CONEXUS INDIANA

2012 MANUFACTURING + LOGISTICS

Indiana Report

The 2012 Manufacturing and Logistics Indiana Report shows how the state ranks among its peers in several areas of the economy that underlie the success of manufacturing and logistics.

These specific measures include: manufacturing and logistics industry health, human capital, cost of worker benefits, diversification of the industries, state-level productivity and innovation, expected fiscal liability, tax climate, and global reach.

About Conexus Indiana

Conexus Indiana is a private sector-led initiative focused on the advanced manufacturing and logistics sectors—two industries that combined employ more than one of every five Hoosiers. We are focused on making Indiana a global manufacturing and logistics leader by strengthening the state's human capital, building industry partnerships to capitalize on new opportunities and address key challenges, and promoting a better understanding of the importance of these industries to our economic future.

Conexus Indiana's most urgent mission is building tomorrow's manufacturing and logistics workforce, preparing Hoosiers to take advantage of high-tech careers in these exciting fields. We are also focused on developing a unified strategy to enhance our logistics capabilities, linking manufacturers with in-state suppliers to streamline supply chains and spur investment in Indiana, and undertaking other strategic projects that will help the manufacturing and logistics sectors thrive here at the Crossroads of America.

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About Ball State CBER

The Center for Business and Economic Research (CBER) is an economic policy and forecasting research center housed within Ball State University's Miller College of Business. CBER research encompasses health care, public finance, regional economics, transportation, and energy sector studies.

The center produces the CBER Data Center—a one-stop shop for economic data, policy analysis, and regional demographics—and the Indiana Business Bulletin—a weekly newsletter with commentary on current issues and regularly updated data on housing, wages, employment, and dozens of other economic indicators.

In addition to research and data delivery, the center serves as the business forecasting authority in the Muncie area—holding the annual Indiana Economic Outlook luncheon and quarterly meetings of the Ball State University Business Roundtable.

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CENTER FOR BUSINESS AND ECONOMIC RESEARCH

2012 MANUFACTURING + LOGISTICS

Grades for Indiana

State Overview

June 2012 marks the third anniversary of the end of a recession in which the rebound has been markedly poor. A full understanding of the reasons for the tepid recovery nationwide will take some years to fully understand, yet a few potential culprits are now emerging. Uncertainty over business costs, most especially health care and federal taxes, changes to lending requirements (both regulatory and market based), and a mismatch between worker skills and job openings are likely perpetrators of a slow recovery.

The world has emerged unevenly from the recession. The BRIC nations (Brazil, Russia, India and China) have recently seen some slowing economic activity. In Europe, unprecedented fiscal strains and a turbulent financial system and frightened financial markets have plunged the continent into a recession. This recession will slow the U.S. economy. Another U.S. recession, either in 2012 or 2013 is the most likely consequence of this European slowdown.

As we move farther away from the Great Recession, manufacturing production has returned to pre-recession levels. Manufacturing employment in Indiana continues to be strong, but in keeping with productivity trends is slightly lower than the 2007 levels. News about Indiana's manufacturing sector remains mostly good. Important fiscal reforms in Indiana have left Hoosier businesses with a sense of tax certainty that is notably absent in much of the nation (reflected in the new 'expected liability gap' category, which assesses exposure to public debt and therefore the risk of future tax increases or services cutbacks). The passage of right-to-work legislation marks an important milestone for many Hoosier businesses, and changes to legislation affecting school choice and performance hold forth hope for a more productive labor force. These changes are designed to be long run adjustments to the economic climate of Indiana, and cannot, by themselves alter the short run risks that accompany a world and national slowdown.

State Grade History and Comparison with Other Midwestern States

SUBJECT	INDIANA GRADES BY YEAR					OTHER MIDWESTERN STATES IN 2012								SUBJECT
	2008	2009	2010	2011	2012	IL	IA	KY	MI	MN	MO	OH	WI	
MANUFACTURING INDUSTRY HEALTH	A	A	A	A	**A**	C	A	B	A	B-	C	A	B+	MANUFACTURING INDUSTRY HEALTH
LOGISTICS INDUSTRY HEALTH	B-	B-	B+	A	**A**	A	B	B	C+	B	B	A	B-	LOGISTICS INDUSTRY HEALTH
HUMAN CAPITAL	D+	D+	C-	C	**C-**	C	B	D-	D	A	C	C	B+	HUMAN CAPITAL
WORKER BENEFIT COSTS	C	C	C	C	**D+**	D-	C	C	D	C	B+	D	D-	WORKER BENEFIT COSTS
TAX CLIMATE	A	A	A	A	**A**	F	D-	C	C-	F	A	C	D+	TAX CLIMATE
EXPECTED LIABILITY GAP	NEW CATEGORY				**B**	F	B-	D-	C-	B	B	D+	A	EXPECTED LIABILITY GAP
GLOBAL REACH	A	A	A	A	**A**	B	C-	B+	B+	C	C	A	C	GLOBAL REACH
SECTOR DIVERSIFICATION	–	–	C-	C	**C+**	C	C-	B+	D-	C	B+	B-	C	SECTOR DIVERSIFICATION
PRODUCTIVITY *and* INNOVATION	C	C	C	C+	**B+**	B	C	D	A	B	C	C	C	PRODUCTIVITY *and* INNOVATION

Quick Facts

» Indiana has received straight As in manufacturing, tax climate, and global reach for five consecutive years.

» Indiana has consistantly improved its grades in logistics, benefit costs, diversification, and productivity/innovation.

» Indiana exports manufactured goods to every continent except Antarctica.

» Manufacturing workers earn roughly 50 percent more than non-manufacturing workers who have the same level of education.

More Online

Visit the Manufacturing and Logistics Report website to find a methodology for grade calculation, a glossary of terms, national grades for each category, and a full performance history for each state: conexus.cberdata.org

Examining Indiana's Performance

Manufacturing Industry Health: A

Indiana remained strong in this year's scorecard, holding on to its A in the manufacturing industry. The category measures the size of each sector and its compensation of workers.

Logistics Industry Health: A

Similarly, Indiana remained maintained an A in the logistics sector as whole. These sector measures include the relative size, earnings, transportation flows and investment in infrastructure affecting this sector.

Human Capital: C-

The state dropped its human capital grade. The state saw large relative declines in several areas, including first year retention rates at community and technical colleges, the share of associates degrees awarded on a per capita basis, and in 8th grade mathematics tests scores. Smaller declines occurred in high school graduation rates and younger workers with associate's degrees. This is concerning given the primacy of importance in human capital in Indiana's economic future. What remains unknown is how much these declines are related to the great recession. The past four years have seen significant declines in all these metrics throughout the nation, and so it is possible the relative changes in Indiana's rankings is due to transient, not permanent changes. Transient changes could be factors such as a larger number of students remaining in community and technical colleges, but not graduating, or one time policies in other states that accelerated degree awards. This is an area that must receive special attention in the coming years.

Worker Benefit Costs: D+

Indiana also saw a decline in its worker benefit rankings, but in this case the changes were accompanied by both good and bad news. Health care premiums dropped significantly as did fringe benefit costs in total. Long-term health care costs saw a relative increase as did federal health-related expenditures in the state. Workers' compensation rates declined modestly.

Tax Climate: A

Rankings in tax climate remained constant as an A, which represents an important consideration in expansion and relocation considerations for firms.

Expected Liability Gap: B

Indiana received a B in its expected liability with very strong showings in bond ratings (a tie for 1st place) and total unfunded liability as a percentage of GDP. Average benefits as a share of GDP and unfunded state pension and bond funds on a per capita prevented the state from moving into solid A range.

See 'manufacturing situation' on the next page for greater examination.

Global Reach: A

Indiana remained a very robust A in its global reach, but with a somewhat slowing rate of export growth.

Sector Diversification: C+

The state moved from a C to C+ in sector diversification, an important improvement in the automobile and automotive intensive state.

Productivity and Innovation: B+

Likewise, the state moved up to a B+ in productivity and innovation, with dramatic gains in manufacturing value added and patents.

Figure 1. Capital-Labor Ratio of Earnings in State Manufacturing

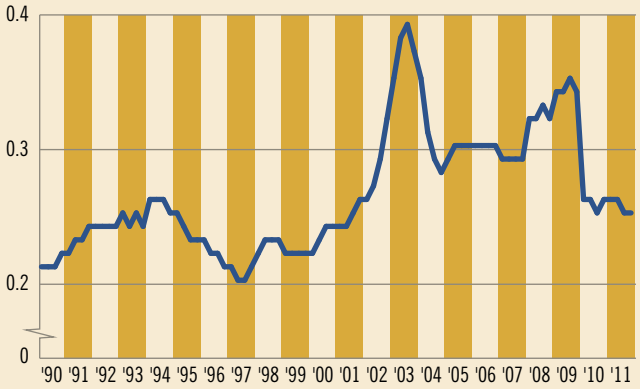


Figure 2. Earnings to Capital and Labor in State Manufacturing (Percent Change by Quarter)

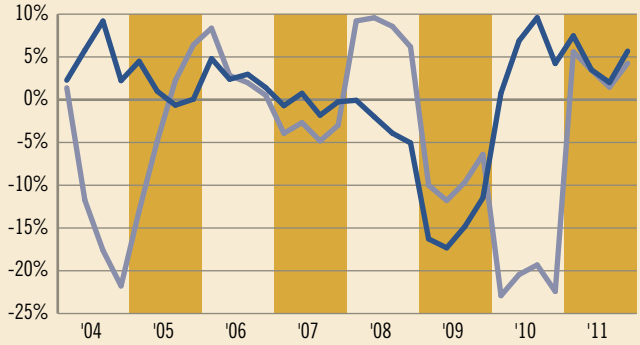
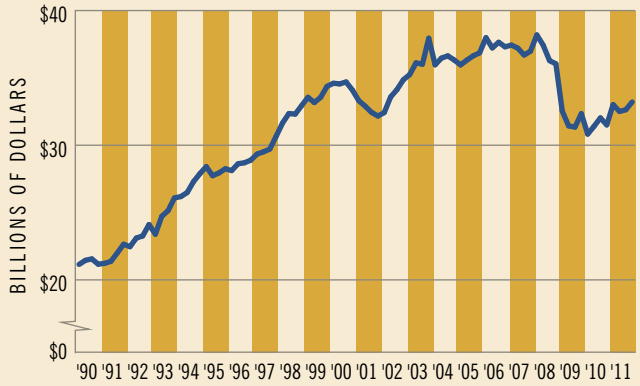


Figure 3. Durable Manufacturing Earnings in Indiana (Not Seasonally Adjusted)



The Manufacturing Situation

In 2011 we predicted growth in Indiana's manufacturing sector to stabilize a bit from the blistering recovery of 2010. That appears to have been the outcome, with manufacturing production expected to continue to grow through any forecast horizon. However, this likely means a return to trend on employment growth, with productivity reducing the demand for workers, albeit at a much reduced pace from the 2002-2007 period. This is evidenced by the capital labor ratio's of payments within Indiana's manufacturing sector. The dramatic job losses which accompanied the post-2001 recession were accompanied by very high payments to non-wage earnings (primarily payments to capital and rents). This again occurred through the great recession, but has since diminished. This may signal a period of more stable levels of employment in manufacturing. *See Figure 1.*

Similarly, year-over-year changes to earnings by owners of plant and equipment and workers have harmonized in the post-recession period. Along with the stable capital-labor ratio, this may suggest a period of lower volatility in manufacturing employment has emerged in the state. *See Figures 2 and 3.*

Future revenue demands by state and local governments are an increasing concern to footloose industries (*see grades for expected liability gap*). In particular, pension obligations in many states offer an unattractive choice between higher taxes and fewer public services. Accompanying this policy concern is an increased likelihood of political strife associated with changes to pension and health care benefits for state and local government workers.

Estimates of the size of these obligations vary dramatically, and we have here reported conservative estimates. It is worth noting that credible research suggests even higher levels of per capita debt for many states than we use here (though the relative state rankings are unchanged). This is because the actuarial estimates of fund growth are often unrealistically high, as they are based on a long term moving average that has seen a financial bubble. Likewise, the decline in the labor force over the previous 36 months suggests an increase in the retirement rate among eligible workers, a trend that will further unbalance the funds.

Indiana's unfunded liability (as reported in this study) is $1,879 per person. This is a tractably low figure, and allows the state to enjoy the highest levels of credit security and bond rankings. This is a virtuous cycle which reduces the cost of financing this obligation, and mitigates the potential ill effects on public services, public workers and tax payers. Under the most conservative numbers available, liability per person is $5,427 in Illinois; $1,725 in Michigan; $5,544 in Ohio; and $4,088 in Kentucky.

Data at the municipal level paints a difficult picture of financing. For example, there are estimates of Chicago's unfunded liability which place it in excess of $35,000 per resident. These are not figures which can be repaid through taxation, but rather will lead to dramatic cuts in pensions, health benefits and public sector employment. This will likely be accompanied by higher taxes in a combination of policy measures commonly called austere.

These differentials will matter greatly in business location and expansion decisions for firms able to choose their places of operations. Indiana is likely to benefit from this outcome.

The 2012-2013 Forecast

The past 12 months (June 2011 through June 2012) saw Indiana manufacturing rebound dramatically. Production of goods in nearly every category rose, with employment and significant announcements of new investment marking this exciting period. As the scorecard indicates, Indiana continues to be a place where manufacturing can grow, and as of the most recent Labor Department data, Indiana had roughly one of every seven new jobs created nationwide. Unfortunately, the economy faces challenges that will dramatically change this prediction for the coming year.

Since January, nearly every important global indicator of business activity has remained flat or declined. In the United States, job growth has shrunk for four consecutive months and is now beneath the rate at which the unemployment rate will remain steady. Consumer sentiment is flat and retail sales have declined for four months to a zero rate of growth for May 2012. Inventories are rising, new factory orders in the most manufacturing-intensive regions have declined, and serious discussion about additional fiscal stimulus has gripped the Federal Reserve. Together this signals a much slowed U.S. economy.

Internationally, Europe has entered a recession, with several nations, (notably, Spain, Greece, and Portugal) seeing accompanying unemployment at Great Depression levels. Systemic risk in the financial markets is leading to sporadic, but dramatic runs on national banks in these nations, and an overall period of significant risk in Europe insures an even slower rate of growth in the U.S. Simultaneously, China's economy has slowed dramatically, spawning a large fiscal stimulus. Brazil's economy has weakened to the point that its central bank has cut rates to historic lows, and Indiana's economy has halved output growth in two quarters. Any rebound from the previously fast growing BRIC nations will prove elusive during this downturn. Canada's government has announced it is preparing for a new recession, as have a number of other important, but less closely tied nations. The economy is at a very dangerous stretch, where the probability of a recession in the United States is very high. Indeed, it is likely that a formal declaration of a national recession will be dated to early 2012.

Despite its favorable business climate, Indiana's manufacturing and logistics sectors will not fail to avoid slower growth. We predict statewide that manufacturing will slow in both quarters, with a year-over-year growth rate of 1 percent. *See Figure 4.* Bloomington, the greater Cincinnati area (including an expanded Indiana region), and the Indiana counties adjacent to Louisville will experience growth in excess of 1.5 percent. Muncie will see growth of nearly 2 percent as new manufacturing facilities come online, and the Michigan City region will see annual growth of just over 2 percent. Terre Haute and Lafayette will see growth over 1 percent during this period. Importantly, this prediction suggests no decline in manufacturing income over this period in any metropolitan area of the state. This is in sharp contrast to the experience of the past business cycles in which Indiana manufacturing has slowed significantly.

The greatest threat to this forecast remains the stability of European monetary union and the viability of the European financial system. This is the issue the global economic community will be watching closely throughout the next year or longer.

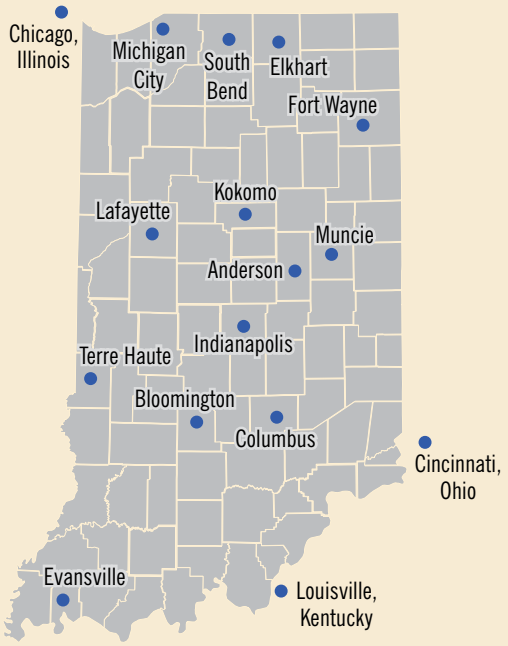


Figure 4. Manufacturing Forecast for Indiana Metro Areas, 2012-2013

METRO AREA	Q3-Q4 2012	Q1-Q2 2013	ANNUAL AVERAGE
INDIANA	*1.60%*	*0.50%*	*1.00%*
ANDERSON, IN	1.08%	0.32%	0.70%
BLOOMINGTON, IN	2.32%	0.64%	1.48%
CHICAGO-JOLIET-NAPERVILLE, IL-IN-WI	0.49%	0.14%	0.32%
CINCINNATI-MIDDLETOWN, OH-KY-IN (incl. Ripley, Jefferson, & Switzerland Counties)	2.17%	0.63%	1.40%
COLUMBUS, IN	1.20%	0.35%	0.78%
ELKHART-GOSHEN, IN	0.42%	0.12%	0.27%
EVANSVILLE, IN-KY	2.49%	0.72%	1.60%
FORT WAYNE, IN	0.41%	0.12%	0.26%
INDIANAPOLIS-CARMEL, IN	0.13%	0.04%	0.08%
KOKOMO, IN	0.81%	0.24%	0.52%
LAFAYETTE, IN	1.95%	0.57%	1.26%
LOUISVILLE-JEFFERSON COUNTY, KY-IN	2.55%	0.74%	1.64%
MICHIGAN CITY-LA PORTE, IN	3.14%	0.91%	2.03%
MUNCIE, IN	3.02%	0.88%	1.95%
SOUTH BEND-MISHAWAKA, IN-MI	0.75%	0.22%	0.48%
TERRE HAUTE, IN	1.96%	0.57%	1.27%

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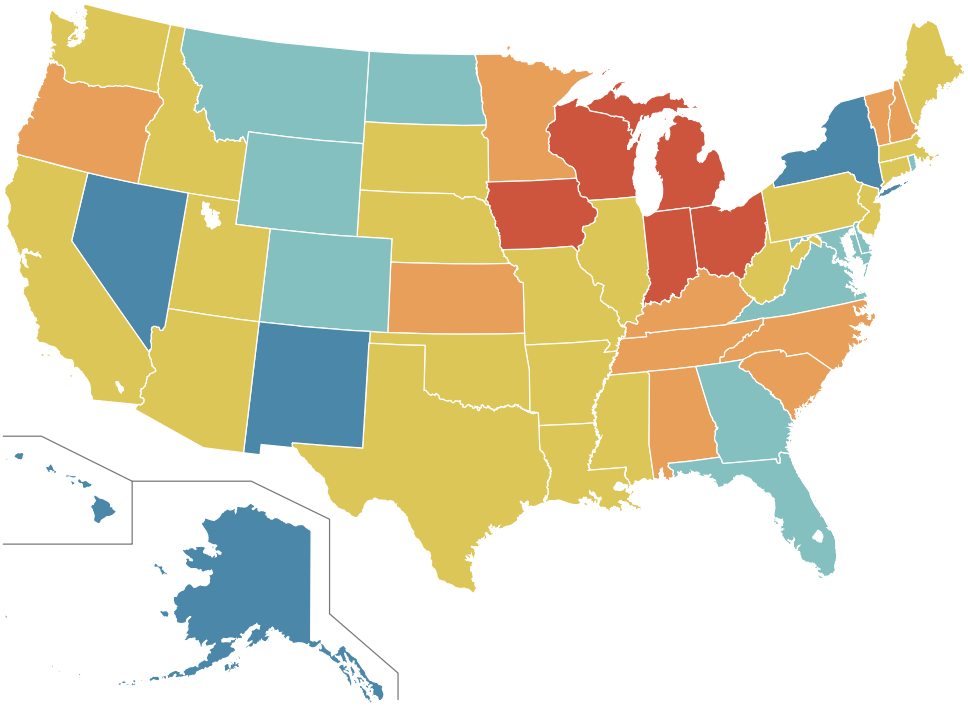
Categories + Grades

Grading Scale

A B C D F

A methodology for grade calculation and a glossary of terms can be found at the back, along with the 2012 National Scorecard. The online version of this report includes category grades and a full performance history for each state: conexus.cberdata.org

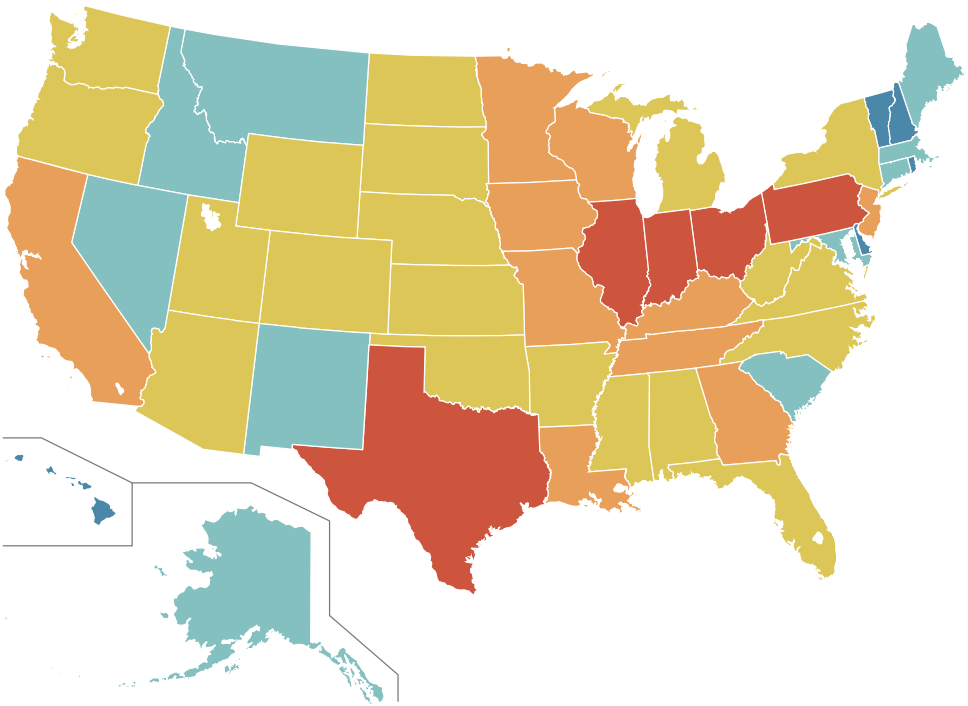


Manufacturing Industry Health

The production of goods holds a particular place of interest in the U.S. economy. Manufacturing firms are not necessarily reliant on local demand for goods and are therefore footloose. Their location then depends more on local factors such as the quality and availability of the labor force, transportation infrastructure, non-wage labor costs, access to innovative technologies, and the cost of doing business. Manufacturing is the production of both consumer durable goods (e.g. automobiles, electronics, and home appliances that last for years) and consumer non-durable goods (e.g. clothing, processed foods, and other goods that are consumed after use).

To measure manufacturing industry health, we include three variables—the share of total income earned by manufacturing employees in each state, the wage premium paid to manufacturing workers relative to the other states' employees, and the share of manufacturing employment per capita.

Sources: U.S. Department of the Census and Bureau of Economic Analysis.

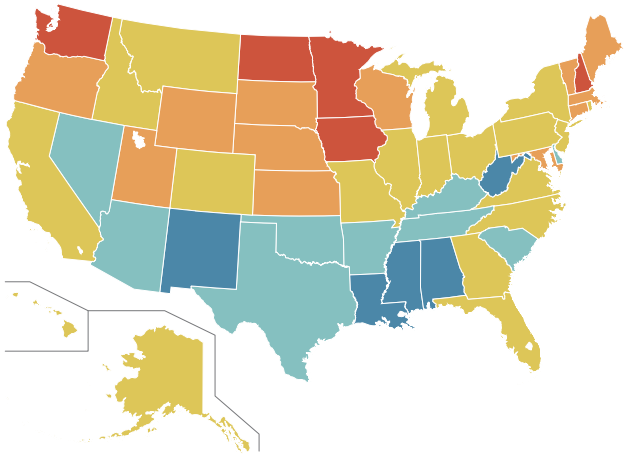


Logistics Industry Health

The movement of goods is of central importance to the production of goods. Without a robust logistics industry, manufacturing and commodity production will not occur. Logistics comprises not merely the capacity to move goods, but to store inventory and manage the distribution and processing of manufactured goods. Logistics firms depend upon many of the same factors as manufacturing firms in their location decision, but there is a more complex interplay between local conditions and the existing or planned transportation networks of roads, railroads, waterways, and airports.

To measure the health of the logistics industry, we include the share of total logistics industry income as a share of total state income, and the employment per capita. We also include commodity flows data by both rail and road. To this we measure infrastructure spending as the per capita expenditure on highway construction.

Sources: U.S. Department of the Census, Bureau of Economic Analysis, and U.S. Department of Transportation Center for Transportation Statistics.

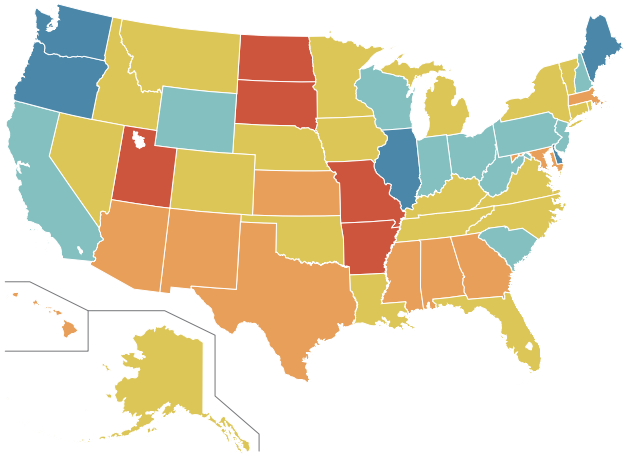


Human Capital

No factor matters more to businesses than the quality and availability of labor. Workers represent the largest single cost of doing business, but, more importantly, they are the source of most innovation and process improvements that distinguish successful firms from those that are not successful. Because produced goods have a high degree of value dependent on each individual worker in a production line or transportation leg or hub, a uniformly high quality of workers is required. These workers must possess the ability to understand increasingly complex production processes that today are mostly managed by computers with specialized software. The factories, rail yards, distribution facilities, and machine shops of today are complex, highly technical, and dependent on workers who can work successfully in this environment. Human capital (especially quality of educational background) is the most important factor in firm location decisions.

Our human capital measurements include rankings of educational attainment at the high school and collegiate level, the first-year retention rate of adults in community and technical colleges, the number of associates degrees awarded annually on a per capita basis, and the share of adults enrolled in adult basic education.

Sources: National Center for Educational Statistics and U.S. Department of the Census.

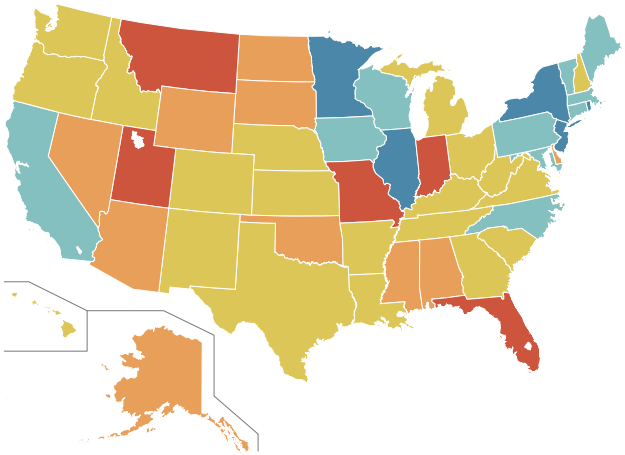


Worker Benefit Costs

Non-wage labor costs represent an increasingly important part of total business costs. These are affected by local and state public policy (laws), as well as worker demographics and health, and industry and firm performance. Benefits range from a variety of health care issues to liability and casualty insurance, workers' compensation, and other costs including retirement and other fringe benefits.

To measure benefit costs, we include data on health care premiums and long-term health care costs, workers' compensation costs per worker, and fringe benefits of all kinds as a share of worker costs.

Sources: American Association of Retired Persons (AARP), Bureau of Economic Analysis, IMPLAN, and authors' calculations.

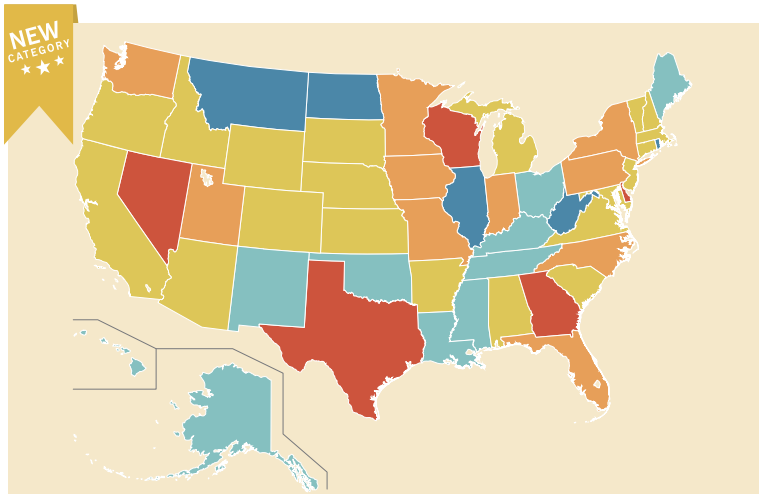


Tax Climate

Few factors garner as much policy interest as do state and local taxes. For firms that may operate virtually anywhere, tax rates (along with the quality of local public goods) matter a great deal in location decisions. Business taxes, individual income taxes (both on workers and small business), sales, unemployment, insurance and property taxes all play a role in assessing regions for a potential employer location.

To measure the tax climate, we use data on corporate taxes, income and sales and use taxes, property and unemployment insurance tax data collected by the Tax Foundation.

Sources: Tax Foundation and U.S. Internal Revenue Service.

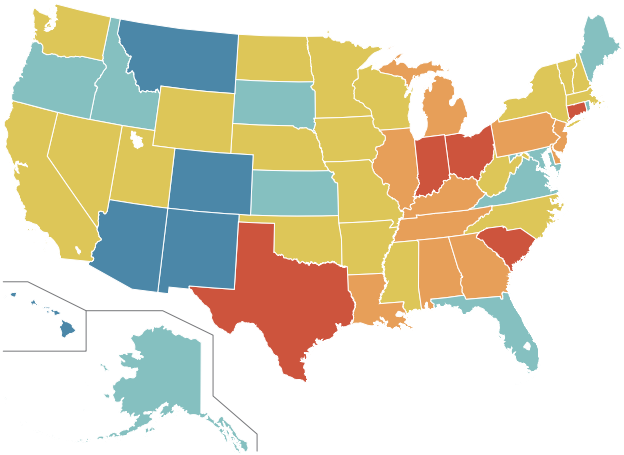


Expected Liability Gap

State and local governments throughout the U.S. purchase bonds for infrastructure improvement and provide pensions and health care for workers. Typically these bonds are paid for by a dedicated revenue stream from local or state finances. Pension obligations are typically funded in an actuarially evaluated fund. However, many states have failed to provide a direct funding stream to bond obligations or fully fund pension plans. This leads to unfunded bond and pension liabilities. These unfunded liabilities represent an expected state fiscal liability gap, which is a good indicator of the direction of future taxes and public services.

To measure the expected liability gap, we include data on unfunded liability per capita and percentage of GDP, average benefits, and bond rankings.

Sources: Boston College Center for Retirement Research, U.S. Department of the Census 2012 Statistical Abstract, and Bureau of Economic Analysis.

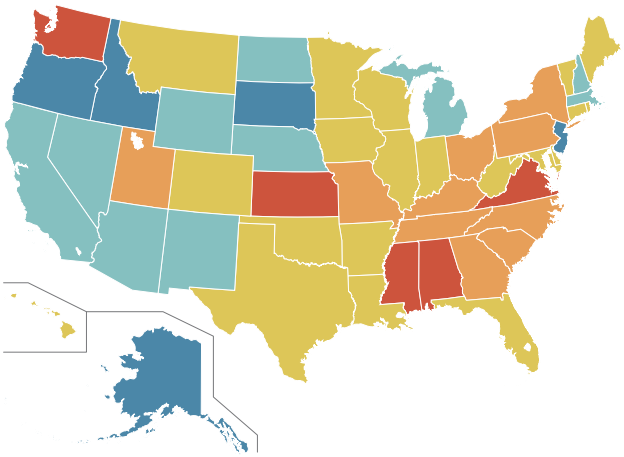


Global Reach

The level of international trade—both in exports and imports—is a robust measure of the region's competitiveness in the production, movement and distribution of consumer durable and non-durable goods. Both firms and regional governments focus considerable effort at improving ties with foreign firms, but for different reasons. Governments seek foreign investment in plant and equipment, while firms care about supplier relationships on both commodities and finished goods. Of course, manufacturers want to make goods with a global market appeal. How well this is done is an important predictor of the health of state manufacturing and logistics sectors into the future.

To measure global reach, we include the export-related measures of per capita exported manufacturing goods, the growth of manufacturing exports, and the foreign direct investment measures of the amount of manufacturing income received annually from foreign-owned firms in a state, the level of adaptability of the state's exporters to changing demand, as well as the reach of foreign direct investment.

Sources: U.S. Department of Commerce International Trade Administration and Bureau of Economic Analysis.

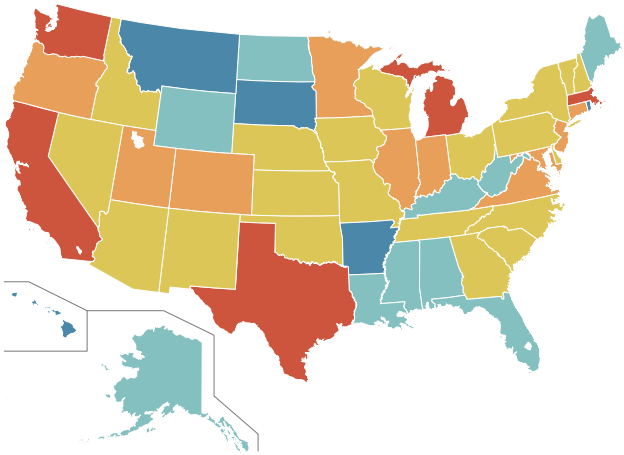


Sector Diversification

There are both risks and rewards to economic diversification. States that concentrate their manufacturing activity in a single sector typically suffer higher volatility in employment and incomes over a business cycle and are also more likely to experience greater effects of structural changes to the economy involving a single sector. One potential benefit of low levels of economic diversification is that the resulting agglomeration economies often emerge in highly specialized regions. As a consequence, policies that seek to diversify the economy are typically pursued in concert with efforts to strengthen the supply chain of existing industries.

We calculate each state's diversification of manufacturing activity using the Herfindahl-Hirschman Index. We calculate the total share of income for each NAICS manufacturing sector at the 2-digit level, then add the squares of all 22 subsectors. We then rank each state from the most (No. 1) to the least (No. 50) diverse.

Sources: Bureau of Economic Analysis, North American Industrial Classification System (NAICS), and authors' calculations.



Productivity and Innovation

The value of manufactured goods per worker—productivity—as well as firm access to inventions and innovations is critical to the long-term performance of a firm and the industry as a whole. Though innovations and inventions are aggressively sought from across the globe, the presence of local talent in these areas through access to university laboratories and non-profit research activities plays an important role in location decisions by manufacturers.

To measure productivity and innovation, we use manufacturing productivity growth, industry research and development expenditures on a per capita basis, the per capita number of patents issued annually.

Sources: Census of Manufacturers, National Science Foundation, and U.S. Patent Office.

Methodology

The categories in this report were chosen as those most likely to be considered by site selection experts for manufacturing and logistics firms, and by the prevailing economic research on growth.

Each category included multiple variables for each state that were aggregated and then ranked 1ST – 50TH, with 1ST being the most desirable. Within each category, the lowest aggregate score assigned provided the overall rank. Grades were assigned using a normal distribution of grades, A through F. Plus and minus scores were not assigned to A or F grades.

2012 National Scorecard

U.S. STATE	MANUFACTURING INDUSTRY HEALTH	LOGISTICS INDUSTRY HEALTH	HUMAN CAPITAL	WORKER BENEFIT COSTS	TAX CLIMATE	EXPECTED LIABILITY GAP	GLOBAL REACH	SECTOR DIVERSIFICATION	PRODUCTIVITY *and* INNOVATION
ALABAMA	B ↓	C =	F =	B+ =	B =	C	B =	A ↑	D ↓
ALASKA	F =	D =	C- ↑	C- =	B+ ↓	D+	D =	F =	D+ ↑
ARIZONA	C =	C =	D+ ↓	C ↑	B =	C	F =	D+ ↓	C =
ARKANSAS	C+ ↓	C =	D- ↑	A =	C ↑	C	C ↑	C =	F =
CALIFORNIA	C+ =	B =	C =	D =	D =	C	C ↓	D =	A =
COLORADO	D+ =	C- =	C =	C+ =	C+ ↓	C-	F =	C- ↓	B =
CONNECTICUT	C+ =	D =	B ↓	C =	D- =	D	A ↑	C ↓	B+ =
DELAWARE	C- ↓	F =	C- ↓	F =	B ↑	A	B+ =	C =	C ↓
FLORIDA	D =	C+ =	C- =	B- ↓	A =	B	D+ ↑	C+ =	D ↓
GEORGIA	D+ =	B+ =	D+ ↑	C ↑	C =	A	B ↑	B ↓	C ↑
HAWAII	F =	F =	C =	B =	C ↓	D	F =	C ↑	F ↓
IDAHO	C+ =	D =	C =	C ↓	C ↓	C	D- ↓	F =	C ↑
ILLINOIS	C =	A =	C =	D- ↓	F ↓	F	B =	C =	B ↑
INDIANA	A =	A =	C- ↓	D+ ↓	A =	B	A =	C+ ↑	B+ ↑
IOWA	A =	B =	B ↑	C =	D- ↑	B-	C- ↑	C- =	C =
KANSAS	A ↓	C =	C+ ↑	A ↓	C =	C-	D+ ↓	A ↑	C ↑
KENTUCKY	B =	B =	D- ↑	C =	C =	D-	B+ =	B+ ↑	D ↓
LOUISIANA	C =	B =	F =	C ↓	C =	C-	B- ↑	C- ↓	D+ ↓
MAINE	C =	D- =	B =	F =	D =	D	D+ ↓	C =	D+ ↑
MARYLAND	D =	D =	B ↓	B- ↑	D+ ↑	C	D ↓	C- =	B =
MASSACHUSETTS	C- ↑	D =	B- =	C ↑	D =	C	C+ ↑	D =	A ↑
MICHIGAN	A =	C+ =	D ↑	D ↑	C- =	C-	B+ ↓	D- ↑	A ↑
MINNESOTA	B- =	B =	A =	C =	F =	B	C =	C =	B ↑
MISSISSIPPI	C+ =	C- =	F =	C ↑	B =	D	C ↑	A =	D- ↓
MISSOURI	C =	B =	C =	B+ ↑	A =	B	C ↓	B+ ↑	C ↑
MONTANA	D ↓	D+ =	C+ ↓	C+ ↓	A =	D-	F =	C =	F ↓
NEBRASKA	C- =	C+ =	A ↓	C =	C- ↓	B	C- ↑	D ↑	C- ↑
NEVADA	F =	D =	D ↓	B ↓	B- ↑	C	C ↑	D+ =	C ↓
NEW HAMPSHIRE	B+ =	F =	A =	F ↑	C =	C	C+ ↓	D =	C+ ↑
NEW JERSEY	C- =	B- =	C+ =	D+ ↓	F =	C	B ↑	F =	B ↑
NEW MEXICO	F =	D- =	F =	B =	C =	D	F =	D ↑	C+ ↓
NEW YORK	D- ↓	C =	C- =	C =	F =	B+	C =	B- ↑	C+ ↑
NORTH CAROLINA	B- ↑	C =	C =	D ↑	D ↓	A	C+ ↑	B =	C =
NORTH DAKOTA	D =	C =	A =	A =	B- ↑	F	C =	D- ↓	D ↓
OHIO	A =	A =	C =	D =	C ↑	D+	A =	B- =	C ↑
OKLAHOMA	C ↓	C =	D =	B ↓	B =	D	C- ↑	C =	C- ↓
OREGON	B =	C =	C ↑	D ↓	C+ ↑	C+	D ↓	F ↓	B- ↓
PENNSYLVANIA	C =	A =	C =	D =	D =	B-	B- =	B ↓	C =
RHODE ISLAND	D =	F =	C- =	C- ↑	F =	F	D- ↓	C+ ↑	F ↓
SOUTH CAROLINA	B+ =	D+ =	D =	C- ↓	C =	C	A =	B ↓	C- ↑
SOUTH DAKOTA	D+ ↑	C- =	B =	A =	B ↓	C	D =	F ↓	F =
TENNESSEE	B =	B+ =	D ↓	B- ↓	C- =	D-	B ↓	B =	C- ↓
TEXAS	C =	A =	D =	B ↓	C =	A	A ↑	C =	A =
UTAH	C =	C- =	B ↑	A =	A =	B	C =	B =	B- ↑
VERMONT	B =	F =	B =	C- =	D ↓	C	C- ↓	C- ↓	C- ↑
VIRGINIA	D- ↑	C- =	C =	B ↓	C+ ↓	C+	D ↓	A =	B ↑
WASHINGTON	C =	C =	A =	F =	C =	B+	C =	A =	A ↑
WEST VIRGINIA	C- =	C =	F =	F ↑	C ↑	F	C+ ↓	C ↑	D- ↓
WISCONSIN	B+ ↑	B- =	B+ ↓	D- =	D+ ↓	A	C =	C ↓	C ↑
WYOMING	D- =	C =	B+ ↓	C- ↓	B+ ↑	C+	C ↑	D =	D ↓

↑ Grade improved from last year = Grade unchanged from last year ↓ Grade declined from last year

Glossary

» **ADULT BASIC EDUCATION:** Education in basic reading and writing, offered either through community/technical colleges or through state workforce development agencies.

» **EDUCATIONAL ATTAINMENT:** The highest level of school completed by a person or group.

» **EXPORTS:** Products or commodities sold to foreign individuals and firms (businesses).

» **FOREIGN DIRECT INVESTMENT:** Expenditures (spending) by foreign-owned firms on plant and equipment in a region.

» **HERFINDAHL-HIRSCHMAN INDEX:** A method for calculating diversification of the sectors. We use the North American Industrial Classification System at the 2-digit level and calculate the total share of income in each manufacturing sector. We then sum the squared values of all 22 sub sectors of manufacturing. If each of the sectors has an equal share of the manufacturing market, each industry share would be roughly 4.54 percent of the total. Squaring this value for each sector, and summing this result would yield an HHI of roughly 454. We then rank each state from the most to least diverse.

» **HUMAN CAPITAL:** A measure of education and skill level, and (in some settings) health of residents and workers within a region.

» **IMPORTS:** Products or commodities purchased from foreign firms (businesses).

» **INFRASTRUCTURE:** Roads, railways, bridges and other transportation-related public goods.

» **LOGISTICS:** Transportation and warehousing industry groups that make it possible to move and store goods.

» **MANUFACTURING:** The production of consumer durable and non-durable goods.

» **PRODUCTIVITY:** The value of goods sold by a firm adjusted to a per-worker basis.

» **R&D:** Research and development, both in primary and applied science, usually measured in dollars.

» **UNEMPLOYMENT INSURANCE:** A federal program dating to 1933 that requires firms to participate in state-regulated insurance plans to compensate workers who are laid off or discharged from work.

» **VALUE-ADDED:** Firm or industry measure of the value of the product sold, minus all input costs.

» **WORKERS' COMPENSATION:** A federal program dating to 1913 that requires firms to provide disability and death insurance through state-administered or regulated insurance plans.

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