	14%	18%	45%	15%	142,300
		Architects and technicians	1%	13%	22%	19%	33%	12%	15,400
		Engineers and technicians	0%	10%	14%	12%	45%	18%	74,200
		Life & physical scientists	2%	10%	7%	11%	33%	37%	25,900
		Social scientists	0%	3%	4%	4%	34%	55%	17,300
	Community Services and Arts	Community and social services	2%	9%	7%	12%	37%	32%	83,000
		Arts, design, entertainment, sports, and media	2%	12%	11%	18%	45%	11%	79,100
	Education	Education	1%	8%	4%	8%	34%	46%	345,000
	Healthcare	Healthcare professionals	1%	8%	28%	15%	25%	23%	373,800
		Healthcare support	12%	41%	11%	30%	5%	1%	238,000
	Food and Personal Services	Protective services	4%	30%	11%	35%	17%	3%	122,800
		Food preparation and serving	18%	48%	7%	21%	6%	1%	525,900
		Building and grounds cleaning and maintenance	21%	52%	5%	18%	4%	0%	199,700
		Personal care	7%	44%	9%	25%	12%	2%	155,100
	Sales and Office Support	Sales	7%	33%	8%	25%	23%	4%	632,400
		Office and adminis-trative support	4%	39%	11%	31%	13%	2%	920,600
	Blue Collar	Farming, fishing and forestry	27%	47%	4%	14%	7%	1%	16,700
		Construction and extraction	18%	54%	5%	19%	4%	1%	220,900
		Installation, maintenance and equipment repair	10%	48%	11%	25%	5%	1%	228,600
		Production	15%	56%	5%	19%	4%	1%	492,100
		Transportation and material moving	16%	57%	4%	18%	4%	1%	422,300

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
SOUTH DAKOTA	Managerial and Professional	Management	5%	27%	12%	19%	30%	8%	26,500
		Business operations specialty	1%	10%	15%	17%	50%	8%	8,900
		Financial specialists	4%	7%	11%	19%	52%	7%	9,800
		Legal	0%	16%	8%	6%	21%	50%	2,000
	STEM	Computer and mathematical science	0%	4%	16%	17%	56%	8%	7,600
		Architects and technicians	0%	7%	36%	23%	27%	12%	900
		Engineers and technicians	1%	10%	9%	6%	55%	19%	3,900
		Life & physical scientists	4%	10%	10%	12%	38%	27%	3,600
		Social scientists	0%	0%	0%	12%	42%	42%	1,100
	Community Services and Arts	Community and social services	0%	6%	5%	15%	34%	40%	7,600
		Arts, design, entertainment, sports, and media	0%	14%	13%	35%	27%	11%	8,200
	Education	Education	0%	7%	6%	10%	50%	27%	27,100
	Healthcare	Healthcare professionals	0%	8%	29%	9%	34%	20%	31,200
		Healthcare support	9%	39%	15%	26%	10%	0%	13,000
	Food and Personal Services	Protective services	5%	29%	17%	21%	18%	10%	6,900
		Food preparation and serving	14%	42%	9%	26%	7%	2%	45,100
		Building and grounds cleaning and maintenance	21%	49%	6%	16%	6%	1%	19,900
		Personal care	9%	34%	11%	29%	16%	2%	17,100
	Sales and Office Support	Sales	5%	30%	12%	26%	24%	4%	55,900
		Office and administrative support	3%	35%	13%	29%	18%	2%	77,500
	Blue Collar	Farming, fishing and forestry	15%	53%	6%	19%	7%	1%	4,800
		Construction and extraction	12%	51%	10%	23%	3%	0%	23,900
		Installation, maintenance and equipment repair	6%	37%	23%	27%	7%	0%	18,900
		Production	18%	48%	9%	18%	6%	1%	33,500
		Transportation and material moving	15%	53%	6%	21%	5%	0%	31,700

State	Occupations (Broad)	Occupations (Specific)	Less than High School	High School/ GED	Some College/ PSVC*	Associate's Degree	Bachelor's Degree	Graduate Degree	Total
WISCONSIN	Managerial and Professional	Management	3%	21%	9%	18%	33%	16%	156,100
		Business operations specialty	1%	17%	12%	21%	38%	11%	88,200
		Financial specialists	1%	9%	16%	12%	50%	12%	54,100
		Legal	1%	7%	12%	8%	11%	60%	15,800
	STEM	Computer and mathematical science	1%	5%	16%	15%	50%	13%	65,600
		Architects and technicians	0%	8%	33%	19%	31%	8%	13,300
		Engineers and technicians	1%	9%	17%	15%	46%	12%	43,000
		Life & physical scientists	0%	10%	7%	8%	41%	35%	22,800
		Social scientists	0%	3%	3%	5%	22%	67%	9,700
	Community Services and Arts	Community and social services	0%	8%	7%	11%	37%	37%	42,600
		Arts, design, entertainment, sports, and media	1%	12%	15%	20%	43%	9%	48,300
	Education	Education	1%	7%	5%	8%	39%	40%	176,600
	Healthcare	Healthcare professionals	0%	5%	28%	11%	31%	24%	185,900
		Healthcare support	9%	33%	15%	33%	8%	2%	111,600
	Food and Personal Services	Protective services	4%	19%	22%	27%	25%	3%	57,000
		Food preparation and serving	18%	43%	8%	25%	6%	1%	269,500
		Building and grounds cleaning and maintenance	19%	52%	6%	18%	5%	0%	111,700
		Personal care	8%	32%	11%	33%	14%	3%	105,000
	Sales and Office Support	Sales	5%	30%	11%	25%	26%	4%	329,400
		Office and adminis-trative support	4%	35%	13%	30%	15%	2%	462,600
	Blue Collar	Farming, fishing and forestry	24%	51%	6%	9%	8%	2%	22,600
		Construction and extraction	12%	50%	9%	23%	5%	1%	127,500
		Installation, maintenance and equipment repair	8%	41%	18%	27%	6%	0%	117,600
		Production	14%	52%	8%	21%	5%	1%	333,800
		Transportation and material moving	16%	54%	5%	21%	4%	0%	222,400

Appendix 6: Largest Employers (by employment numbers) by State

State	Rank*	List	Industry**	Type	Data Source and Year
ILLINOIS		Advocate Healthcare	Healthcare services	PRIVATE	AUTHORS' CORRESPONDENCE WITH THE STATE OF ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, USING DUN AND BRADSTREET, INFOUSA, AND REVIEW/ INPUT FROM IDES LOCAL LABOR MARKET ECONOMISTS, AS OF 2009
		Caterpillar	Manufacturing	PRIVATE	
		Dayton Hudson (Target)	Wholesale and retail trade services	PRIVATE	
		Jewel-Osco	Wholesale and retail trade services	PRIVATE	
		Motorola	Manufacturing	PRIVATE	
		SBC	Information services	PRIVATE	
		State Farm Insurance	Financial services	PRIVATE	
		United Parcel Service (UPS)	Transportation and utilities services	PRIVATE	
		Walgreens	Wholesale and retail trade services	PRIVATE	
		Wal-Mart	Wholesale and retail trade services	PRIVATE	
INDIANA	1	Wal-Mart Stores Inc	Wholesale and retail trade services	PUBLIC	AUTHORS' CORRESPONDENCE WITH THE INDIANA CHAMBER OF COMMERCE, AS OF 2009
	2	Federal Government	Government and public education services	FEDERAL GOVERNMENT	
	3	State of Indiana	Government and public education services	STATE GOVERNMENT	
	4	Indiana University Health (Clarian)	Healthcare	PRIVATE	
	5	Indiana University	Government and public education services	STATE GOVERNMENT	
	6	Purdue University	Government and public education services	STATE GOVERNMENT	
	7	Eli Lilly and Co	Manufacturing	PUBLIC	
	8	Franciscan Alliance	Healthcare services	PRIVATE	
	9	Ascension Health	Healthcare services	PRIVATE	
	10	Meijer Inc	Wholesale and retail trade services	PRIVATE	

State	Rank*	List	Industry**	Type	Data Source and Year
IOWA		Allied/Nationwide Mutual Insurance	Financial services	PRIVATE	IOWA WORKFORCE DEVELOPMENT EMPLOYMENT STATISTICS BUREAU, "STATE OF IOWA: 2010 ANNUAL PROFILE." http://www.iwin.iwd.state.ia.us, AS OF 2010
		Crst Intl.	Transportation and utilities services	PRIVATE	
		Deere & Co.	Manufacturing	PRIVATE	
		Heartland Express o`f Iowa	Transportation and utilities services	PRIVATE	
		Iowa Health System	Healthcare services	PRIVATE	
		Mercy Medical Center	Healthcare services	PRIVATE	
		Pella Corp.	Manufacturing	PRIVATE	
		Principal Financial Group	Financial services	PRIVATE	
		Rockwell Collins	Manufacturing	PRIVATE	
		St. Luke's Hospital	Healthcare services	PRIVATE	
		Transamerica Life Insurance	Financial services	PRIVATE	
		Tyson Fresh Meats	Manufacturing	PRIVATE	
		Wells Fargo	Financial services	PRIVATE	
KANSAS		Department of Defense	Government and public education services	FEDERAL GOVERNMENT	AUTHORS' CORRESPONDENCE WITH LABOR MARKET INFORMATION SERVICES IN THE KANSAS DEPARTMENT OF LABOR, AS OF 2010
		Department of Veterans Affairs	Government and public education services	FEDERAL GOVERNMENT	
		Dillon Companies Inc	Wholesale and retail trade services	PRIVATE	
		Hawker Beechcraft Corporation	Manufacturing	PRIVATE	
		Johnson County School District Usd 233	Government and public education services	LOCAL GOVERNMENT	
		Kansas State University (367)	Government and public education services	STATE GOVERNMENT	
		Post Office Postal Data Center	Government and public education services	FEDERAL GOVERNMENT	
		Shawnee Mission Unified School District Usd 512	Government and public education services	LOCAL GOVERNMENT	
		Spirit Aerosystems, Inc.	Manufacturing	PRIVATE	
		Sprint United Management Company	Information services	PRIVATE	
		Stormont-Vail Healthcare	Healthcare services	PRIVATE	
		The Cessna Aircraft Company	Manufacturing	PRIVATE	
		United Parcel Service Inc	Transportation and utilities services	PRIVATE	
		University of Kansas (682)	Government and public education services	STATE GOVERNMENT	
		University of Ks Hosp Authority	Healthcare services	PRIVATE	
		Via Christi Hospitals Wichita, Inc.	Healthcare services	PRIVATE	
		Wal-Mart Associates, Inc.	Wholesale and retail trade services	PRIVATE	
		Wichita Public Schools	Government and public education services	LOCAL GOVERNMENT	

State	Rank*	List	Industry**	Type	Data Source and Year
MICHIGAN		Beaumont Hospital	Healthcare services	PRIVATE	REFERENCE USA DATABASE, AS OF 2010 (ALL COMPANIES LISTED WITH OVER 10,000 EMPLOYEES)
		Blogett Hospital	Healthcare services	PRIVATE	
		Delphi Thermal Systems	Manufacturing	PRIVATE	
		Detroit Receiving Hospital	Healthcare services	PRIVATE	
		Fred & Lena Meijer Heart Ctr	Healthcare services	PRIVATE	
		Rehabilitation Institute of MI	Healthcare services	PRIVATE	
		Southern Lithoplate	Wholesale and retail trade services	PRIVATE	
		Spectrum Health Butterworth	Healthcare services	PRIVATE	
		University of Michigan, Ann Arbor	Government and public education services	STATE GOVERNMENT	
		St. Luke's Hospital	Healthcare services	PRIVATE	
		Transamerica Life Insurance	Financial services	PRIVATE	
		Tyson Fresh Meats	Manufacturing	PRIVATE	
		Wells Fargo	Financial services	PRIVATE	
MINNESOTA	1	State of Minnesota	Government and public education services	STATE GOVERNMENT	TWIN CITIES BUSINESS, "LARGEST EMPLOYERS - TOP 25." http://www.tcbmag.com/factfinder/big-book/largestemployers-top25.aspx, AS OF 2009.
	2	Mayo Foundation	Healthcare services	PRIVATE	
	3	U.S. Federal Government	Government and public education services	FEDERAL GOVERNMENT	
	4	Target Corporation	Wholesale and retail trade services	PRIVATE	
	5	Allina Health System	Healthcare services	PRIVATE	
	6	Fairview Health Services	Healthcare services	PRIVATE	
	7	Wells Fargo	Financial services	PRIVATE	
	8	Wal-Mart Stores	Wholesale and retail trade services	PRIVATE	
	9	University of Minnesota	Government and public education services	STATE GOVERNMENT	
	10	3M Company	Manufacturing	PRIVATE	

State	Rank*	List	Industry**	Type	Data Source and Year
MISSOURI		Barnes-Jewish Hospital	Healthcare services	PRIVATE	AUTHORS' CORRESPONDENCE WITH THE MISSOURI ECONOMIC RESEARCH AND INFORMATION CENTER, MISSOURI DEPARTMENT OF ECONOMIC DEVELOPMENT, AS OF 2010
		Lester E. Cox Medical	Healthcare services	PRIVATE	
		Lowe's Home Centers, Inc.	Wholesale and retail trade services	PRIVATE	
		Schnuck Markets, Inc.	Wholesale and retail trade services	PRIVATE	
		St. John's Mercy Health	Healthcare services	PRIVATE	
		St. John's Regional Health	Healthcare services	PRIVATE	
		St. Louis University	Private educational services	PRIVATE	
		The Boeing Company	Manufacturing	PRIVATE	
		The Washington University	Private educational services	PRIVATE	
		Wal-Mart Associates, Inc.	Wholesale and retail trade services	PRIVATE	
NEBRASKA	1	Tyson Foods, Inc.	Manufacturing	PRIVATE	NEBRASKA DEPARTMENT OF ECONOMIC DEVELOPMENT, AS OF 2005, EMPLOYERS VERIFIED AS CURRENT THROUGH REFERENCEUSA DATABASE, AS OF 2011
	2	Wal-Mart	Wholesale and retail trade services	PRIVATE	
	3	Union Pacific Corporation	Transportation and utilities services	PRIVATE	
	4	Alegent Health	Healthcare services	PRIVATE	
	5	First Data Corp.	Information services	PRIVATE	
	6	Mutual of Omaha Ins. Co.	Financial services	PRIVATE	
	7	Hy-Vee Food Stores	Wholesale and retail trade services	PRIVATE	
	8	First National of Nebraska Inc	Financial services	PRIVATE	
	9	Nebraska Methodist Health System	Healthcare services	PRIVATE	
	10	Burlington Northern	Transportation and utilities services	PRIVATE	

State	Rank*	List	Industry**	Type	Data Source and Year
NORTH DAKOTA	1	Not disclosed	-----	PRIVATE	NORTH DAKOTA WORKFORCE INTELLIGENCE NETWORK. http://www.ndworkforceintelligence.com/admin/gsipub/htmlarea/uploads/lmi_le2009northdakota.pdf, AS OF 2009
	2	Altru Health System	Healthcare services	PRIVATE	
	3	Meritcare Hospital	Healthcare services	PRIVATE	
	4	Trinity Health	Healthcare services	PRIVATE	
	5	Medcenter One	Healthcare services	PRIVATE	
	6	St Alexius Medical Center	Healthcare services	PRIVATE	
	7	Meritcare	Healthcare services	PRIVATE	
	8	Clark Equipment Company	Manufacturing	PRIVATE	
	9	Innovis Health	Healthcare services	PRIVATE	
	10	Meritcare Health System	Healthcare services	PRIVATE	
OHIO	1	Wal-Mart Stores, Inc	Wholesale and retail trade services	PRIVATE	"OHIO MAJOR EMPLOYERS." http://www.development.ohio.gov/research/files/b100000002.pdf, AS OF 2009
	2	Kroger Co	Wholesale and retail trade services	PRIVATE	
	3	Cleveland Clinic Health System	Healthcare services	PRIVATE	
	4	Catholic Healthcare Partners	Healthcare services	PRIVATE	
	5	Ohio State University	Government and public education services	PRIVATE	
	6	Wright-Patterson Air Force Base	Armed forces	Government	
	7	University Hospitals	Healthcare services	PRIVATE	
	8	Jp Morgan Chase & Co	Financial services	PRIVATE	
	9	Giant Eagle, Inc	Wholesale and retail trade services	PRIVATE	
	10	Sears Holdings Corp (Sears & Kmart)	Wholesale and retail trade services	PRIVATE	

State	Rank*	List	Industry**	Type	Data Source and Year
SOUTH DAKOTA	1	Avera	Healthcare services	PRIVATE	AUTHORS' CORRESPONDENCE WITH THE SOUTH DAKOTA GOVERNOR'S OFFICE OF ECONOMIC DEVELOPMENT, AS OF 2010.
	2	Sanford Health (Includes Sioux Valley Clinic)	Healthcare services	PRIVATE	
	3	Wal-Mart	Wholesale and retail trade services	PRIVATE	
	4	Regional Health	Healthcare services	PRIVATE	
	5	Not Disclosed	Not disclosed	PRIVATE	
	6	Wells Fargo	Financial services	PRIVATE	
	7	Hy-Vee Food Stores	Wholesale and retail trade services	PRIVATE	
	8	John Morrell & Company	Manufacturing	PRIVATE	
	9	Citibank	Financial services	PRIVATE	
	10	Evangelical Good Samaritan Society	Healthcare services	PRIVATE	
WISCONSIN	1	Wal-Mart Associates Inc	Wholesale and retail trade services	PRIVATE	WISCONSIN DEPARTMENT OF WORKFORCE DEVELOPMENT. http://worknet.wisconsin.gov/worknet/largemp.aspx, AS OF 2010
	2	Menards	Wholesale and retail trade services	PRIVATE	
	3	Aurora Healthcare Metro, Inc	Healthcare services	PRIVATE	
	4	Marshfield Clinic	Healthcare services	PRIVATE	
	5	Ultra Mart Foods Llc	Wholesale and retail trade services	PRIVATE	
	6	Gundersen Lutheran Administrative	Healthcare services	PRIVATE	
	7	Kohler Co	Manufacturing	PRIVATE	
	8	Aurora Medical Group Inc	Healthcare services	PRIVATE	
	9	Target	Wholesale and retail trade services	PRIVATE	
	10	Prime Care Health Plan	Healthcare services	PRIVATE	

**Those not ranked are listed in alphabetical order.*
*** Industry assigned by authors' research and NAICS codes contained in ReferenceUSA database.*

Appendix 7: Fastest-Growing Companies by State (Selected Companies)

State	Source	Rank	Company Name	Industry*
ILLINOIS	Fortune	5	Kapstone Paper and Packaging	Manufacturing
	Fortune	6	SXC Health Solutions	Wholesale and Retail Trade Services
	Fortune	22	Allscripts-Misys Healthcare Solutions	Wholesale and Retail Trade Services
	Fortune	46	DeVry, Inc.	Private Educational Services
	Fortune	48	LKQ	Wholesale and Retail Trade Services
	Inc.com	6	Coyote Logistics	Transportation and Utilities Services
	Inc.com	59	Dean Media	Professional and Business Services
INDIANA	Inc.com	10	Kpaul	Wholesale and Retail Trade Services
	Inc.com	39	Appliance Zone	Wholesale and Retail Trade Services
IOWA	Inc.com	40	Involta	Information Services
KANSAS	Fortune	38	Compass Minerals International	Natural Resources
	Inc.com	129	Platinum Realty	Financial Services
	Inc.com	325	InfoSync Services	Financial Services
	Inc.com	418	Complete Landscaping Systems	Professional and Business Services
	Inc.com	447	VinSolutions	Professional and Business Services
MINNESOTA	Star-Tribune**	1	Capella Education Co.	Private Educational Services
	Star-Tribune	2	Datalink Corp.	Information Services
	Star-Tribune	3	Compellent Technologies Inc.	Information Services
	Star-Tribune	4	Xata Corp.	Information Services
	Star-Tribune	5	AGA Medical Holdings Inc.	Manufacturing
	Star-Tribune	6	Synovis Life Technologies Inc.	Manufacturing
MISSOURI	Fortune	40	Olin	Manufacturing
	Fortune	65	Stifel Financial	Financial Services
	Fortune	75	Ralcorp Holdings	Manufacturing
	Fortune	99	Panera Bread	Food and Personal Services

State	Source	Rank	Company Name	Industry*
NEBRASKA	Fortune	58	The Buckle	Wholesale and Retail Trade Services
	Inc.com	527	Five Nines Technology Group	Professional and Business Services
	Inc.com	689	DocuLynx	Information Services
NORTH DAKOTA	Inc.com	159	Appareo Systems	Manufacturing
OHIO	Fortune	54	First Financial Bancorp	Financial Services
	Fortune	85	TransDigm Group	Manufacturing
	Inc.com	23	MFS Supply	Wholesale and Retail Trade Services
	Inc.com	68	InsuranceAgents.com	Financial Services
SOUTH DAKOTA	Inc.com	4827	Outdoor Motor Sports	Wholesale and Retail Trade Services
WISCONSIN	Fortune	9	Bucyrus International	Manufacturing
	Inc.com	227	Zeon Solutions	Professional and Business Services
	Inc.com	304	Interfacial Solutions	Professional and Business Services
	Inc.com	404	Everything2go.com	Wholesale and Retail Trade Services
	Inc.com	628	DiscountOfficeItems.com	Wholesale and Retail Trade Services
	Inc.com	778	Sajan	Wholesale and Retail Trade Services

** Industry assigned by authors' research and NAICS codes contained in ReferenceUSA Database.*
***100 Largest publicly held companies in state by revenue, sorted by employment percent change between 2009-2010, http://ww3.startribune.com/projects/st100/*

Appendix 8: Detailed Analysis of BLS/Census Discrepancy in Education Requirements of Jobs (Midwest States)

ILLINOIS				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	251,212	4%	527,715	8%
Bachelor's degree	1,125,677	18%	1,323,383	21%
Master's degree	85,756	1%	533,909	8%
1st professional degree	87,520	1%	140,724	2%
Doctoral degree	123,385	2%	72,286	1%
Combined	**1,673,550**	**26%**	**2,598,017**	**41%**

GAP: 41% - 26% = 15%
BLS undercount of postsecondary educational demand in Illinois in 2008: 931,926

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	334,227	5%	NA	
Work experience in a related occupation	623,507	10%		
Long-term on-the-job-training	461,670	7%		
Moderate-term on-the-job-training	1,021,598	16%		
Short-term on-the-job-training	2,240,734	35%		
Combined	**4,681,736**	**74%**	**3,728,944**	**59%**

INDIANA				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	123,106	4%	268,842	9%
Bachelor's degree	390,975	13%	533,414	17%
Master's degree	31,762	1%	183,737	6%
1st professional degree	36,327	1%	46,250	2%
Doctoral degree	34,484	1%	30,074	1%
Combined	**616,654**	**20%**	**1,062,317**	**34%**

GAP: 34% - 20% = 14%
BLS undercount of postsecondary educational demand in Indiana in 2008: 448,960

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	187,463	6%	NA	
Work experience in a related occupation	305,872	10%		
Long-term on-the-job-training	226,384	7%		
Moderate-term on-the-job-training	613,532	20%		
Short-term on-the-job-training	1,146,925	37%		
Combined	**2,480,176**	**80%**	**2,017,957**	**66%**

IOWA				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	61,165	4%	185,203	11%
Bachelor's degree	231,885	14%	295,463	18%
Master's degree	16,310	1%	78,940	5%
1st professional degree	14,745	1%	23,646	1%
Doctoral degree	14,040	1%	15,642	1%
Combined	**338,145**	**20%**	**598,894**	**37%**

GAP: 37% - 20% = 17%
BLS undercount of postsecondary educational demand in Iowa in 2008: 269,804

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	97,285	6%	NA	
Work experience in a related occupation	138,065	8%		
Long-term on-the-job-training	194,290	12%		
Moderate-term on-the-job-training	284,155	17%		
Short-term on-the-job-training	608,120	37%		
Combined	**1,321,915**	**80%**	**1,016,711**	**63%**

KANSAS				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	59,270	4%	127,494	9%
Bachelor's degree	239,070	16%	305,863	21%
Master's degree	15,120	1%	99,135	7%
1st professional degree	16,380	1%	27,415	2%
Doctoral degree	28,250	2%	12,559	1%
Combined	**358,090**	**24%**	**572,466**	**39%**

GAP: 39% - 24% = 15%
BLS undercount of postsecondary educational demand in Kansas in 2008: 219,363

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	90,580	6%	NA	
Work experience in a related occupation	145,700	10%		
Long-term on-the-job-training	98,420	7%		
Moderate-term on-the-job-training	261,720	18%		
Short-term on-the-job-training	522,930	35%		
Combined	**1,119,350**	**76%**	**884,399**	**61%**

MICHIGAN				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	18,431	4%	424,008	9%
Bachelor's degree	62,926	14%	797,072	17%
Master's degree	8,062	2%	343,478	8%
1st professional degree	6,275	1%	90,552	2%
Doctoral degree	8,727	2%	48,779	1%
Combined	**104,421**	**23%**	**1,703,889**	**37%**

GAP: 37% - 23% = 15%

BLS undercount of postsecondary educational demand in Michigan in 2008: 671,837

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	27,985	6%	NA	
Work experience in a related occupation	35,103	8%		
Long-term on-the-job-training	35,255	8%		
Moderate-term on-the-job-training	83,403	18%		
Short-term on-the-job-training	177,107	38%		
Combined	**358,853**	**77%**	**2,874,911**	**63%**

MINNESOTA				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	131,753	5%	300,679	11%
Bachelor's degree	504,430	18%	636,353	23%
Master's degree	44,981	2%	192,676	7%
1st professional degree	40,462	1%	61,863	2%
Doctoral degree	52,941	2%	33,675	1%
Combined	**774,567**	**27%**	**1,225,246**	**43%**

GAP: 43% - 27% = 16%

BLS undercount of postsecondary educational demand in Minnesota in 2008: 453,773

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	161,077	6%	NA	
Work experience in a related occupation	255,446	9%		
Long-term on-the-job-training	215,632	8%		
Moderate-term on-the-job-training	421,555	15%		
Short-term on-the-job-training	1,000,000	35%		
Combined	**2,053,710**	**73%**	**1,591,733**	**57%**

MISSOURI				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	127,260	4%	224,684	8%
Bachelor's degree	430,420	15%	515,541	18%
Master's degree	42,550	1%	193,784	7%
1st professional degree	35,370	1%	53,341	2%
Doctoral degree	33,640	1%	31,957	1%
Combined	**669,240**	**23%**	**1,019,307**	**35%**

GAP: 35% - 23% = 12%

BLS undercount of postsecondary educational demand in Missouri in 2008: 351,726

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	197,490	7%	NA	
Work experience in a related occupation	226,330	8%		
Long-term on-the-job-training	197,650	7%		
Moderate-term on-the-job-training	493,470	17%		
Short-term on-the-job-training	1,098,650	38%		
Combined	**2,213,590**	**77%**	**1,856,378**	**65%**

NEBRASKA				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	53,485	5%	98,151	10%
Bachelor's degree	178,827	16%	189,308	20%
Master's degree	16,266	1%	53,835	6%
1st professional degree	12,505	1%	16,990	2%
Doctoral degree	13,002	1%	7,235	1%
Combined	**274,085**	**25%**	**365,519**	**38%**

GAP: 38% - 25% = 13%

BLS undercount of postsecondary educational demand in Nebraska in 2008: 126,331

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	107,263	10%	NA	
Work experience in a related occupation	93,778	9%		
Long-term on-the-job-training	54,957	5%		
Moderate-term on-the-job-training	177,090	16%		
Short-term on-the-job-training	385,278	35%		
Combined	**818,366**	**75%**	**587,840**	**62%**

NORTH DAKOTA				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	14,011	4%	52,918	15%
Bachelor's degree	44,320	11%	75,010	21%
Master's degree	4,485	1%	13,992	4%
1st professional degree	4,055	1%	3,645	1%
Doctoral degree	4,293	1%	3,571	1%
Combined	**71,164**	**18%**	**149,136**	**42%**

GAP: 42% - 18% = 24%

BLS undercount of postsecondary educational demand in North Dakota in 2008: 841,113

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	30,094	8%	NA	
Work experience in a related occupation	32,524	8%		
Long-term on-the-job-training	51,472	13%		
Moderate-term on-the-job-training	61,264	16%		
Short-term on-the-job-training	143,751	37%		
Combined	**319,105**	**82%**	**207,458**	**58%**

OHIO				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	248,000	4%	476,729	9%
Bachelor's degree	816,280	14%	963,785	17%
Master's degree	91,510	2%	371,366	7%
1st professional degree	70,970	1%	99,190	2%
Doctoral degree	57,910	1%	56,453	1%
Combined	**1,284,670**	**23%**	**1,967,523**	**36%**

GAP: 36% - 23% = 13%
BLS undercount of postsecondary educational demand in Ohio in 2008: 714,065

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	364,730	6%	NA	
Work experience in a related occupation	505,220	9%		
Long-term on-the-job-training	447,570	8%		
Moderate-term on-the-job-training	978,260	17%		
Short-term on-the-job-training	2,097,630	37%		
Combined	**4,393,410**	**77%**	**3,572,606**	**64%**

SOUTH DAKOTA				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	20,640	5%	63,936	10%
Bachelor's degree	52,595	12%	128,397	20%
Master's degree	6,710	1%	40,863	6%
1st professional degree	5,455	1%	15,289	2%
Doctoral degree	3,335	1%	6,125	1%
Combined	**88,735**	**20%**	**254,610**	**40%**

GAP: 40% - 20% = 20%

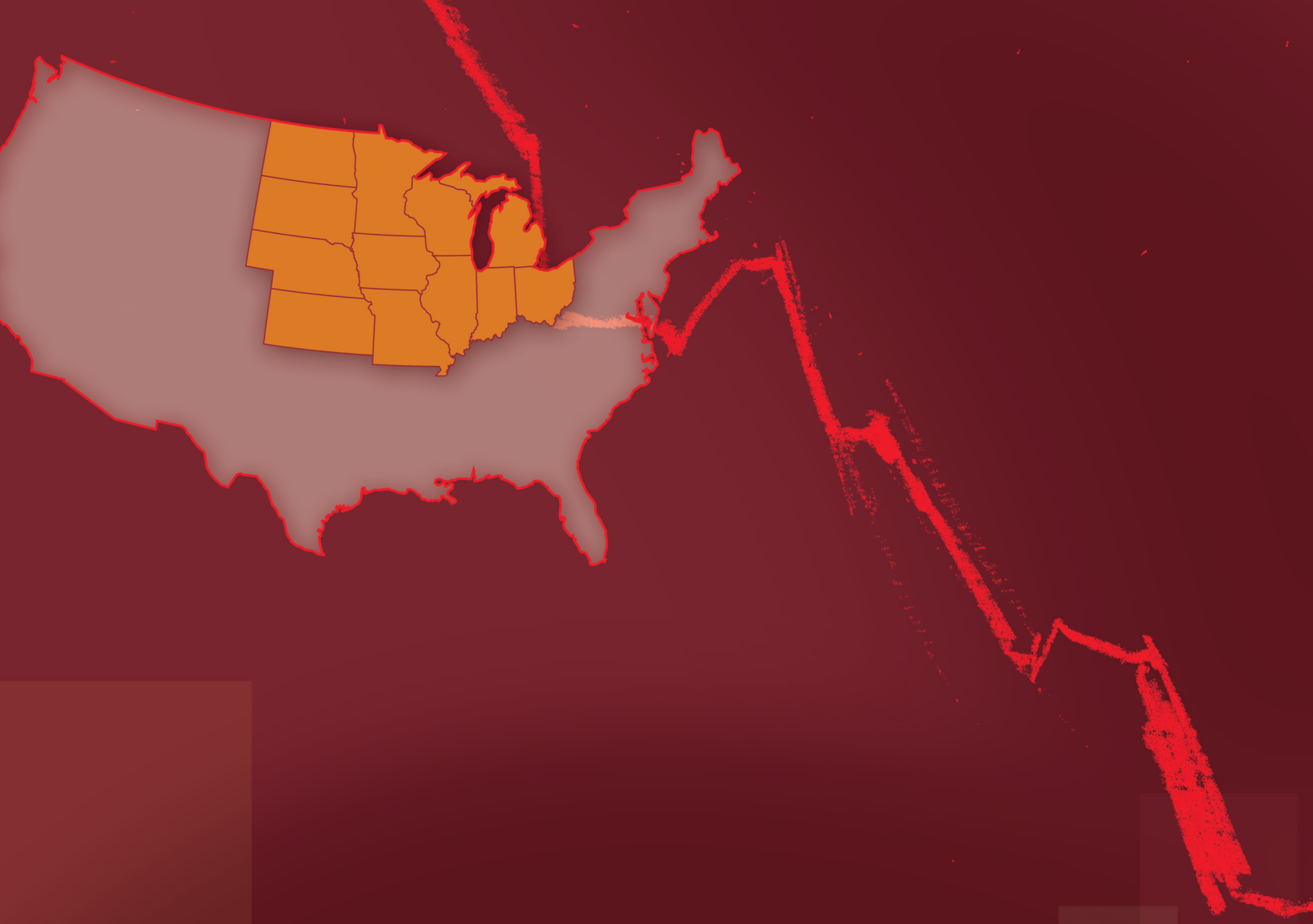
BLS undercount of postsecondary educational demand in South Dakota in 2008: 130,655

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	28,855	6%	NA	
Work experience in a related occupation	30,210	7%		
Long-term on-the-job-training	51,925	12%		
Moderate-term on-the-job-training	74,620	17%		
Short-term on-the-job-training	176,935	39%		
Combined	**362,545**	**80%**	**375,788**	**60%**

WISCONSIN				
Education and Training Requirements	BLS 2008		ACS 2008	
	#	%	#	%
Associate's degree	117,460	4%	325,628	10%
Bachelor's degree	484,520	16%	673,167	21%
Master's degree	38,350	1%	243,739	8%
1st professional degree	37,550	1%	68,752	2%
Doctoral degree	81,490	3%	41,103	1%
Combined	**759,370**	**24%**	**1,352,389**	**42%**

GAP: 42% - 24% = 18%
BLS undercount of postsecondary educational demand in Wisconsin in 2008: 565,658

Work experience requirements	BLS 2008		ACS 2008	
	#	%	#	%
Postsecondary vocational training	192,330	6%	NA	
Work experience in a related occupation	262,880	8%		
Long-term on-the-job-training	208,440	7%		
Moderate-term on-the-job-training	540,380	17%		
Short-term on-the-job-training	1,142,560	37%		
Combined	**2,346,590**	**76%**	**1,865,481**	**58%**



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The Midwest Challenge: Matching Jobs with Education in the Post-Recession Economy is the second of a series of reports detailing the job and educational demand prospects for workers by major census regions.

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