The 2010 State New Economy Index

Benchmarking Economic Transformation in the States

ITIF
The Information Technology & Innovation Foundation

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The Foundation of Entrepreneurship

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The Information Technology
and Innovation Foundation

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It is not the strongest of the species that survive,
nor the most intelligent,
but the ones most responsive to change.

— Charles Darwin

Introduction

While every state continues to experience the impacts of the economic downturn and resulting recession, it will be many years before we understand the full nature and causes of the financial crisis. But it appears that one of the contributing factors to both the crisis and the anemic nature of the recovery has been the weakened position of the U.S. economy in global markets. This relatively untold story of the recession and recovery is, in fact, perhaps one of the major developments in the U.S. economy, one that will have significant impacts on state economies for decades into the future—particularly if the nation continues to ignore the issue.

The evidence is clear that, over the last decade, the U.S. economy has declined relative to that of many other nations. The Boston Consulting Group recently ranked the United States as just eighth in global innovation-based competitiveness (e.g., factors such as corporate and government Research and Development investments, venture capital, scientists and engineers, etc.).[1] Of forty nations considered, the Information Technology and Innovation Foundation ranked the United States sixth for innovation-based competitiveness.[2] The World Economic Forum's Global Competitiveness ranking puts the United States in fourth place.[3] Apologists for the status quo might point out that the United States is still in the top ten in all three studies. But it's not just that we are no longer number one, as we were as recently as the late 1990s; our relative competitive position is slipping rapidly. ITIF found that, while the United States ranked first in innovation-based competitiveness in the late 1990s, in the course of the last decade, we ranked fortieth of forty nations in *progress* on these factors.

Manufacturing has been particularly hard hit. U.S. manufacturing employment has fallen from just under 17 million in 1993 to less than 12 million in 2009, a 30 percent decline. The United States has seen its global share of manufacturing eviscerated in industry after industry. For example, whereas the United States claimed 29 percent of the printed circuit board (PCB) production in 1998, by 2009 that share had plummeted to 8 percent. Likewise, the U.S. share of the photovoltaics market (solar panels) cratered from 30 percent in 1999 to 5.6 percent in 2008. Meanwhile, China's position in these industries has been the direct inverse of America's. Its share of PCB manufacturing grew from 7 percent in 1999 to more than 31 percent in 2008, and its share of the solar panels market grew from 5.6 percent to 32 percent. The song remains the same across the manufacturing landscape. The U.S. share of global passenger vehicle production fell by almost half from 1999 to 2008 (14.5 to 7.5 percent), as the Chinese share rocketed from 1.5 percent to 12.7 percent, making China now the world's largest manufacturer of passenger vehicles. The United States' longtime strength in machine tools has evaporated, with U.S. production of machine tools falling to 5.1 percent and China's rising to 35 percent.

But, while manufacturing is hard hit, aren't high tech and Silicon Valley doing well? Not really. After running a trade surplus for decades in high-tech products, the U.S. began to run a trade deficit in this sector in the 2000s. "I'm not telling you the sky is falling, but I have a duty to report that some of the indicators are not good," stated Russell Hancock, chief executive of Joint Venture Silicon Valley Network, which has indexed the region's business climate each year since 1995.[4]

This is not to say that the U.S. economy will not rebound in the regular course of the business cycle and that unemployment rates will not fall in virtually all states. But it is to say that something is now fundamentally different than it was in the last century. In this century, the U.S. economy is under challenge like never before. As a result, unless the United States addresses its fundamental economic competitiveness challenges, it will be difficult for the U.S. economy and, by extension, individual state economies to thrive.

IS INNOVATION WHAT THE DOCTOR ORDERED?

Some have argued that, given the economic downturn, now is not the time to focus on innovation; rather, our chief concern should be job creation. Yet, fostering innovation and creating jobs are by no means mutually exclusive. To the contrary, most studies of the issue have found that innovation is positively correlated to job growth in the mid- to long-term.[5] Innovation leads to job growth in three fundamental ways. First, innovation gives a nation's firms a first-mover advantage in new products and services, expanding exports and creating expansionary employment effects in the short term. In fact, in the United States, growth in exports leads to twice as many jobs as an equivalent expansion of sales domestically.[6] Second, innovation's expansionary effects lead to a virtuous cycle of expanding employment. For example, in the early- to mid-1990s, the emergence of information technology as a general-purpose technology drove broad-based economic growth, creating hundreds of thousands of new jobs, which, in turn, led to additional job growth in supporting industries. Finally, when innovation leads to higher productivity, it also leads to increased wages and lower prices, both of which expand domestic economic activity and create jobs.[7]

Yet, more jobs alone, while a critical step for recovery, will not be enough to get America's economy back onto the trajectory of the growth rates experienced in the 1990s. Instead, the economy will need to shift from low-skilled, low-wage jobs to more highly skilled and thus higher-wage jobs; and from our traditional industrial manufacturing makeup to a twenty-first-century mix of employment in high-tech fields such as biotechnology, clean energy, information technology, nanotechnology, and advanced manufacturing. Innovation will be indispensible in helping us get there. Highly innovative economies are characterized by a diverse mix of high-paying, capital-intense, productive industries, while less-dynamic economies tend to focus on a handful of commodity-driven industries that are low-wage and concentrated in lower portions of the value chain. As the Organization for Economic Co-operation and Development (OECD) explains, "Technology both eliminates jobs and creates jobs. Generally, it destroys lower-wage, lower-productivity jobs, while it creates jobs that are more productive and highly skilled and better paid. Historically, the income-generating effects of new technologies have proved more powerful than the labor-displacing effects: Technological progress has been accompanied not only by higher output and productivity, but also by higher overall employment."[8] While it is true that unemployment is dangerously high and policies should be put in place to create jobs, policies focused on short-term employment alone are a sprinter's strategy; mid- and long-term growth will rely on more substantive innovation policies.

The lack of real economic vitality in the last decade was a causal factor in the financial crisis. Indeed, if the recent economic recession has taught economists anything, it should be that economic growth and stability stem from a mix of highly productive and innovative industries. Thus, if one sector falters, others can pick up the slack. For example, would GM have invested as much as it did on its failed hedge fund (making it more of a financial services firm than a manufacturer) if the company had been able to produce globally competitive hybrid cars? Would society have invested so much in housing if we had had a strong demand for investments in real wealth-creating activities, like innovative and technology-based industries?

The point is that it is not enough for the United States to just "create jobs, any jobs." If we are not concerned about the mix of jobs our economy is creating, the United States increasingly risks seeing its employment base shift toward a lower-value-added, lower-wage composition. We are already seeing evidence of this. The Bureau of Labor Statistics found that the average wage increase for all U.S. workers from 2000 to 2007 was 11 cents an hour. However, the average salary that companies paid their workers actually increased by 22 cents an hour over this time frame, meaning that there was a negative 11 cent change in U.S. wages through occupational shift.[9] If the United States had had the exact same composition of jobs in 2007 as in 2000, the average wages paid to U.S. workers would have increased 22 cents an hour. However, on average, U.S. workers only realized one-half that increase, because a larger share of workers in 2007 worked in lower-paying occupations. No doubt, this has resulted in part from increased global competition and the continued relocation of not just low-value but also high-value-added manufacturing and R&D activities to foreign

countries. Even more worrying, this deterioration in U.S. employees' income occurred well before the onset of the Great Recession. Going forward, innovation will be critical to ensuring higher real wages for American citizens across the board; indeed, up to 90 percent of per-capita income growth stems directly from innovation.[10]

To be well positioned to drive innovation-based growth, state economies need to be firmly grounded in "New Economy" success factors. This report uses twenty-six indicators to assess states' fundamental capacity to successfully navigate the shoals of economic change. It measures the extent to which state economies are structured and operate according to the tenets of the New Economy. In other words, it examines the degree to which state economies are knowledge-based, globalized, entrepreneurial, IT-driven, and innovation-based. With these indicators as a frame of reference, the report then outlines a new approach to state economic development based on the need to move to "win-win" strategies that help both states and the overall U.S. economy better compete in the new global economy.

THE INDICATORS
OVERVIEW AND METHODOLOGY

This report builds on four earlier *State New Economy Indexes* published in 1999, 2002, 2007, and 2008.[11] The purpose of the *State New Economy Index* is to measure the economic *structure* of states. Unlike some reports, which assess state economic performance or state economic policies, this report focuses more narrowly on a simple question: To what degree does the structure of state economies match the ideal structure of the New Economy? For example, we know that a defining characteristic of the New Economy is that it is global. Therefore, the *Index* uses a number of variables to assess how globally linked a state's economy is.

Lack of available data compromises use of many factors appropriate for measuring New Economy structure. Going forward, the federal government can and should play a much more active role in defining variables that should be measured at the state level and collecting the data to better measure them.

Overall, the report uses twenty-six indicators, divided into five categories that best capture what is new about the New Economy:[12]

1) **Knowledge jobs.** Indicators measure employment of IT professionals outside the IT industry; jobs held by managers, professionals, and technicians; the educational attainment of the entire workforce; immigration of knowledge workers; migration of domestic knowledge workers; employment in high-value-added manufacturing sectors; and employment in high-wage traded services.
2) **Globalization.** Indicators measure the export orientation of manufacturing and services, and foreign direct investment.
3) **Economic dynamism.** Indicators measure the degree of job churning (which is a product of new business startups and existing business failures); the number of *Deloitte Technology Fast 500* and *Inc. 500* firms; the number and value of initial public stock offerings by companies; the number of entrepreneurs starting new businesses; and the number of individual inventor patents issued.
4) **Transformation to a digital economy.** Indicators measure the percentage of population online; the degree to which state and local governments use information technologies to deliver services; use of IT in the health care sector; Internet and computer use by farmers; residential and business access to broadband telecommunications; and use of information technology in the health care system.
5) **Technological innovation capacity.** Indicators measure the number of jobs in technology-producing industries; the number of scientists and engineers in the workforce; the number of patents issued; industry investment in research and development; non-industry R&D; venture capital activity; and movement toward a green-energy economy.

Like the *2002*, *2007*, and *2008 Indexes*, this report controls for a state's industry-sector mix when considering variables that measure company behavior (R&D, exports, patents, manufacturing value-added). Holding the industry mix constant is important because some industries by their nature export, patent, spend more on R&D, or have higher value added than others do. For

example, without controlling for industry mix, Washington State would score very high in manufacturing exports because the aviation sector (i.e., Boeing) is so large, and exports are a large share of that industry's output. Accounting for a state's industrial composition presents a more accurate measure of the degree to which companies in a state, irrespective of the industry they are in, export, invest in R&D, or patent.[13] Similarly, manufacturing value-added is measured on a sector-by-sector basis, ensuring that a state's companies are compared to the nationwide performance of firms in the same industry.

Because the 1999, 2002, 2007, 2008, and 2010 reports use slightly different indicators and methodologies, the total scores are not necessarily comparable. Therefore, a state's movement to a higher or lower overall rank between reports does not necessarily reflect changes in its economy.

In all cases, the report relies on the most recently published statistics available; however, because of the delays in publishing federal statistics, some data may be several years old. In addition, in all cases, data are reported to control for the size of the state, using factors such as the number of workers or total worker earnings as the denominator.

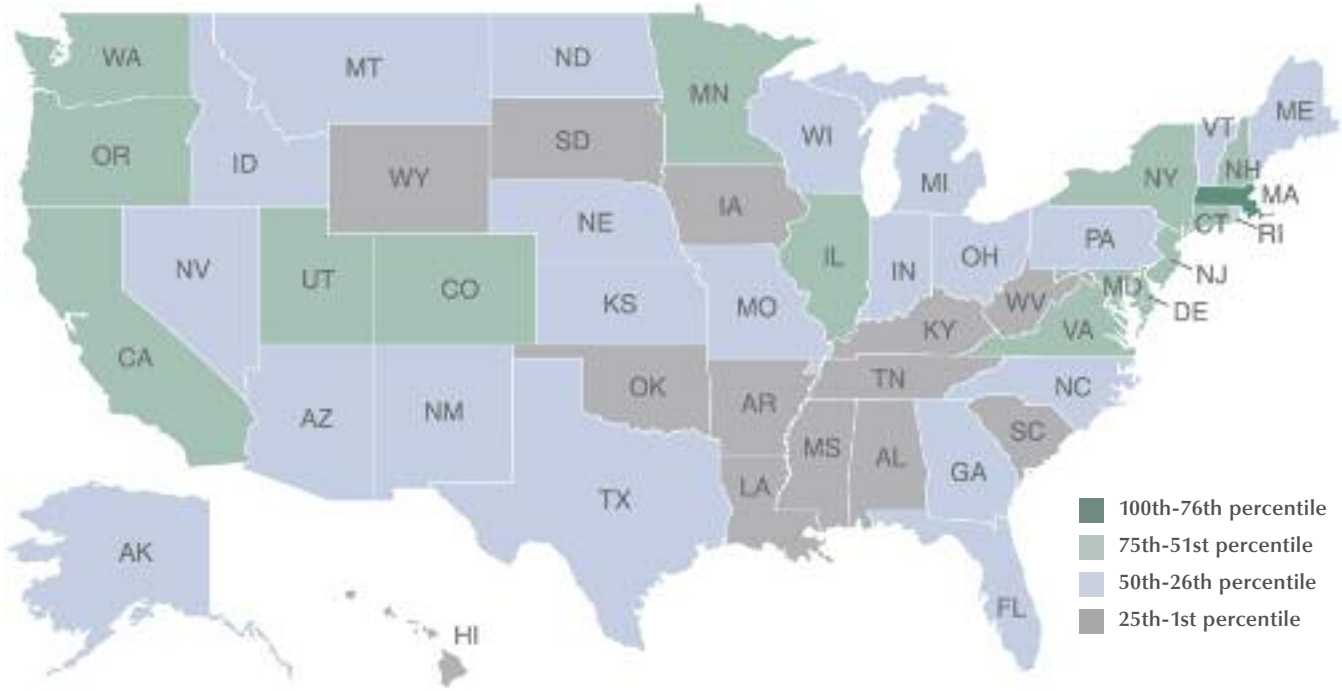
Scores in each indicator are calculated as follows: To measure the magnitude of the differences between the states instead of just their ranks from one to fifty, raw scores are based on standard deviations from the mean. Therefore, on average for most indicators, approximately half the states initially have negative scores (below the national mean) and approximately half have positive scores. The scores are equally adjusted (ten is added to each of the five indicator category totals) to ensure that all are positive.

In the calculation of the five indicator category totals (e.g., globalization, economic dynamism, etc.) and the overall New Economy scores, the indicators are weighted both according to their relative importance and so that closely correlated ones (for example, patents, R&D investment, and high-tech jobs) don't bias the results (see Appendix).

The overall scores are calculated by adding the states' adjusted scores in each of the five indicator categories and then dividing that total by the sum of the highest score achieved by any state in each category. Thus, each state's final score is a percentage of the total score a state would have achieved if it had finished first in every category.

The maps were coded using the following methodology: The range between the highest and lowest scores was calculated and divided by four. That product was subtracted from the top score to calculate the range for the 100th percentile to the 76th percentile, and likewise for the lower three percentile ranges. In other words, the percentiles do not necessarily divide into an equal number of states, but rather indicate which state scores fall into a particular range.

OVERALL SCORES



2010 Rank	2010 Score	State	1999 Rank	2002 Rank	2007 Rank	Change from 2002*	Change from 2007*
1	92.6	Massachusetts	1	1	1	0	0
2	77.5	Washington	4	4	4	2	2
3	76.9	Maryland	11	5	3	2	0
4	76.9	New Jersey	8	6	2	2	-2
5	76.6	Connecticut	5	7	6	2	1
6	75.0	Delaware	9	9	7	3	1
7	74.3	California	2	2	5	-5	-2
8	73.7	Virginia	12	8	8	0	0
9	72.8	Colorado	3	3	9	-6	0
10	71.3	New York	16	11	10	1	0
11	70.6	New Hampshire	7	12	13	1	2
12	69.1	Utah	6	16	12	4	0
13	67.5	Minnesota	14	14	11	1	-2
14	67.0	Oregon	15	13	17	-1	3
15	65.1	Illinois	22	19	16	4	1
16	63.6	Rhode Island	29	23	15	7	-1
17	63.4	Michigan	34	22	19	5	2
18	63.0	Texas	17	10	14	-8	-4
19	62.6	Georgia	25	18	18	-1	-1
20	61.0	Arizona	10	15	22	-5	2
21	60.6	Florida	20	17	23	-4	2
22	60.2	Pennsylvania	24	21	21	-1	-1
23	59.5	Vermont	18	26	20	3	-3
24	57.1	North Carolina	30	24	26	0	2
25	55.2	Ohio	33	27	29	2	4
26	54.5	Kansas	27	30	34	4	8
27	54.2	Idaho	23	20	24	-7	-3
28	54.0	Maine	28	29	32	1	4
29	53.1	Wisconsin	32	37	30	8	1
30	52.5	Nevada	21	31	27	1	-3
31	52.1	Alaska	13	39	25	8	-6
32	51.7	New Mexico	19	25	33	-7	1
33	50.8	Missouri	35	28	35	-5	2
34	50.5	Nebraska	36	36	28	2	-6
35	49.7	Indiana	37	32	31	-3	-4
36	49.7	North Dakota	45	47	37	11	1
37	49.7	Montana	46	41	42	4	5
38	49.5	Iowa	42	40	38	2	0
39	49.3	South Carolina	38	35	39	-4	0
40	48.7	Hawaii	26	38	41	-2	1
41	48.5	Tennessee	31	34	36	-7	-5
42	47.2	Oklahoma	40	33	40	-9	-2
43	46.0	Louisiana	47	44	44	1	1
44	46.0	Kentucky	39	42	45	-2	1
45	45.1	South Dakota	43	46	48	1	3
46	45.0	Wyoming	41	43	43	-3	-3
47	43.5	Alabama	44	45	46	-2	-1
48	40.0	Arkansas	49	49	47	1	-1
49	38.1	West Virginia	48	48	50	-1	1
50	35.3	Mississippi	50	50	49	0	-1

** Because of differences in methodology and indicators measured, changes in ranks between 1999, 2002, 2007, 2008, and 2010 cannot all be attributed to changes in actual economic conditions in the state.*

STATE NEW ECONOMY SCORES BY OVERALL RANK

	Overall		IT Professionals		Managerial, Professional, Technical Jobs		Workforce Education		Immigration of Knowledge Workers		Migration of U.S. Knowledge Workers		Manufacturing Value-Added		High-Wage Traded Services		Export Focus of Manufacturing and Services		Foreign Direct Investment		Job Churning		Fastest-Growing Firms		IPOs	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Massachusetts	1	92.6	4	1.97%	1	27.6%	1	51.5	13	13.0	1	14.6	8	106.1%	10	16.4%	9	$34,297	6	6.0%	28	33.3%	1	0.0353%	3	6.75
Washington	2	77.5	8	1.79%	12	22.3%	9	44.5	15	12.8	13	13.6	1	128.2%	34	11.8%	3	$44,271	31	3.6%	43	29.8%	10	0.0161%	26	4.58
Maryland	3	76.9	5	1.95%	2	25.8%	2	48.9	10	13.3	5	14.0	7	106.6%	26	13.2%	25	$23,094	19	4.9%	20	36.4%	4	0.0265%	21	4.72
New Jersey	4	76.9	2	2.13%	7	24.2%	10	44.4	22	12.4	20	13.5	35	91.8%	6	17.2%	13	$31,714	5	6.5%	29	33.1%	6	0.0197%	7	5.52
Connecticut	5	76.6	10	1.61%	4	24.6%	4	48.3	20	12.5	3	14.3	2	122.0%	2	20.5%	16	$30,400	3	6.6%	50	21.5%	5	0.0212%	8	5.51
Delaware	6	75.0	3	1.99%	5	24.5%	21	37.0	36	11.8	30	12.9	5	108.0%	1	21.8%	2	$63,016	1	7.3%	36	31.2%	35	0.0038%	33	3.92
California	7	74.3	18	1.35%	14	22.0%	22	36.9	45	11.0	22	13.3	20	100.3%	4	18.2%	18	$29,671	24	4.6%	48	27.2%	7	0.0182%	4	6.03
Virginia	8	73.7	1	2.23%	3	24.6%	7	44.8	12	13.0	6	13.9	13	103.0%	9	16.7%	29	$21,910	18	5.0%	16	37.4%	2	0.0315%	15	5.01
Colorado	9	72.8	7	1.84%	13	22.3%	3	48.4	37	11.7	11	13.8	27	96.9%	19	14.0%	42	$17,163	28	4.0%	5	44.2%	11	0.0159%	5	5.80
New York	10	71.3	13	1.53%	6	24.5%	12	41.6	24	12.3	12	13.6	24	99.1%	3	20.1%	14	$31,623	10	5.8%	19	36.4%	12	0.0124%	10	5.34
New Hampshire	11	70.6	9	1.69%	10	22.6%	6	45.6	2	14.4	10	13.8	44	83.1%	14	14.9%	45	$16,176	4	6.6%	15	37.7%	13	0.0122%	14	5.02
Utah	12	69.1	23	1.24%	28	20.1%	11	42.8	33	11.8	15	13.5	32	94.7%	11	15.4%	6	$39,444	36	3.4%	6	43.5%	3	0.0313%	11	5.17
Minnesota	13	67.5	6	1.89%	8	24.1%	8	44.6	28	12.0	14	13.6	22	100.1%	5	17.8%	24	$23,901	29	3.9%	23	34.7%	21	0.0078%	20	4.78
Oregon	14	67.0	30	1.11%	26	20.4%	16	40.7	30	11.9	29	12.9	14	101.9%	17	14.4%	11	$32,945	43	2.9%	14	37.9%	19	0.0086%	45	3.92
Illinois	15	65.1	12	1.54%	9	23.8%	17	39.8	25	12.2	17	13.5	26	98.5%	7	17.1%	19	$29,058	15	5.1%	26	33.7%	16	0.0107%	22	4.67
Rhode Island	16	63.6	25	1.22%	11	22.5%	20	38.0	31	11.9	8	13.9	47	79.5%	30	12.6%	48	$11,990	9	5.9%	7	42.3%	48	0.0000%	13	5.09
Michigan	17	63.4	26	1.20%	17	21.7%	27	35.7	17	12.6	25	13.1	15	101.4%	36	11.6%	21	$27,150	27	4.1%	18	36.8%	34	0.0039%	31	4.04
Texas	18	63.0	16	1.43%	23	20.9%	41	29.9	46	10.8	40	12.6	10	104.6%	23	13.5%	1	$65,563	23	4.7%	31	32.4%	8	0.0181%	9	5.48
Georgia	19	62.6	21	1.27%	24	20.8%	34	34.1	35	11.8	38	12.7	18	100.9%	13	14.9%	17	$30,232	16	5.0%	4	44.2%	9	0.0165%	16	4.85
Arizona	20	61.0	20	1.28%	25	20.7%	29	34.8	49	10.0	27	12.9	3	113.5%	18	14.2%	23	$25,056	40	3.1%	9	41.4%	15	0.0109%	19	4.78
Florida	21	60.6	29	1.12%	37	19.2%	33	34.2	43	11.3	37	12.7	21	100.2%	20	14.0%	7	$38,468	34	3.4%	1	47.1%	24	0.0069%	25	4.59
Pennsylvania	22	60.2	19	1.31%	15	22.0%	32	34.3	16	12.7	19	13.5	16	101.3%	12	15.2%	31	$21,234	17	5.0%	25	33.7%	14	0.0112%	27	4.55
Vermont	23	59.5	42	0.87%	18	21.1%	5	46.0	8	13.4	2	14.6	37	89.0%	47	8.3%	20	$28,540	30	3.7%	11	39.9%	30	0.0046%	48	3.92
North Carolina	24	57.1	14	1.49%	27	20.3%	37	32.8	40	11.5	26	13.0	25	98.9%	22	13.8%	27	$23,067	7	6.0%	17	37.0%	17	0.0106%	23	4.65
Ohio	25	55.2	15	1.45%	22	20.9%	38	32.6	9	13.4	23	13.2	19	100.8%	15	14.6%	26	$23,075	22	4.8%	39	30.7%	25	0.0064%	30	4.04
Kansas	26	54.5	17	1.36%	21	21.0%	14	41.0	5	13.6	33	12.8	43	86.3%	32	12.2%	38	$19,846	25	4.6%	33	32.1%	26	0.0057%	36	3.92
Idaho	27	54.2	28	1.14%	32	19.8%	28	34.9	50	9.5	36	12.8	49	52.7%	37	11.3%	37	$19,933	47	2.4%	3	44.7%	42	0.0020%	35	3.92
Maine	28	54.0	38	0.91%	30	20.1%	24	36.3	6	13.5	9	13.9	29	96.2%	38	11.2%	40	$17,981	14	5.3%	10	40.5%	40	0.0024%	39	3.92
Wisconsin	29	53.1	24	1.23%	29	20.1%	26	36.0	27	12.0	16	13.5	17	101.2%	25	13.5%	36	$20,021	39	3.3%	37	31.1%	29	0.0050%	28	4.33
Nevada	30	52.5	43	0.74%	50	15.6%	43	29.2	47	10.5	44	12.4	4	108.5%	41	10.0%	4	$43,172	42	2.9%	12	38.7%	18	0.0104%	18	4.80
Alaska	31	52.1	34	0.977%	16	21.9%	15	40.8	19	12.5	43	12.5	11	103.7%	45	8.8%	47	$12,180	21	4.8%	2	46.4%	47	0.0000%	50	3.92
New Mexico	32	51.7	32	1.08%	19	21.1%	35	33.7	39	11.6	24	13.1	41	87.2%	43	9.7%	50	$10,299	48	2.4%	13	37.9%	41	0.0022%	44	3.92
Missouri	33	50.8	11	1.59%	20	21.0%	36	33.2	4	13.7	32	12.8	36	89.4%	16	14.6%	43	$16,919	35	3.4%	47	27.4%	37	0.0029%	41	3.92
Nebraska	34	50.5	22	1.26%	31	20.0%	18	39.3	26	12.1	39	12.7	30	95.2%	8	17.0%	28	$22,235	41	2.9%	40	30.5%	32	0.0042%	43	3.92
Indiana	35	49.7	33	1.02%	38	19.1%	39	30.1	18	12.6	28	12.9	9	105.4%	42	10.0%	41	$17,773	13	5.5%	27	33.5%	23	0.0070%	24	4.61
North Dakota	36	49.7	47	0.62%	46	18.0%	23	36.8	1	14.6	7	13.9	31	95.2%	39	10.7%	10	$34,268	44	2.7%	34	32.0%	28	0.0050%	6	5.67
Montana	37	49.7	45	0.67%	43	18.5%	19	39.1	3	13.9	18	13.5	50	50.2%	48	8.2%	35	$20,224	49	2.1%	8	42.1%	39	0.0027%	42	3.92
Iowa	38	49.5	27	1.19%	36	19.4%	31	34.7	23	12.3	35	12.8	12	103.0%	21	13.9%	34	$20,360	37	3.3%	45	28.8%	38	0.0028%	29	4.29
South Carolina	39	49.3	39	0.90%	44	18.4%	42	29.3	29	12.0	31	12.8	28	96.5%	29	12.6%	8	$35,066	2	6.9%	22	35.4%	20	0.0083%	46	3.92
Hawaii	40	48.7	46	0.65%	41	18.8%	13	41.5	7	13.5	4	14.1	46	81.5%	46	8.6%	49	$10,614	8	5.9%	32	32.2%	44	0.0016%	34	3.92
Tennessee	41	48.5	36	0.93%	42	18.7%	44	27.5	32	11.9	41	12.5	33	92.4%	31	12.3%	22	$25,233	12	5.7%	49	26.0%	22	0.0070%	12	5.10
Oklahoma	42	47.2	35	0.96%	34	19.7%	40	30.1	38	11.7	46	12.1	23	99.6%	40	10.7%	44	$16,564	46	2.6%	24	34.1%	31	0.0044%	2	7.01
Louisiana	43	46.0	49	0.52%	40	19.0%	47	23.6	34	11.8	48	12.0	6	107.8%	24	13.5%	5	$41,658	38	3.3%	42	30.0%	43	0.0020%	38	3.92
Kentucky	44	46.0	37	0.91%	35	19.4%	46	24.7	21	12.4	42	12.5	34	91.9%	35	11.7%	12	$32,825	11	5.7%	38	30.7%	45	0.0012%	37	3.92
South Dakota	45	45.1	40	0.89%	47	17.8%	30	34.7	11	13.2	21	13.3	45	82.3%	27	13.2%	46	$13,519	50	1.9%	35	31.7%	49	0.0000%	47	3.92
Wyoming	46	45.0	50	0.51%	48	17.6%	25	36.3	48	10.3	34	12.8	48	78.7%	50	7.5%	15	$30,435	26	4.6%	21	36.3%	50	0.0000%	1	8.84
Alabama	47	43.5	41	0.88%	39	19.0%	45	26.8	41	11.5	45	12.4	38	88.7%	33	12.0%	30	$21,402	20	4.8%	46	28.2%	33	0.0040%	49	3.92
Arkansas	48	40.0	31	1.10%	45	18.1%	48	23.0	44	11.1	50	11.8	42	87.0%	28	13.1%	39	$18,029	33	3.4%	30	32.9%	46	0.0008%	32	3.92
West Virginia	49	38.1	44	0.71%	33	19.8%	50	20.3	42	11.4	49	11.9	40	87.4%	49	8.1%	33	$20,432	32	3.5%	44	29.2%	27	0.0054%	17	4.80
Mississippi	50	35.3	48	0.53%	49	17.5%	49	22.7	14	12.8	47	12.1	39	87.8%	44	9.6%	32	$20,498	45	2.6%	41	30.3%	36	0.0036%	40	3.92
U.S. Average		**62.0**		**1.38%**		**21.5%**		**36.3**		**11.8**		**13.1**		**99.2%**		**15.0%**		**$32,332**		**4.7%**		**34.3%**		**0.0128%**		**5.00**

State	Entrepreneurial Activity Rank	Score	Inventor Patents Rank	Score	Online Population Rank	Score	E-Gov't. Rank	Score	Online Agriculture Rank	Score	Broadband Telecommunications Rank	Score	Health IT Rank	Score	High-Tech Jobs Rank	Score	Scientists and Engineers Rank	Score	Patents Rank	Score	Industry Investment in R&D Rank	Score	Non-Industry Investment in R&D Rank	Score	Alternative Energy Use Rank	Score	Venture Capital Rank	Score
MA	23	0.30%	4	0.0098	12	81%	23	5.04	4	7.80	4	7.79	1	57%	1	7.7%	4	4.53%	8	1.17	2	6.48%	4	1.44%	30	4.7	1	0.97%
WA	37	0.23%	7	0.0087	3	86%	27	4.87	1	8.33	15	5.72	18	23%	9	5.4%	2	4.69%	2	2.18	4	5.57%	9	0.77%	3	7.6	3	0.33%
MD	33	0.25%	17	0.0071	10	81%	14	5.66	35	4.48	2	8.10	36	14%	4	6.2%	3	4.56%	13	0.87	22	2.42%	2	3.96%	22	4.9	9	0.17%
NJ	19	0.32%	13	0.0075	11	81%	32	4.61	9	7.69	1	8.58	33	15%	7	5.8%	6	3.73%	9	0.97	9	4.01%	38	0.36%	21	5.1	6	0.23%
CT	22	0.31%	5	0.0094	13	81%	30	4.61	2	7.80	5	7.51	30	16%	14	4.3%	12	3.19%	15	0.83	5	5.20%	37	0.37%	8	6.2	7	0.18%
DE	28	0.28%	32	0.0047	26	78%	36	4.26	33	4.78	10	6.35	7	34%	12	4.6%	7	3.61%	5	1.25	1	7.82%	49	0.22%	44	4.0	18	0.12%
CA	5	0.43%	3	0.0113	14	80%	6	6.18	16	6.58	7	7.21	37	13%	6	5.8%	10	3.34%	3	1.53	12	3.39%	11	0.74%	28	4.8	2	0.88%
VA	46	0.21%	28	0.0053	25	78%	3	6.71	29	5.34	11	6.14	35	15%	3	6.6%	1	5.00%	25	0.51	21	2.43%	6	1.21%	20	5.2	17	0.12%
CO	8	0.40%	14	0.0074	8	82%	8	6.09	13	6.78	22	5.16	24	18%	5	5.9%	5	4.39%	6	1.21	8	4.04%	14	0.68%	48	3.8	4	0.31%
NY	10	0.39%	21	0.0063	34	76%	4	6.44	17	6.58	6	7.48	39	12%	25	3.6%	25	2.65%	10	0.94	26	1.85%	31	0.45%	12	5.7	14	0.14%
NH	26	0.29%	8	0.0079	5	83%	43	3.99	5	7.80	9	6.38	38	12%	8	5.5%	9	3.38%	30	0.41	6	4.54%	20	0.57%	2	7.6	10	0.16%
UT	16	0.35%	1	0.0221	1	86%	1	7.67	27	5.59	34	3.66	44	10%	11	4.7%	13	3.06%	17	0.75	23	2.29%	23	0.54%	49	3.5	5	0.24%
MN	42	0.22%	9	0.0078	7	83%	12	5.83	14	6.71	25	4.50	4	38%	13	4.5%	8	3.40%	12	0.91	7	4.43%	39	0.36%	31	4.6	11	0.15%
OR	12	0.37%	2	0.0144	4	84%	5	6.27	11	6.88	21	5.18	5	37%	15	4.2%	24	2.68%	7	1.20	10	3.90%	32	0.45%	6	6.7	12	0.14%
IL	30	0.26%	25	0.0055	23	78%	18	5.22	23	6.09	12	6.01	14	25%	22	3.7%	21	2.78%	23	0.56	13	3.23%	28	0.47%	9	6.0	23	0.07%
RI	31	0.26%	23	0.0056	30	77%	38	4.26	6	7.80	3	8.00	2	49%	23	3.7%	18	2.83%	18	0.74	33	1.51%	5	1.43%	43	4.0	8	0.17%
MI	13	0.37%	18	0.0068	24	78%	2	7.14	26	5.76	29	4.15	9	33%	17	3.9%	11	3.26%	14	0.85	3	5.99%	34	0.44%	16	5.4	28	0.05%
TX	7	0.41%	26	0.0054	40	73%	29	4.69	38	4.13	17	5.57	34	15%	19	3.8%	14	3.05%	16	0.75	17	2.71%	41	0.35%	39	4.2	19	0.10%
GA	1	0.50%	40	0.0040	33	76%	20	5.13	45	2.66	14	5.82	28	17%	26	3.4%	29	2.47%	21	0.57	31	1.55%	35	0.42%	19	5.3	16	0.13%
AZ	2	0.47%	12	0.0075	18	80%	19	5.13	47	2.35	18	5.35	41	11%	18	3.9%	17	2.86%	11	0.93	15	2.92%	29	0.47%	14	5.5	24	0.07%
FL	4	0.45%	10	0.0076	22	78%	28	4.69	25	5.81	13	5.99	19	22%	27	3.4%	32	2.27%	26	0.49	32	1.51%	40	0.35%	26	4.8	26	0.06%
PA	50	0.17%	30	0.0051	37	74%	7	6.18	43	2.91	20	5.23	10	32%	16	4.0%	22	2.77%	24	0.55	11	3.40%	19	0.59%	10	5.9	15	0.13%
VT	20	0.32%	35	0.0044	6	83%	45	3.91	7	7.80	44	2.61	22	21%	21	3.7%	34	2.14%	4	1.32	18	2.70%	26	0.50%	1	8.0	22	0.08%
NC	41	0.22%	44	0.0036	39	73%	37	4.26	28	5.50	27	4.19	15	24%	20	3.8%	26	2.63%	22	0.56	20	2.43%	16	0.61%	15	5.4	13	0.14%
OH	32	0.25%	27	0.0053	32	76%	21	5.13	32	4.94	30	4.00	26	18%	32	3.1%	20	2.81%	28	0.45	14	3.00%	18	0.60%	34	4.4	31	0.04%
KS	36	0.23%	38	0.0042	19	79%	17	5.39	22	6.16	24	4.54	20	22%	24	3.7%	19	2.82%	29	0.42	34	1.49%	44	0.34%	35	4.4	41	0.01%
ID	9	0.39%	6	0.0088	9	81%	46	3.56	18	6.55	43	2.87	12	26%	10	4.8%	27	2.59%	1	2.47	19	2.64%	10	0.75%	18	5.3	30	0.04%
ME	21	0.31%	43	0.0037	27	77%	40	4.17	3	7.80	40	3.01	11	27%	34	2.5%	42	1.87%	37	0.32	38	1.19%	30	0.46%	4	7.0	37	0.02%
WI	34	0.24%	19	0.0067	15	80%	33	4.61	20	6.34	26	4.36	43	11%	33	2.9%	28	2.57%	32	0.38	16	2.85%	27	0.49%	25	4.9	40	0.02%
NV	6	0.43%	15	0.0073	20	79%	31	4.61	50	0.79	8	6.43	21	22%	40	2.3%	49	1.52%	20	0.58	37	1.25%	50	0.18%	40	4.1	39	0.02%
AK	17	0.34%	33	0.0045	2	86%	35	4.34	30	5.00	37	3.13	45	8%	36	2.5%	15	2.95%	48	0.20	49	0.47%	22	0.56%	37	4.3	47	0.00%
NM	11	0.38%	22	0.0056	41	73%	44	3.99	41	3.07	46	2.59	49	7%	2	6.8%	16	2.91%	19	0.66	27	1.79%	1	6.78%	47	3.9	34	0.03%
MO	48	0.20%	34	0.0045	36	74%	10	6.01	39	3.24	31	3.86	6	35%	29	3.3%	23	2.72%	36	0.36	24	2.28%	33	0.44%	36	4.3	38	0.02%
NE	43	0.22%	24	0.0056	17	80%	34	4.43	12	6.86	32	3.75	42	11%	31	3.1%	31	2.34%	38	0.31	36	1.36%	25	0.51%	23	4.9	50	0.00%
IN	24	0.30%	45	0.0035	42	71%	50	3.03	24	5.87	33	3.75	16	23%	30	3.3%	33	2.25%	40	0.27	30	1.72%	36	0.42%	41	4.0	21	0.10%
ND	47	0.20%	16	0.0071	29	77%	16	5.66	15	6.65	39	3.04	50	3%	35	2.5%	38	1.91%	34	0.38	39	1.17%	13	0.70%	38	4.2	29	0.05%
MT	3	0.45%	20	0.0065	31	77%	41	4.17	8	7.77	49	1.96	25	18%	45	2.0%	39	1.89%	27	0.46	41	1.08%	3	2.12%	11	5.8	25	0.07%
IA	49	0.19%	37	0.0043	28	77%	42	4.08	19	6.52	38	3.12	3	48%	37	2.5%	35	2.11%	33	0.38	29	1.77%	24	0.52%	27	4.8	20	0.10%
SC	39	0.23%	39	0.0041	46	69%	48	3.56	42	3.05	42	2.93	47	8%	38	2.5%	36	2.02%	43	0.24	28	1.78%	21	0.57%	5	6.8	43	0.01%
HI	45	0.21%	41	0.0040	21	79%	25	4.87	31	5.00	19	5.29	31	16%	41	2.2%	45	1.82%	42	0.27	44	0.98%	17	0.60%	24	4.9	36	0.02%
TN	15	0.35%	42	0.0038	43	70%	11	5.92	49	2.26	28	4.17	23	20%	39	2.4%	46	1.72%	41	0.27	35	1.43%	8	0.82%	17	5.3	33	0.03%
OK	14	0.37%	36	0.0043	38	73%	47	3.56	36	4.36	23	4.79	27	18%	44	2.1%	40	1.89%	31	0.40	45	0.95%	48	0.29%	46	3.9	44	0.01%
LA	29	0.27%	29	0.0052	44	70%	26	4.87	46	2.61	16	5.68	29	17%	48	1.9%	48	1.61%	44	0.22	48	0.56%	43	0.34%	32	4.6	35	0.02%
KY	25	0.30%	46	0.0031	45	69%	9	6.01	44	2.80	36	3.49	32	16%	43	2.2%	43	1.87%	39	0.30	40	1.12%	42	0.34%	42	4.0	42	0.01%
SD	27	0.28%	31	0.0049	35	75%	13	5.83	21	6.30	35	3.56	13	26%	42	2.2%	44	1.83%	46	0.21	42	1.08%	46	0.31%	33	4.4	46	0.00%
WY	40	0.23%	11	0.0075	16	80%	49	3.47	10	7.51	47	2.40	40	12%	50	1.4%	41	1.89%	35	0.38	50	0.40%	47	0.29%	50	3.3	27	0.06%
AL	44	0.21%	47	0.0029	47	67%	39	4.17	40	3.08	41	3.00	48	7%	28	3.3%	30	2.45%	45	0.21	25	1.90%	7	0.92%	7	6.3	32	0.04%
AR	18	0.32%	48	0.0022	49	66%	22	5.04	37	4.26	45	2.60	46	8%	46	2.0%	37	1.92%	50	0.13	46	0.86%	45	0.31%	13	5.6	48	0.00%4
WV	38	0.23%	49	0.0022	48	66%	24	5.04	34	4.53	48	2.30	8	34%	47	1.9%	47	1.61%	47	0.21	43	1.05%	12	0.72%	45	4.0	45	0.01%
MS	35	0.24%	50	0.0020	50	63%	15	5.66	48	2.26	50	1.62	17	23%	49	1.6%	50	1.40%	49	0.15	47	0.71%	15	0.64%	29	4.8	49	0.00%
		0.30%		**0.067**		**77%**		**5.00**		**5.00**		**5.00**		**8%**		**4.1%**		**2.93%**		**0.73**		**3.31%**		**0.66%**		**5.0**		**0.23%**

STATE NEW ECONOMY SCORES IN ALPHABETICAL ORDER

	Overall		IT Professionals		Managerial, Professional, Technical Jobs		Workforce Education		Immigration of Knowledge Workers		Migration of U.S. Knowledge Workers		Manufacturing Value-Added		High-Wage Traded Services		Export Focus of Manufacturing and Services		Foreign Direct Investment		Job Churning		Fastest-Growing Firms		IPOs	
State	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Alabama	47	43.5	41	0.88%	39	19.0%	45	26.8	41	11.5	45	12.4	38	88.7%	33	12.0%	30	$21,402	20	4.8%	46	28.2%	33	0.0040%	49	3.92
Alaska	31	52.1	34	0.977%	16	21.9%	15	40.8	19	12.5	43	12.5	11	103.7%	45	8.8%	47	$12,180	21	4.8%	2	46.4%	47	0.0000%	50	3.92
Arizona	20	61.0	20	1.28%	25	20.7%	29	34.8	49	10.0	27	12.9	3	113.5%	18	14.2%	23	$25,056	40	3.1%	9	41.4%	15	0.0109%	19	4.78
Arkansas	48	40.0	31	1.10%	45	18.1%	48	23.0	44	11.1	50	11.8	42	87.0%	28	13.1%	39	$18,029	33	3.4%	30	32.9%	46	0.0008%	32	3.92
California	7	74.3	18	1.35%	14	22.0%	22	36.9	45	11.0	22	13.3	20	100.3%	4	18.2%	18	$29,671	24	4.6%	48	27.2%	7	0.0182%	4	6.03
Colorado	9	72.8	7	1.84%	13	22.3%	3	48.4	37	11.7	11	13.8	27	96.9%	19	14.0%	42	$17,163	28	4.0%	5	44.2%	11	0.0159%	5	5.80
Connecticut	5	76.6	10	1.61%	4	24.6%	4	48.3	20	12.5	3	14.3	2	122.0%	2	20.5%	16	$30,400	3	6.6%	50	21.5%	5	0.0212%	8	5.51
Delaware	6	75.0	3	1.99%	5	24.5%	21	37.0	36	11.8	30	12.9	5	108.0%	1	21.8%	2	$63,016	1	7.3%	36	31.2%	35	0.0038%	33	3.92
Florida	21	60.6	29	1.12%	37	19.2%	33	34.2	43	11.3	37	12.7	21	100.2%	20	14.0%	7	$38,468	34	3.4%	1	47.1%	24	0.0069%	25	4.59
Georgia	19	62.6	21	1.27%	24	20.8%	34	34.1	35	11.8	38	12.7	18	100.9%	13	14.9%	17	$30,232	16	5.0%	4	44.2%	9	0.0165%	16	4.85
Hawaii	40	48.7	46	0.65%	41	18.8%	13	41.5	7	13.5	4	14.1	46	81.5%	46	8.6%	49	$10,614	8	5.9%	32	32.2%	44	0.0016%	34	3.92
Idaho	27	54.2	28	1.14%	32	19.8%	28	34.9	50	9.5	36	12.8	49	52.7%	37	11.3%	37	$19,933	47	2.4%	3	44.7%	42	0.0020%	35	3.92
Illinois	15	65.1	12	1.54%	9	23.8%	17	39.8	25	12.2	17	13.5	26	98.5%	7	17.1%	19	$29,058	15	5.1%	26	33.7%	16	0.0107%	22	4.67
Indiana	35	49.7	33	1.02%	38	19.1%	39	30.1	18	12.6	28	12.9	9	105.4%	42	10.0%	41	$17,773	13	5.5%	27	33.5%	23	0.0070%	24	4.61
Iowa	38	49.5	27	1.19%	36	19.4%	31	34.7	23	12.3	35	12.8	12	103.0%	21	13.9%	34	$20,360	37	3.3%	45	28.8%	38	0.0028%	29	4.29
Kansas	26	54.5	17	1.36%	21	21.0%	14	41.0	5	13.6	33	12.8	43	86.3%	32	12.2%	38	$19,846	25	4.6%	33	32.1%	26	0.0057%	36	3.92
Kentucky	44	46.0	37	0.91%	35	19.4%	46	24.7	21	12.4	42	12.5	34	91.9%	35	11.7%	12	$32,825	11	5.7%	38	30.7%	45	0.0012%	37	3.92
Louisiana	43	46.0	49	0.52%	40	19.0%	47	23.6	34	11.8	48	12.0	6	107.8%	24	13.5%	5	$41,658	38	3.3%	42	30.0%	43	0.0020%	38	3.92
Maine	28	54.0	38	0.91%	30	20.1%	24	36.3	6	13.5	9	13.9	29	96.2%	38	11.2%	40	$17,981	14	5.3%	10	40.5%	40	0.0024%	39	3.92
Maryland	3	76.9	5	1.95%	2	25.8%	2	48.9	10	13.3	5	14.0	7	106.6%	26	13.2%	25	$23,094	19	4.9%	20	36.4%	4	0.0265%	21	4.72
Massachusetts	1	92.6	4	1.97%	1	27.6%	1	51.5	13	13.0	1	14.6	8	106.1%	10	16.4%	9	$34,297	6	6.0%	28	33.3%	1	0.0353%	3	6.75
Michigan	17	63.4	26	1.20%	17	21.7%	27	35.7	17	12.6	25	13.1	15	101.4%	36	11.6%	21	$27,150	27	4.1%	18	36.8%	34	0.0039%	31	4.04
Minnesota	13	67.5	6	1.89%	8	24.1%	8	44.6	28	12.0	14	13.6	22	100.1%	5	17.8%	24	$23,901	29	3.9%	23	34.7%	21	0.0078%	20	4.78
Mississippi	50	35.3	48	0.53%	49	17.5%	49	22.7	14	12.8	47	12.1	39	87.8%	44	9.6%	32	$20,498	45	2.6%	41	30.3%	36	0.0036%	40	3.92
Missouri	33	50.8	11	1.59%	20	21.0%	36	33.2	4	13.7	32	12.8	36	89.4%	16	14.6%	43	$16,919	35	3.4%	47	27.4%	37	0.0029%	41	3.92
Montana	37	49.7	45	0.67%	43	18.5%	19	39.1	3	13.9	18	13.5	50	50.2%	48	8.2%	35	$20,224	49	2.1%	8	42.1%	39	0.0027%	42	3.92
Nebraska	34	50.5	22	1.26%	31	20.0%	18	39.3	26	12.1	39	12.7	30	95.2%	8	17.0%	28	$22,235	41	2.9%	40	30.5%	32	0.0042%	43	3.92
Nevada	30	52.5	43	0.74%	50	15.6%	43	29.2	47	10.5	44	12.4	4	108.5%	41	10.0%	4	$43,172	42	2.9%	12	38.7%	18	0.0104%	18	4.80
New Hampshire	11	70.6	9	1.69%	10	22.6%	6	45.6	2	14.4	10	13.8	44	83.1%	14	14.9%	45	$16,176	4	6.6%	15	37.7%	13	0.0122%	14	5.02
New Jersey	4	76.9	2	2.13%	7	24.2%	10	44.4	22	12.4	20	13.5	35	91.8%	6	17.2%	13	$31,714	5	6.5%	29	33.1%	6	0.0197%	7	5.52
New Mexico	32	51.7	32	1.08%	19	21.1%	35	33.7	39	11.6	24	13.1	41	87.2%	43	9.7%	50	$10,299	48	2.4%	13	37.9%	41	0.0022%	44	3.92
New York	10	71.3	13	1.53%	6	24.5%	12	41.6	24	12.3	12	13.6	24	99.1%	3	20.1%	14	$31,623	10	5.8%	19	36.4%	12	0.0124%	10	5.34
North Carolina	24	57.1	14	1.49%	27	20.3%	37	32.8	40	11.5	26	13.0	25	98.9%	22	13.8%	27	$23,067	7	6.0%	17	37.0%	17	0.0106%	23	4.65
North Dakota	36	49.7	47	0.62%	46	18.0%	23	36.8	1	14.6	7	13.9	31	95.2%	39	10.7%	10	$34,268	44	2.7%	34	32.0%	28	0.0050%	6	5.67
Ohio	25	55.2	15	1.45%	22	20.9%	38	32.6	9	13.4	23	13.2	19	100.8%	15	14.6%	26	$23,075	22	4.8%	39	30.7%	25	0.0064%	30	4.04
Oklahoma	42	47.2	35	0.96%	34	19.7%	40	30.1	38	11.7	46	12.1	23	99.6%	40	10.7%	44	$16,564	46	2.6%	24	34.1%	31	0.0044%	2	7.01
Oregon	14	67.0	30	1.11%	26	20.4%	16	40.7	30	11.9	29	12.9	14	101.9%	17	14.4%	11	$32,945	43	2.9%	14	37.9%	19	0.0086%	45	3.92
Pennsylvania	22	60.2	19	1.31%	15	22.0%	32	34.3	16	12.7	19	13.5	16	101.3%	12	15.2%	31	$21,234	17	5.0%	25	33.7%	14	0.0112%	27	4.55
Rhode Island	16	63.6	25	1.22%	11	22.5%	20	38.0	31	11.9	8	13.9	47	79.5%	30	12.6%	48	$11,990	9	5.9%	7	42.3%	48	0.0000%	13	5.09
South Carolina	39	49.3	39	0.90%	44	18.4%	42	29.3	29	12.0	31	12.8	28	96.5%	29	12.6%	8	$35,066	2	6.9%	22	35.4%	20	0.0083%	46	3.92
South Dakota	45	45.1	40	0.89%	47	17.8%	30	34.7	11	13.2	21	13.3	45	82.3%	27	13.2%	46	$13,519	50	1.9%	35	31.7%	49	0.0000%	47	3.92
Tennessee	41	48.5	36	0.93%	42	18.7%	44	27.5	32	11.9	41	12.5	33	92.4%	31	12.3%	22	$25,233	12	5.7%	49	26.0%	22	0.0070%	12	5.10
Texas	18	63.0	16	1.43%	23	20.9%	41	29.9	46	10.8	40	12.6	10	104.6%	23	13.5%	1	$65,563	23	4.7%	31	32.4%	8	0.0181%	9	5.48
Utah	12	69.1	23	1.24%	28	20.1%	11	42.8	33	11.8	15	13.5	32	94.7%	11	15.4%	6	$39,444	36	3.4%	6	43.5%	3	0.0313%	11	5.17
Vermont	23	59.5	42	0.87%	18	21.1%	5	46.0	8	13.4	2	14.6	37	89.0%	47	8.3%	20	$28,540	30	3.7%	11	39.9%	30	0.0046%	48	3.92
Virginia	8	73.7	1	2.23%	3	24.6%	7	44.8	12	13.0	6	13.9	13	103.0%	9	16.7%	29	$21,910	18	5.0%	16	37.4%	2	0.0315%	15	5.01
Washington	2	77.5	8	1.79%	12	22.3%	9	44.5	15	12.8	13	13.6	1	128.2%	34	11.8%	3	$44,271	31	3.6%	43	29.8%	10	0.0161%	26	4.58
West Virginia	49	38.1	44	0.71%	33	19.8%	50	20.3	42	11.4	49	11.9	40	87.4%	49	8.1%	33	$20,432	32	3.5%	44	29.2%	27	0.0054%	17	4.80
Wisconsin	29	53.1	24	1.23%	29	20.1%	26	36.0	27	12.0	16	13.5	17	101.2%	25	13.5%	36	$20,021	39	3.3%	37	31.1%	29	0.0050%	28	4.33
Wyoming	46	45.0	50	0.51%	48	17.6%	25	36.3	48	10.3	34	12.8	48	78.7%	50	7.5%	15	$30,435	26	4.6%	21	36.3%	50	0.0000%	1	8.84
U.S. Average		**62.0**		**1.38%**		**21.5%**		**36.3**		**11.8**		**13.1**		**99.2%**		**15.0%**		**$32,332**		**4.7%**		**34.3%**		**0.0128%**		**5.00**

State	Entrepreneurial Activity Rank	Score	Inventor Patents Rank	Score	Online Population Rank	Score	E-Gov't. Rank	Score	Online Agriculture Rank	Score	Broadband Telecommunications Rank	Score	Health IT Rank	Score	High-Tech Jobs Rank	Score	Scientists and Engineers Rank	Score	Patents Rank	Score	Industry Investment in R&D Rank	Score	Non-Industry Investment in R&D Rank	Score	Alternative Energy Use Rank	Score	Venture Capital Rank	Score
AL	44	0.21%	47	0.0029	47	67%	39	4.17	40	3.08	41	3.00	48	7%	28	3.3%	30	2.45%	45	0.21	25	1.90%	7	0.92%	7	6.3	32	0.04%
AK	17	0.34%	33	0.0045	2	86%	35	4.34	30	5.00	37	3.13	45	8%	36	2.5%	15	2.95%	48	0.20	49	0.47%	22	0.56%	37	4.3	47	0.00%
AZ	2	0.47%	12	0.0075	18	80%	19	5.13	47	2.35	18	5.35	41	11%	18	3.9%	17	2.86%	11	0.93	15	2.92%	29	0.47%	14	5.5	24	0.07%
AR	18	0.32%	48	0.0022	49	66%	22	5.04	37	4.26	45	2.60	46	8%	46	2.0%	37	1.92%	50	0.13	46	0.86%	45	0.31%	13	5.6	48	0.00%4
CA	5	0.43%	3	0.0113	14	80%	6	6.18	16	6.58	7	7.21	37	13%	6	5.8%	10	3.34%	3	1.53	12	3.39%	11	0.74%	28	4.8	2	0.88%
CO	8	0.40%	14	0.0074	8	82%	8	6.09	13	6.78	22	5.16	24	18%	5	5.9%	5	4.39%	6	1.21	8	4.04%	14	0.68%	48	3.8	4	0.31%
CT	22	0.31%	5	0.0094	13	81%	30	4.61	2	7.80	5	7.51	30	16%	14	4.3%	12	3.19%	15	0.83	5	5.20%	37	0.37%	8	6.2	7	0.18%
DE	28	0.28%	32	0.0047	26	78%	36	4.26	33	4.78	10	6.35	7	34%	12	4.6%	7	3.61%	5	1.25	1	7.82%	49	0.22%	44	4.0	18	0.12%
FL	4	0.45%	10	0.0076	22	78%	28	4.69	25	5.81	13	5.99	19	22%	27	3.4%	32	2.27%	26	0.49	32	1.51%	40	0.35%	26	4.8	26	0.06%
GA	1	0.50%	40	0.0040	33	76%	20	5.13	45	2.66	14	5.82	28	17%	26	3.4%	29	2.47%	21	0.57	31	1.55%	35	0.42%	19	5.3	16	0.13%
HI	45	0.21%	41	0.0040	21	79%	25	4.87	31	5.00	19	5.29	31	16%	41	2.2%	45	1.82%	42	0.27	44	0.98%	17	0.60%	24	4.9	36	0.02%
ID	9	0.39%	6	0.0088	9	81%	46	3.56	18	6.55	43	2.87	12	26%	10	4.8%	27	2.59%	1	2.47	19	2.64%	10	0.75%	18	5.3	30	0.04%
IL	30	0.26%	25	0.0055	23	78%	18	5.22	23	6.09	12	6.01	14	25%	22	3.7%	21	2.78%	23	0.56	13	3.23%	28	0.47%	9	6.0	23	0.07%
IN	24	0.30%	45	0.0035	42	71%	50	3.03	24	5.87	33	3.75	16	23%	30	3.3%	33	2.25%	40	0.27	30	1.72%	36	0.42%	41	4.0	21	0.10%
IA	49	0.19%	37	0.0043	28	77%	42	4.08	19	6.52	38	3.12	3	48%	37	2.5%	35	2.11%	33	0.38	29	1.77%	24	0.52%	27	4.8	20	0.10%
KS	36	0.23%	38	0.0042	19	79%	17	5.39	22	6.16	24	4.54	20	22%	24	3.7%	19	2.82%	29	0.42	34	1.49%	44	0.34%	35	4.4	41	0.01%
KY	25	0.30%	46	0.0031	45	69%	9	6.01	44	2.80	36	3.49	32	16%	43	2.2%	43	1.87%	39	0.30	40	1.12%	42	0.34%	42	4.0	42	0.01%
LA	29	0.27%	29	0.0052	44	70%	26	4.87	46	2.61	16	5.68	29	17%	48	1.9%	48	1.61%	44	0.22	48	0.56%	43	0.34%	32	4.6	35	0.02%
ME	21	0.31%	43	0.0037	27	77%	40	4.17	3	7.80	40	3.01	11	27%	34	2.5%	42	1.87%	37	0.32	38	1.19%	30	0.46%	4	7.0	37	0.02%
MD	33	0.25%	17	0.0071	10	81%	14	5.66	35	4.48	2	8.10	36	14%	4	6.2%	3	4.56%	13	0.87	22	2.42%	2	3.96%	22	4.9	9	0.17%
MA	23	0.30%	4	0.0098	12	81%	23	5.04	4	7.80	4	7.79	1	57%	1	7.7%	4	4.53%	8	1.17	2	6.48%	4	1.44%	30	4.7	1	0.97%
MI	13	0.37%	18	0.0068	24	78%	2	7.14	26	5.76	29	4.15	9	33%	17	3.9%	11	3.26%	14	0.85	3	5.99%	34	0.44%	16	5.4	28	0.05%
MN	42	0.22%	9	0.0078	7	83%	12	5.83	14	6.71	25	4.50	4	38%	13	4.5%	8	3.40%	12	0.91	7	4.43%	39	0.36%	31	4.6	11	0.15%
MS	35	0.24%	50	0.0020	50	63%	15	5.66	48	2.26	50	1.62	17	23%	49	1.6%	50	1.40%	49	0.15	47	0.71%	15	0.64%	29	4.8	49	0.00%
MO	48	0.20%	34	0.0045	36	74%	10	6.01	39	3.24	31	3.86	6	35%	29	3.3%	23	2.72%	36	0.36	24	2.28%	33	0.44%	36	4.3	38	0.02%
MT	3	0.45%	20	0.0065	31	77%	41	4.17	8	7.77	49	1.96	25	18%	45	2.0%	39	1.89%	27	0.46	41	1.08%	3	2.12%	11	5.8	25	0.07%
NE	43	0.22%	24	0.0056	17	80%	34	4.43	12	6.86	32	3.75	42	11%	31	3.1%	31	2.34%	38	0.31	36	1.36%	25	0.51%	23	4.9	50	0.00%
NV	6	0.43%	15	0.0073	20	79%	31	4.61	50	0.79	8	6.43	21	22%	40	2.3%	49	1.52%	20	0.58	37	1.25%	50	0.18%	40	4.1	39	0.02%
NH	26	0.29%	8	0.0079	5	83%	43	3.99	5	7.80	9	6.38	38	12%	8	5.5%	9	3.38%	30	0.41	6	4.54%	20	0.57%	2	7.6	10	0.16%
NJ	19	0.32%	13	0.0075	11	81%	32	4.61	9	7.69	1	8.58	33	15%	7	5.8%	6	3.73%	9	0.97	9	4.01%	38	0.36%	21	5.1	6	0.23%
NM	11	0.38%	22	0.0056	41	73%	44	3.99	41	3.07	46	2.59	49	7%	2	6.8%	16	2.91%	19	0.66	27	1.79%	1	6.78%	47	3.9	34	0.03%
NY	10	0.39%	21	0.0063	34	76%	4	6.44	17	6.58	6	7.48	39	12%	25	3.6%	25	2.65%	10	0.94	26	1.85%	31	0.45%	12	5.7	14	0.14%
NC	41	0.22%	44	0.0036	39	73%	37	4.26	28	5.50	27	4.19	15	24%	20	3.8%	26	2.63%	22	0.56	20	2.43%	16	0.61%	15	5.4	13	0.14%
ND	47	0.20%	16	0.0071	29	77%	16	5.66	15	6.65	39	3.04	50	3%	35	2.5%	38	1.91%	34	0.38	39	1.17%	13	0.70%	38	4.2	29	0.05%
OH	32	0.25%	27	0.0053	32	76%	21	5.13	32	4.94	30	4.00	26	18%	32	3.1%	20	2.81%	28	0.45	14	3.00%	18	0.60%	34	4.4	31	0.04%
OK	14	0.37%	36	0.0043	38	73%	47	3.56	36	4.36	23	4.79	27	18%	44	2.1%	40	1.89%	31	0.40	45	0.95%	48	0.29%	46	3.9	44	0.01%
OR	12	0.37%	2	0.0144	4	84%	5	6.27	11	6.88	21	5.18	5	37%	15	4.2%	24	2.68%	7	1.20	10	3.90%	32	0.45%	6	6.7	12	0.14%
PA	50	0.17%	30	0.0051	37	74%	7	6.18	43	2.91	20	5.23	10	32%	16	4.0%	22	2.77%	24	0.55	11	3.40%	19	0.59%	10	5.9	15	0.13%
RI	31	0.26%	23	0.0056	30	77%	38	4.26	6	7.80	3	8.00	2	49%	23	3.7%	18	2.83%	18	0.74	33	1.51%	5	1.43%	43	4.0	8	0.17%
SC	39	0.23%	39	0.0041	46	69%	48	3.56	42	3.05	42	2.93	47	8%	38	2.5%	36	2.02%	43	0.24	28	1.78%	21	0.57%	5	6.8	43	0.01%
SD	27	0.28%	31	0.0049	35	75%	13	5.83	21	6.30	35	3.56	13	26%	42	2.2%	44	1.83%	46	0.21	42	1.08%	46	0.31%	33	4.4	46	0.00%
TN	15	0.35%	42	0.0038	43	70%	11	5.92	49	2.26	28	4.17	23	20%	39	2.4%	46	1.72%	41	0.27	35	1.43%	8	0.82%	17	5.3	33	0.03%
TX	7	0.41%	26	0.0054	40	73%	29	4.69	38	4.13	17	5.57	34	15%	19	3.8%	14	3.05%	16	0.75	17	2.71%	41	0.35%	39	4.2	19	0.10%
UT	16	0.35%	1	0.0221	1	86%	1	7.67	27	5.59	34	3.66	44	10%	11	4.7%	13	3.06%	17	0.75	23	2.29%	23	0.54%	49	3.5	5	0.24%
VT	20	0.32%	35	0.0044	6	83%	45	3.91	7	7.80	44	2.61	22	21%	21	3.7%	34	2.14%	4	1.32	18	2.70%	26	0.50%	1	8.0	22	0.08%
VA	46	0.21%	28	0.0053	25	78%	3	6.71	29	5.34	11	6.14	35	15%	3	6.6%	1	5.00%	25	0.51	21	2.43%	6	1.21%	20	5.2	17	0.12%
WA	37	0.23%	7	0.0087	3	86%	27	4.87	1	8.33	15	5.72	18	23%	9	5.4%	2	4.69%	2	2.18	4	5.57%	9	0.77%	3	7.6	3	0.33%
WV	38	0.23%	49	0.0022	48	66%	24	5.04	34	4.53	48	2.30	8	34%	47	1.9%	47	1.61%	47	0.21	43	1.05%	12	0.72%	45	4.0	45	0.01%
WI	34	0.24%	19	0.0067	15	80%	33	4.61	20	6.34	26	4.36	43	11%	33	2.9%	28	2.57%	32	0.38	16	2.85%	27	0.49%	25	4.9	40	0.02%
WY	40	0.23%	11	0.0075	16	80%	49	3.47	10	7.51	47	2.40	40	12%	50	1.4%	41	1.89%	35	0.38	50	0.40%	47	0.29%	50	3.3	27	0.06%
		0.30%		**0.067**		**77%**		**5.00**		**5.00**		**5.00**		**8%**		**4.1%**		**2.93%**		**0.73**		**3.31%**		**0.66%**		**5.0**		**0.23%**

SUMMARY OF RESULTS

The state that continues to be farthest along the path to the New Economy is Massachusetts. Topping the list in 1999, 2002, 2007, and 2008, Massachusetts' lead over other states in 2010 has increased yet again. Boasting a concentration of software, hardware, and biotech firms supported by world-class universities such as MIT and Harvard in the Route 128 region around Boston, Massachusetts survived the early 2000s downturn and was less hard hit than the nation as a whole in the last recession. And it has continued to thrive, enjoying the fourth-highest increase in per-capita income. Washington state ranked fourth in 2007 and second in 2008, and has maintained its second-place standing. Washington scores high due not only to its strength in software (in no small part due to Microsoft) and aviation (Boeing), but also because of the entrepreneurial hotbed of activity that has developed in the Puget Sound region, and very strong use of digital technologies by all sectors.

Maryland remains third (as it was in 2007 and 2008, as well), in part because of the high concentration of knowledge workers, many employed in the District of Columbia suburbs and many in federal laboratory facilities or companies related to them.

New Jersey's strong pharmaceutical industry, coupled with a high-tech agglomeration around Princeton, an advanced services sector in Northern New Jersey, and high levels of inward foreign direct investment help drive it to fourth place (up from sixth in 2002, and fifth in 2008). Connecticut also has moved up in the rankings from sixth to fifth. Connecticut's success is not based on any one area or indicator; in fact, Connecticut does not rank first on any of the twenty-seven indicators; however, the state scores very high across the index. Connecticut ranks second or third in more indicators than any other state (besides Maryland) due to its mixture of a highly educated population, strong defense and financial industries, and high manufacturing value-added. These and the other top ten New Economy states (Delaware, California, Virginia, Colorado, and New York) have more in common than just high-tech firms. They also tend to have a high concentration of managers, professionals, and college-educated residents working in "knowledge jobs" (jobs that require at least a two-year degree). With one or two exceptions, their manufacturers tend to be more geared toward global markets, both in terms of export orientation and the amount of foreign direct investment. All the top ten states also show above-average levels of entrepreneurship, even though some, like Massachusetts and Connecticut, are not growing rapidly in employment. Most are at the forefront of the IT revolution, with a large share of their institutions and residents embracing the digital economy. In fact, the variable that is more closely correlated (0.86) with a high overall ranking is jobs in IT occupations outside the IT industry itself. Most have a solid "innovation infrastructure" that fosters and supports technological innovation. Many have high levels of domestic and foreign immigration of highly mobile, highly skilled knowledge workers seeking good employment opportunities coupled with a good quality of life.

While top-ranking states tend to be richer (there is a strong and positive correlation of 0.75 between their rankings and their per-capita income), wealth is not a simple proxy for advancement toward the New Economy. Some states with higher per-capita incomes lag behind in their scores (for example, Alaska, Hawaii, Iowa, and Oklahoma), while other states with lower incomes do better than their incomes would predict (e.g., Utah, Idaho, Georgia, and Arizona).

The two states whose economies have lagged most in making the transition to the New Economy are Mississippi and West Virginia. Other states with low scores include, in reverse order, Arkansas, Alabama, Wyoming, South Dakota, Kentucky, Louisiana, and Oklahoma. Historically, the economies of many of these and other Southern and Plains states depended on natural resources or on mass-production manufacturing, and relied on low costs rather

than innovative capacity, to gain advantage. But innovative capacity (derived through universities, R&D investments, scientists and engineers, and entrepreneurial drive) is increasingly what drives competitive success. While lower-ranking states face challenges, they also can take advantage of new opportunities. The IT revolution gives companies and individuals more geographical freedom, making it easier for businesses to relocate, or start up and grow in less densely populated states farther away from existing agglomerations of industry and commerce. Moreover, notwithstanding the recent decline in housing prices, metropolitan areas in many of the top states suffer from high costs (largely due to high land and housing costs) and near gridlock on their roads. Both factors may make locating in less-congested metros, many in lower-ranking states, more attractive, particularly if their metropolitan areas offer high-quality schools, high-quality and efficient government, and a robust infrastructure.

Regionally, the New Economy has taken hold most strongly in the Northeast, the mid-Atlantic, the Mountain West, and the Pacific regions; thirteen of the top twenty states are in these four regions. (The exceptions are Virginia, Minnesota, Illinois, Texas, Michigan, Arizona, and Georgia). In contrast, eighteen of the twenty lowest-ranking states are in the Midwest, Great Plains, and the South. Given some states' reputations as technology-based, New Economy states, their scores seem surprising at first. For example, North Carolina and New Mexico rank twenty-fourth and thirty-second, respectively, in spite of the fact that the region around Research Triangle Park boasts top universities, a highly educated workforce, cutting-edge technology companies, and global connections, while Albuquerque is home to leading national laboratories and an appealing quality of life. In both cases, however, many parts of the state outside these metropolitan regions are more rooted in the old economy—with more jobs in traditional manufacturing, agriculture, and lower-skilled services; a less-educated workforce; and a less-developed innovation infrastructure.

As these examples reveal, most state economies are, in fact, a composite of many regional economies that differ in the degree to which they are structured in accordance to New Economy factors.

Between 2008 and 2010, most states and the United States as a whole made sustained progress toward the New Economy. Of the twenty-three indicators that were comparable between 2008 and 2010, overall the United States increased on fourteen and decreased on three, for a net increase of eleven indicators. The three indicators in which the average U.S. score declined were patents, non-industry R&D and venture capital.

How closely do high scores correlate with economic growth? States that score higher appear to create jobs no faster than lower-ranking states do. Between 2002 and 2009, there was no correlation (-0.02) between employment growth and New Economy scores. However, job creation is not necessarily the best measure of long-term economic well-being, especially if growth comes in the form of low-paying jobs. Instead, growth in per-capita income provides a more accurate picture of economic health. Higher New Economy scores were positively correlated with higher growth in state per-capita incomes between 2002 and 2008 (0.32).

Yet, there are other paths to high income growth, at least in the shorter term. For example, Wyoming, which ranks forty-fifth, enjoyed the fastest absolute per-capita income growth between 2002 and 2008, largely due to increases in prices and demand for resource (mining, and oil and gas) industries. While yielding impressive performance in the short term, this is not a winning strategy for the long run. As history has shown, such an undiversified approach leaves an economy at the mercy of world price fluctuations that bring busts as well as booms. On the other hand, states that embrace the New Economy can expect to sustain greater per-capita income growth for the foreseeable future.

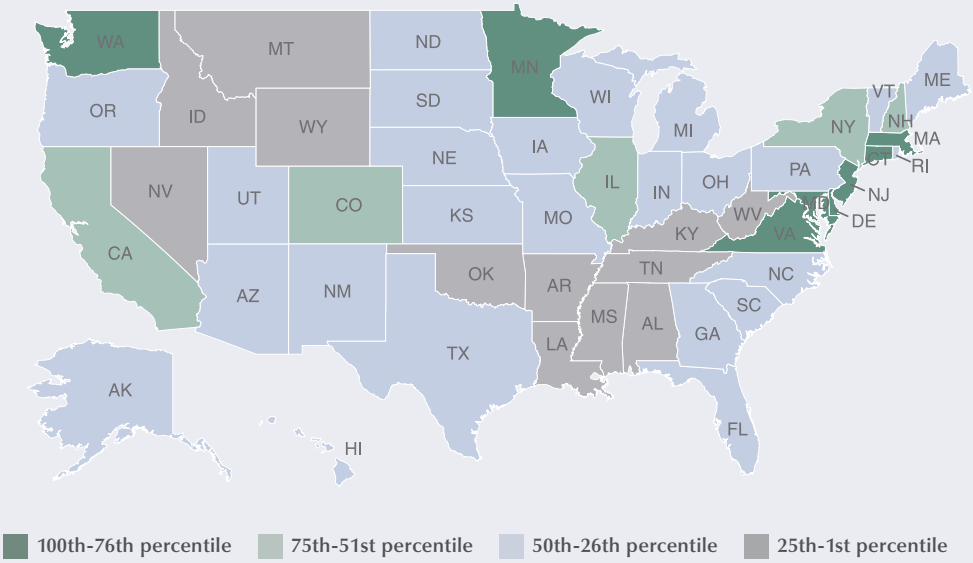
2010 Rank	State	2010 Score	2007 Rank*
1	Massachusetts	17.39	1
2	Connecticut	16.78	2
3	Maryland	15.40	4
4	Virginia	15.37	3
5	Delaware	13.94	8
6	Minnesota	13.94	6
7	New Jersey	13.85	7
8	Washington	13.80	9
9	New York	13.66	5
10	New Hampshire	12.96	11
11	Colorado	12.76	10
12	Illinois	12.41	12
13	California	10.70	14
14	Pennsylvania	10.58	16
15	Utah	10.38	15
16	Ohio	10.22	22
17	Vermont	10.04	27
18	Missouri	9.81	25
19	Nebraska	9.77	26
20	Kansas	9.72	28
21	Oregon	9.69	19
22	Wisconsin	9.44	24
23	Michigan	9.41	17
24	Rhode Island	9.23	13
25	Maine	9.07	32
26	Georgia	9.06	20
27	Arizona	8.98	23
28	North Carolina	8.85	31
29	Iowa	8.75	18
30	Alaska	8.71	21
31	North Dakota	8.32	29
32	Texas	8.14	33
33	Florida	7.83	30
34	South Dakota	7.24	46
35	Indiana	7.17	34
36	New Mexico	7.00	37
37	Hawaii	6.90	35
38	South Carolina	6.42	39
39	Oklahoma	6.12	36
40	Tennessee	5.75	43
41	Kentucky	5.56	45
42	Louisiana	5.34	38
43	Montana	5.17	41
44	Alabama	5.08	40
45	Nevada	4.35	48
46	Arkansas	4.27	42
47	Idaho	4.04	44
48	Wyoming	3.50	47
49	Mississippi	3.28	50
50	West Virginia	2.75	49
	U.S. Average	**10.00**	

KNOWLEDGE JOBS

Workers who were skilled with their hands and could reliably work in repetitive and sometimes physically demanding jobs were the engine of the old economy. In today's New Economy, knowledge-based jobs are driving prosperity. These jobs tend to be managerial, professional, and technical positions held by individuals with at least two years of college. Such skilled and educated workers are the backbone of states' most important industries, from high-value-added manufacturing to high-wage traded services.

The "knowledge jobs" indicators in this section measure seven aspects of knowledge-based employment: 1) employment in IT occupations in non-IT sectors; 2) the share of the workforce employed in managerial, professional, and technical occupations; 3) the education level of the workforce; 4) the average educational attainment of recent immigrants; 5) the average education attainment of recent U.S. inter-state migrants; 6) employment in high-value-added manufacturing sectors; and 7) employment in high-wage traded services.

AGGREGATED KNOWLEDGE JOBS SCORES



Source: Authors' calculations based on the states' scores in seven indicators—IT jobs; managerial, professional, and technical jobs; workforce education; immigration of knowledge workers; migration of U.S. knowledge workers; manufacturing value-added; and high-wage traded services.

*Due to methodological improvements and/or data discrepancies between the *2007* and *2010 Index*, ranking comparisons are not exact.

INFORMATION TECHNOLOGY JOBS

Employment in IT occupations in non-IT industries as a share of total jobs[14]

Why Is This Important? The IT revolution continues to transform the economy, as businesses in all industries use IT to find new ways to boost productivity, develop new products and services, and create new business models. The number of IT workers in non-IT industries is a good proxy to measure the extent to which traditional industries are making use of IT. IT workers, even in "traditional" industries, are bringing IT to an ever-growing list of applications, from standard website design, to tracking supply and product shipments in real time, to streamlining internal office operations, to finding new ways to communicate with customers. In fact, because of the continuing digital transformation of the economy, IT jobs grew by 26 percent between 1999 and 2009, versus only 6 percent for employment in general.[15]

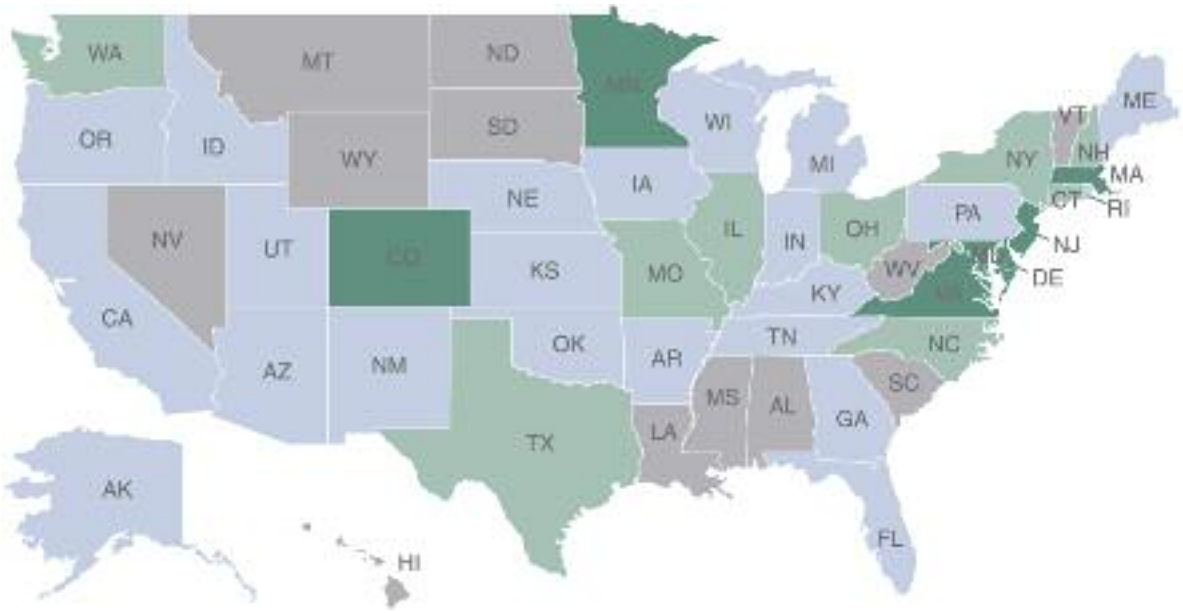
The Rankings: Even after controlling for the size of states' software and IT-producing industries, most of the states with high scores are those with more technology-driven economies, including every one of the top five. More than one-third of IT jobs in non-IT industries are located in just five states where creation of strong IT-producing industries leads to complementary work in non-IT fields. Virginia, for example, which ranks number one (and has ranked number one for the last several years) has the highest concentration of IT workers as a percentage of overall private-sector workforce.[16] Low-scoring states tend to have natural resource-based or traditional manufacturing-based economies.

	The Top Five	Percentage of jobs in IT occupations
1	Virginia	2.23%
2	New Jersey	2.13%
3	Delaware	1.99%
4	Massachusetts	1.97%
5	Maryland	1.95%
	U.S. Average	**1.38%**

Source: Bureau of Labor Statistics, 2009 data.

	The Top Five Movers	2007 Rank	2010 Rank	Change '07–'10
1	Arkansas	47	31	16
1	Ohio	25	15	10
3	Idaho	36	28	8
4	Delaware	9	3	6
4	Indiana	39	33	6

"Over the last decade, the number of IT jobs grew more than four times as fast as employment in general."



MANAGERIAL, PROFESSIONAL, AND TECHNICAL JOBS

Managers, professionals, and technicians as a share of the total workforce

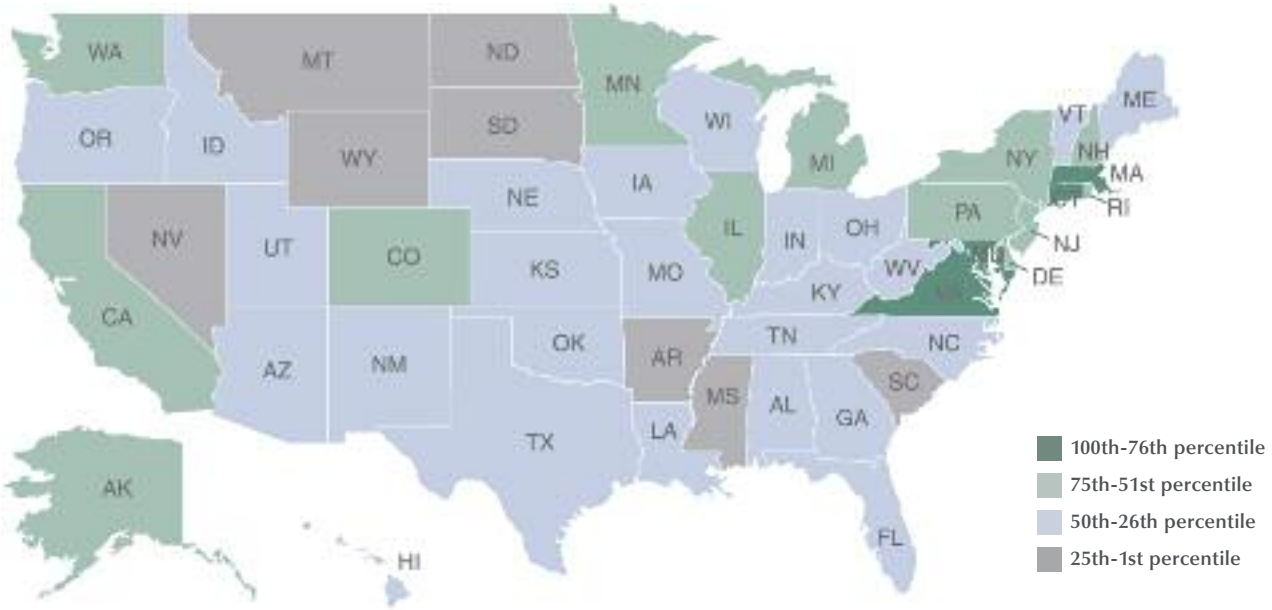
Why Is This Important? As more routine jobs are automated or off-shored, and as the economy becomes more complex and knowledge-based, managers, professionals, and technicians are playing a more important role in the economy. Indeed, professional and technical jobs grew 60 percent faster than overall employment between 1999 and 2009. The newly employed include engineers and scientists, health professionals, lawyers, teachers, accountants, bankers, consultants, and engineering technicians.[17] Managerial jobs, although they have declined by a quarter since 1999, perhaps in part due to the slowdown after 2000, are still key drivers of growth and innovation.

The Rankings: While overall employment declined by 2 percent between 2006 and 2009, managerial, professional, and technical jobs grew by 2 percent. States with high rankings, such as Massachusetts, Maryland, Virginia, and Connecticut, tend to have a large number of technology and professional service companies, and corporate headquarters or regional offices. In Connecticut, for example, Hartford is home to insurance and defense headquarters, while southwestern Connecticut is dominated by corporate headquarters (such as Pitney Bowes), financial services, and high-tech jobs—many of which have moved out of New York City. Massachusetts' large biotechnology, financial services, higher education, and health care industries are responsible for the state's top position. Maryland and Virginia rank high in part because of the high number of federal government managerial and professional jobs there. States that rank low tend to be either "branch-plant" and "back-office" states (e.g., Nevada, Mississippi, Tennessee) or natural resource-based states (Wyoming, South Dakota, Montana).

The Top Five		Percentage of jobs held by managers, professionals, and technicians
1	Massachusetts	27.6%
2	Maryland	25.8%
3	Virginia	24.6%
4	Connecticut	24.5%
5	Delaware	24.5%
	U.S. Average	**21.5%**

Source: Bureau of Labor Statistics, 2009 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	Missouri	33	20	13
2	Vermont	28	18	10
3	Kentucky	43	35	8
4	Iowa	42	36	6
4	Wisconsin	35	29	6



"While overall employment declined by 2 percent between 2006 and 2009, managerial, professional, and technical jobs grew by 2 percent."

WORKFORCE EDUCATION

A weighted measure of the educational attainment (advanced degrees, bachelor's degrees, associate's degrees, or some college coursework) of the workforce[18]

Why Is This Important? In the New Economy, an educated workforce is critical to increasing productivity and fostering innovation. Fortunately, the American workforce has become more educated (at least in terms of number of years of schooling) to meet the economy's increased need for skilled workers. In 2009, 28 percent of Americans over twenty-five years of age held at least a bachelor's degree, up from 24 percent in 2000, 21 percent in 1990, and 16 percent in 1980.

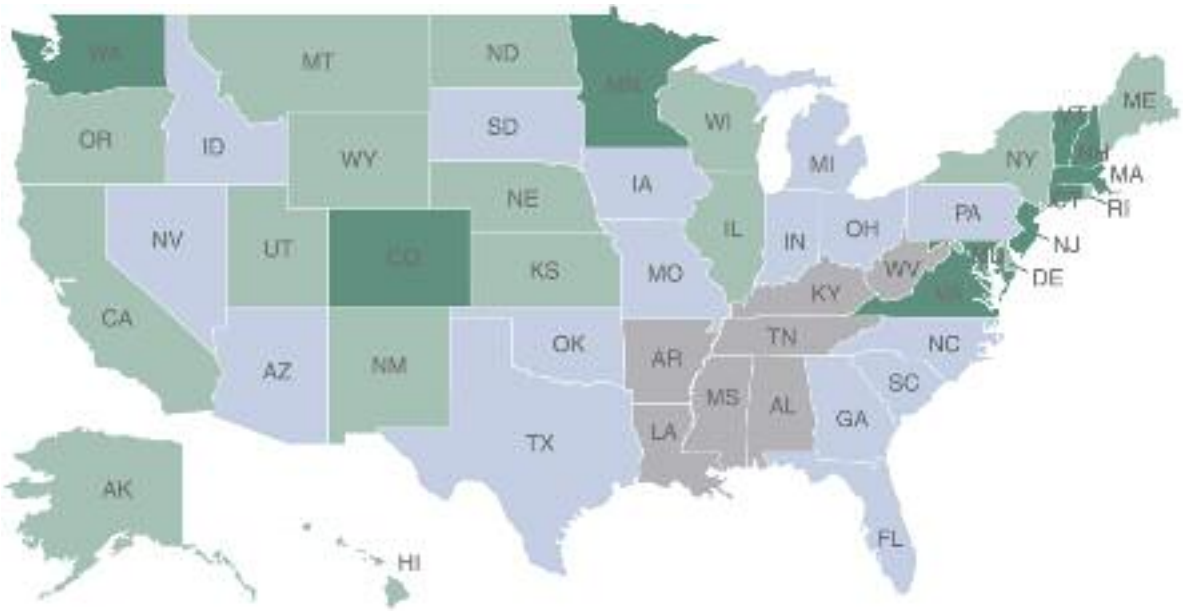
The Rankings: States such as Massachusetts, Maryland, and Connecticut, with strong higher-education systems and high-tech industrial clusters, tend to attract and retain highly educated individuals. Colorado attracts individuals from other regions who are, on average, more educated than those heading to other fast-growing Western states. Likewise, Virginia and Maryland are sustained, in part, by immigration of more-educated individuals to the Washington, D.C., region.[19] Meanwhile, those that have historically invested less in education (like Alabama, Louisiana, Mississippi, and Nevada) tend to fall near the bottom.

The Top Five		Composite score
1	Massachusetts	51.5
2	Maryland	48.9
3	Colorado	48.4
4	Connecticut	48.3
5	Vermont	46.0
	U.S. Average	**36.3**

Source: U.S. Census, 2009 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	Wyoming	35	25	10
2	Idaho	37	28	9
3	Iowa	36	31	5
3	Kansas	19	14	5
3	Wisconsin	31	26	5

"In 2009, 28 percent of Americans over twenty-five years of age held at least a bachelor's degree, up from 24 percent in 2000 and 21 percent in 1990."



IMMIGRATION OF KNOWLEDGE WORKERS

The average educational attainment of recent migrants from abroad[20]

Why Is This Important? In the new global economy, states must have people with the right skills, educational backgrounds, and talent. And, in a world with ever-increasing flows of talent across national borders, a small but growing share of states' knowledge workers are from overseas. In many cases, these workers do more than merely fill occupational gaps: By contributing new perspectives and knowledge drawn from other places, they enhance a state's innovation.[21] Foreign-born and foreign-educated scientists and engineers in the United States, for example, are over-represented among authors of the most-cited scientific papers and inventors holding highly-cited patents.[22] And the gap between immigrant and native-born entrepreneurs continues to grow. The percentage of entrepreneurs among immigrants grew from 0.46 in 2007 to 0.53 in 2008.[23]

The Rankings: States that have strong corporate and high-tech centers tend to score the highest in educational attainment of recent immigrants from abroad. States such as New Hampshire and Massachusetts, with mixed European and Asian migration, tend to do slightly better than most. Montana and North Dakota may do well because of strong German and Norwegian ancestries that promote immigration of highly educated Europeans. Generally, states with migrants predominately from Latin American countries, who, on average, have fewer years of education than European or Asian migrants, tend to do worse. Examples are Arizona, Nevada, New Mexico, Texas and California, which are all among the bottom ten states in this ranking.

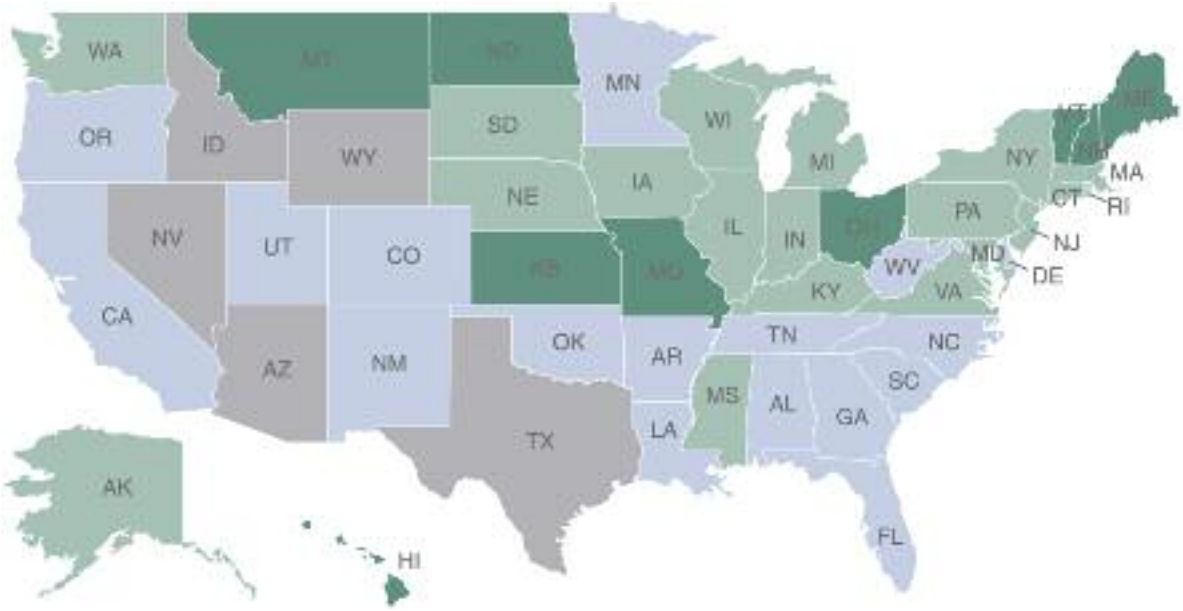
The Top Five		Average years of education
1	North Dakota	14.6
2	New Hampshire	14.4
3	Montana	13.9
4	Missouri	13.7
5	Kansas	13.6
	U.S. Average	**11.8**

Source: U.S. Census, 2008 and 2009 data.

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	South Dakota	45	11	34
2	Pennsylvania	30	16	14
2	Utah	47	33	14
4	Kansas	17	5	12
4	Maryland	22	10	12

* 2007 state ranks have been revised for data comparability.

"Immigrants far outpaced native-born Americans in entrepreneurial activity, increasing from 0.46 percent in 2007 to 0.53 percent in 2008."



MIGRATION OF U.S. KNOWLEDGE WORKERS

The average educational attainment of recent migrants from within the United States[24]

Why Is This Important? Just as countries compete for talent, so do states. While foreign immigration is important, the lion's share of immigration into states is from Americans moving across state lines. And, as information technology has become more accessible and companies have expanded their operations across the country, it has become easier for Americans to move than ever before. With the growth of telecommuting, many companies and organizations allow workers to permanently work away from the office. For example, due to the high living costs in Washington, D.C., the Internal Revenue Service offers employees the opportunity to work in remote offices all around the country. Accordingly, states now compete with one another not only to attract business but also to attract skilled workers who will work for those businesses or start their own. And there is a strong relationship between higher concentrations of well-educated residents and per-capita income growth.[25]

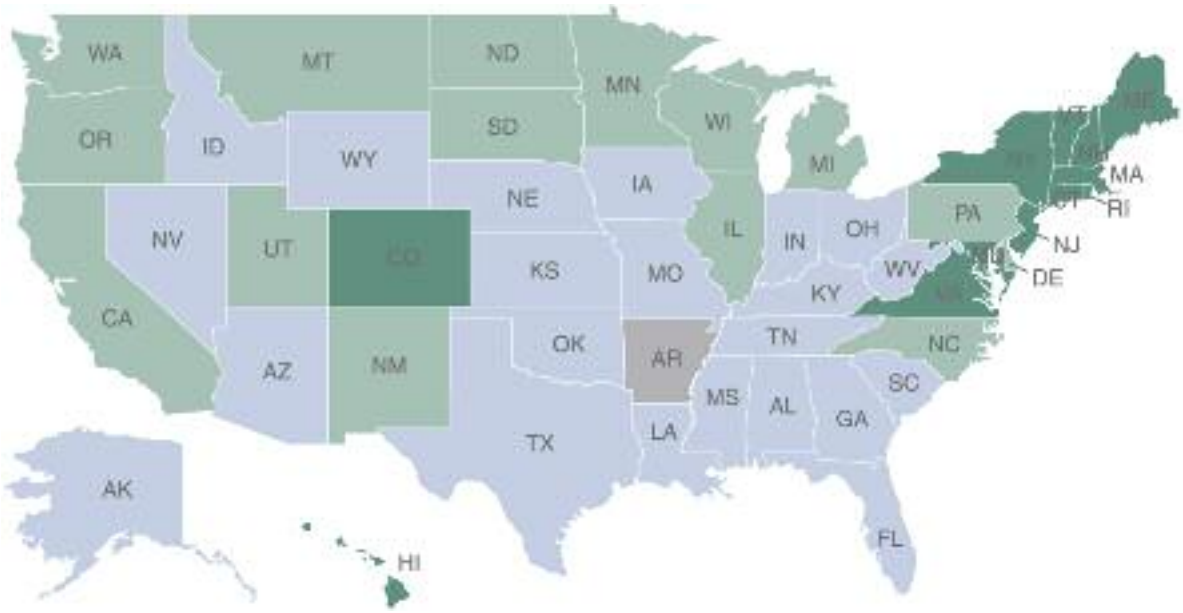
The Rankings: There appear to be several factors driving immigration of knowledge workers. First, states with strong higher-education systems, such as Massachusetts and Connecticut, rank high. In addition, states with a large share of high-wage, professional, and managerial jobs that rely more on knowledge workers do well.[26] These include states like Massachusetts, New York, Connecticut, Virginia, and Maryland. Knowledge workers also tend to move to where other knowledge workers already are highly concentrated.[27] In addition, quality of outdoor life appears to play a key role, with states like Vermont, Hawaii, New Hampshire, Colorado, and Maine ranking high.

"Even during the economic downturn there is a strong relationship between higher concentrations of well-educated residents and per-capita income growth."

The Top Five		Average years of education
1	Massachusetts	14.64
2	Vermont	14.56
3	Connecticut	14.34
4	Hawaii	14.09
5	Maryland	14.01
	U.S. Average	**13.10**

Source: U.S. Census, 2009 data.

The Top Five Movers		2008 Rank	2010 Rank	Change '08–'10
1	Indiana	35	28	7
1	Missouri	39	32	7
1	North Dakota	14	7	7
1	Ohio	30	23	7
1	Utah	22	15	7



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

MANUFACTURING VALUE-ADDED

Manufacturing value-added per production hour worked as a percentage of the national average, adjusted by industrial sector[28]

Why Is This Important? Value-added is the difference in value between inputs into the production process (e.g., materials, energy) and the value of final products or services sold. Within manufacturing, high-value-added sectors tend to be those that are capital-intensive and producing technologically complex products. Because their workers are more productive, generating greater value for each hour worked, these workers typically earn higher wages than other workers. And within sectors, firms with higher-value-added levels, all else being equal, are better equipped to meet competitive challenges, both at home and abroad.

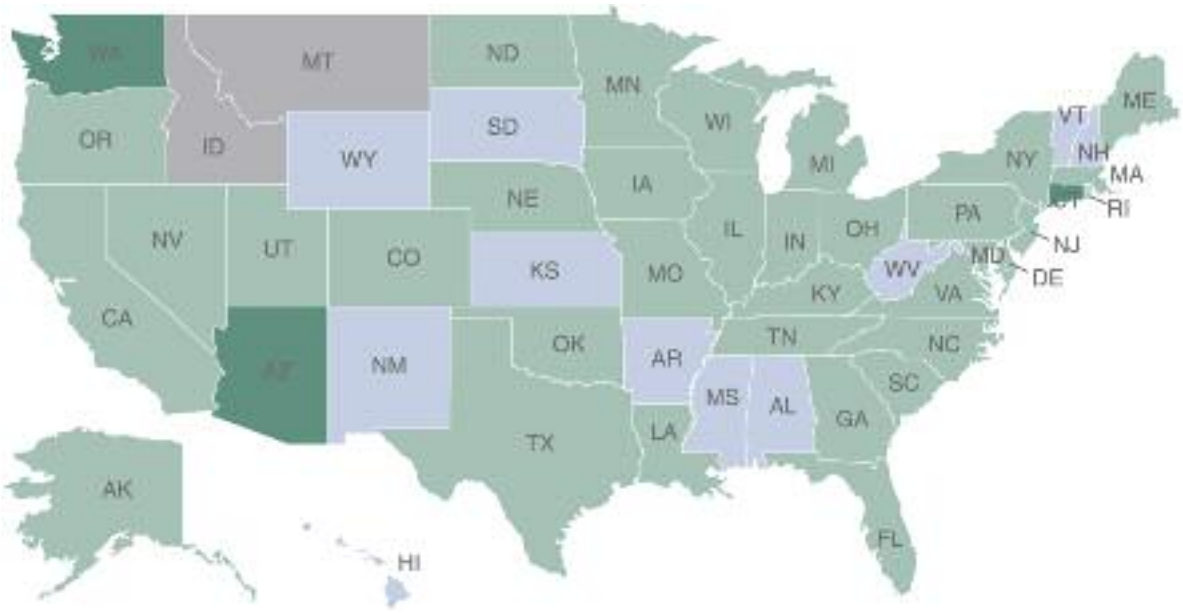
The Rankings: Even after controlling for a state's industry mix, states with high-tech firms outperform those without strong technology sectors. For example, three of the top five states in this category—Washington, Connecticut, and Delaware—all have strong technology industries and score in the top ten in the overall New Economy rankings. Arizona scores well due to its strong defense and aerospace industries. In addition, states with higher incomes and presumably higher business costs score higher, as firms in these states have stronger incentives to find ways to compete on the basis of higher productivity, rather than just low costs. Finally, states with manufacturing sectors dominated by firms concentrated in a small number of industries tend to score the highest. One explanation might be state specialization; another may be that states with homogeneous high-skilled firms develop knowledge-based clusters that increase production efficiency. For example, California, with its large and diversified manufacturing base, falls near the middle (twentieth).

"States with concentrated manufacturing in specialized sectors tend to have higher value-added production."

	The Top Five	Value-added as a percent of U.S. average
1	Washington	128.2%
2	Connecticut	122.0%
3	Arizona	113.5%
4	Nevada	108.5%
5	Delaware	108.0%
	U.S. Average	**100.0%**

Source: U.S. Census, 2007 data.

	The Top Five Movers	2008 Rank	2010 Rank	Change '08–'10
1	North Dakota	44	31	13
1	Oklahoma	36	23	13
3	Georgia	29	18	11
3	Michigan	26	15	11
5	Colorado	37	27	10



HIGH-WAGE TRADED SERVICES

The share of employment in traded service sectors in which the average wage is above the national median for traded services[29]

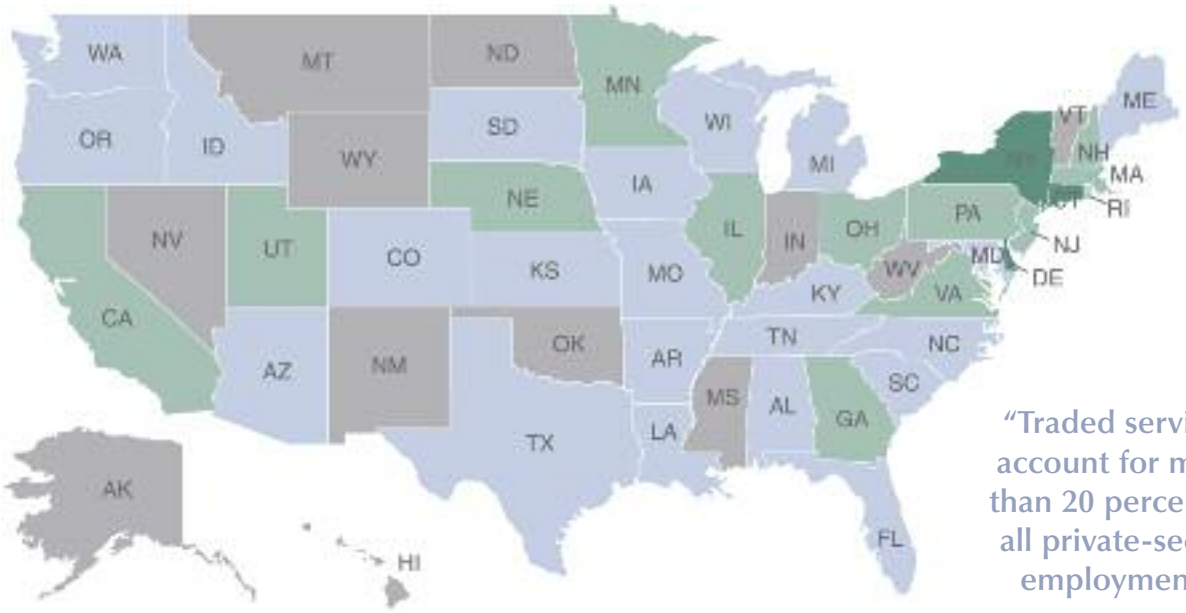
Why Is This Important? The service sector consists of more than just local-serving, low-wage industries, like fast-food establishments. From insurance and financial services to publishing and goods transportation, traded services—those that are not primarily consumed locally—accounted for 20 percent of private-sector employment in 2007. And many of these, like investment services, publishing, legal services, advertising, and shipping, pay wages above the national average. High-wage traded services have rebounded from the economic recession and have become a significant source of employment. For example, professional and business services added 392,000 jobs between September 2009 and August 2010.[30] Moreover, in most states, services are increasingly the only part of a region's economic base (firms that sell most of their output outside the region) that is growing in employment. Indeed, the IT revolution is enabling a growing share of information-based services to be physically distant from the customer while remaining functionally close. In the old economy, services like banking and book sales were local-serving industries. In the New Economy, these and a host of other industries are now more widely traded, as consumers can use the Internet and telephone to consume these services from companies not necessarily located in their communities.

The Rankings: Large, traditional centers of business activity lead the rankings. Delaware's state strategy to attract banking industries has helped propel it to the top of the rankings. Indeed, more than 50 percent of *Fortune* 500 companies are incorporated in Delaware due to the state's low corporate tax. Connecticut hosts a large number of insurance companies and law firms, while the New York metropolitan area is home to a wide array of corporate headquarters, financial services, and publishing companies. States near the bottom of the rankings, such as Wyoming, Montana, and West Virginia, tend to be economies more heavily based on resource-dependent industries and traditional manufacturing.

The Top Five		Percentage of service jobs in high-wage traded sectors
1	Delaware	21.8%
2	Connecticut	20.5%
3	New York	20.1%
4	California	18.2%
5	Minnesota	17.8%
	U.S. Average	**15.0%**

Source: Bureau of Labor Statistics, 2009.

The Top Movers		2007 Rank	2010 Rank	Change '07–'10
1	Texas	28	23	5
2	Florida	24	20	4
2	Kentucky	39	35	4
2	South Carolina	33	29	4
5	Ohio	18	15	3



"Traded services account for more than 20 percent of all private-sector employment."

100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

2010 Rank	State	2010 Score	2007 Rank*
1	Delaware	18.05	3
2	Texas	16.39	1
3	South Carolina	15.31	4
4	New Jersey	14.73	6
5	Connecticut	14.68	8
6	Massachusetts	14.59	5
7	Kentucky	14.24	14
8	New York	14.21	7
9	Washington	13.73	2
10	North Carolina	13.61	15
11	Tennessee	13.58	18
12	Georgia	13.51	13
13	Illinois	13.48	17
14	New Hampshire	13.44	11
15	Louisiana	13.28	24
16	Wyoming	13.24	26
17	California	13.17	16
18	Utah	13.16	35
19	Nevada	13.13	20
20	Florida	13.08	21
21	Maryland	12.81	27
22	Virginia	12.78	31
23	Indiana	12.78	30
24	Ohio	12.74	28
25	Pennsylvania	12.72	29
26	Maine	12.65	22
27	Alabama	12.59	32
28	Michigan	12.59	19
29	Rhode Island	12.56	23
30	Hawaii	12.44	10
31	Vermont	12.42	9
32	Kansas	12.31	45
33	Oregon	12.23	33
34	North Dakota	12.20	41
35	Minnesota	12.16	34
36	Alaska	11.78	12
37	Arizona	11.68	25
38	Colorado	11.64	36
39	West Virginia	11.57	37
40	Iowa	11.42	44
41	Wisconsin	11.39	39
42	Nebraska	11.29	47
43	Arkansas	11.28	46
44	Missouri	11.19	38
45	Mississippi	10.92	48
46	Idaho	10.73	42
47	Oklahoma	10.58	43
48	Montana	10.54	49
49	New Mexico	9.88	40
50	South Dakota	9.80	50
	U.S. Average	**10**	

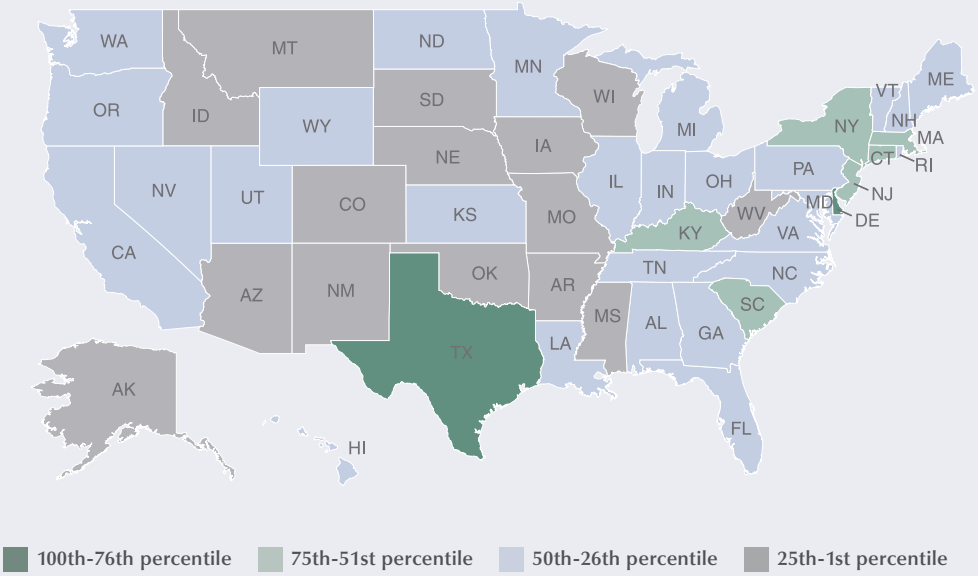
GLOBALIZATION

While the old economy was national in scope, the New Economy is global. In 1988, there were 22,000 workers employed in multinational companies in the United States; by 2006 there were 32,000.[31]

The net capital expenditures from majority-owned foreign affiliates in the United States increased from $61 billion in 1990 to more than $168 billion in 2007.[32] When the old economy emerged after World War II, the winners were states whose businesses sold to national markets, as opposed to local or regional ones. In the twenty-first century economy, the winners will be the states whose businesses are most integrated into the world economy. A global orientation ensures expanding markets for a state's industries. Because workers at globally oriented firms also earn more than those at other firms, a global orientation provides a state's workforce with a higher standard of living.

The globalization indicators in this section measure two aspects of globalization: 1) the extent to which the state's manufacturing and service workforce is employed producing goods and services for export;[33] and 2) the share of the workforce employed by foreign-owned companies.

AGGREGATED GLOBALIZATION SCORES



Source: Authors' calculations based on the states' scores in two indicators—export focus of manufacturing and foreign direct investment.

*Due to methodological improvements and/or data discrepancies between the *2008* and *2010 Index*, ranking comparisons are not exact.

EXPORT FOCUS OF MANUFACTURING AND SERVICES

The value of exports per manufacturing and service worker[34]

Why Is This Important? Trade has become an integral part of the U.S. and world economies. The combined total of U.S. exports and imports has increased from just 11 percent of GDP in 1970 to 20 percent in 1990, reaching more than 30 percent in 2008. Service exports are growing even faster than goods exports are, accounting for more than 30 percent of exports in 2009, up from 25 percent in 1990. Moreover, service exports have been impacted less by the economic recession than by goods exports. From the second quarter of 2008 to the fourth quarter of 2009, service exports declined by 7 percent, while goods exports declined by 14 percent.[35] Research also finds that the more stable service-sector exports are, the less unemployment rises during an economic downturn. During the current recession, the unemployment rate was 1 percent higher for every 5 percentage points lost in the service-exports growth rate.[36] Export industries are also a source of higher incomes. On average, exports contribute an additional 18 percent to workers' earnings in U.S. manufacturing.[37] In business services, workers at exporting firms earn an even larger premium: 12.9 percent more than their counterparts at comparable non-exporting firms.[38] As a result, states whose companies are not global traders risk being left behind.

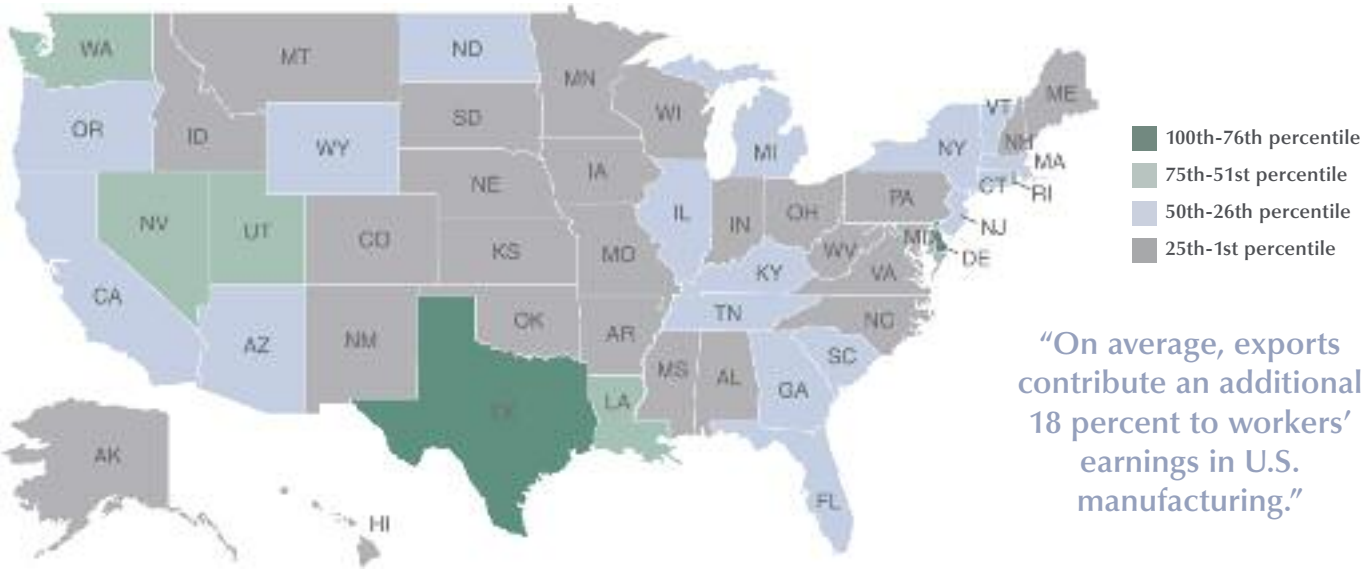
The Rankings: The leading states are generally those that have high-value-added, technologically advanced manufacturing sectors, such as Texas, Delaware, and New York. This is particularly true for service exports, 77 percent of which come from the 100 metropolitan areas that provide less than 60 percent of goods exports.[39] Texas's top rank is owed to trade with Mexico, which accounts for one-third of Texan exports, as well as the state's robust oil and petroleum industry exports. Even after holding constant oil and petroleum industry sectors' propensity to export, Texan exports per employee are more than twice the national average. Delaware's service exports, particularly professional, scientific, and technical and administrative exports, account for more than 60 percent of the state's manufacturing and service sector exports. Washington's rank demonstrates the importance of software publishing (a service industry), as Microsoft's software exports, together with Boeing's aerospace manufacturing, are largely responsible for its strong performance. Louisiana's strong ranking is due to its robust chemical production. The majority of U.S.-based chemicals are produced and shipped between the ports of Houston and New Orleans. States with low rankings (e.g., Arkansas and Mississippi), tend to have more low-value-added industries that compete directly with lower-wage nations, making it more difficult to export, or branch plant domestic supplier firms (e.g., Indiana and Wisconsin), or mostly smaller firms that tend to export less than larger firms do (such as Rhode Island).

The Top Five		Adjusted export sales per manufacturing and service worker
1	Texas	$ 65,563
2	Delaware	$ 63,016
3	Washington	$ 44,271
4	Nevada	$ 43,172
5	Louisiana	$ 41,658
	U.S. Average	**$32,332**

Source: U.S. Department of Commerce, 2009 data.

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	Utah	23	6	17
2	Nebraska	43	28	15
3	North Dakota	24	10	14
4	Mississippi	45	32	13
5	Connecticut	26	16	10

* 2007 scores have been revised for data comparability.[40]



"On average, exports contribute an additional 18 percent to workers' earnings in U.S. manufacturing."

FOREIGN DIRECT INVESTMENT

The percentage of each state's workforce employed by foreign companies

Why Is This Important? Incoming foreign direct investment (FDI) refers to significant investments by foreign companies in new facilities in the United States that employ workers in economic-base activities. FDI grew rapidly in the late 1990s, reaching an apex in 2000 of $314 billion, before dropping precipitously to $53 billion in 2003. Since then, FDI has rebounded by 50 percent to $129 billion in 2009 (all in 2000 dollars).[41] In 2007, foreign-owned companies employed 4.7 percent of American workers, up from 3 percent in 2004, and accounted for more than 6 percent of U.S. value-added.[42]

The Rankings: While FDI grew in the majority of states, five states accounted for more than one-third of FDI. While a significant share of FDI is in manufacturing, some states have a higher share than others do. Manufacturing accounted for more than half of FDI in South Carolina, but only a quarter of employment in Connecticut. Manufacturing FDI originates almost exclusively from Europe, especially German- and French-owned affiliates, and, to a lower extent, from Japan.

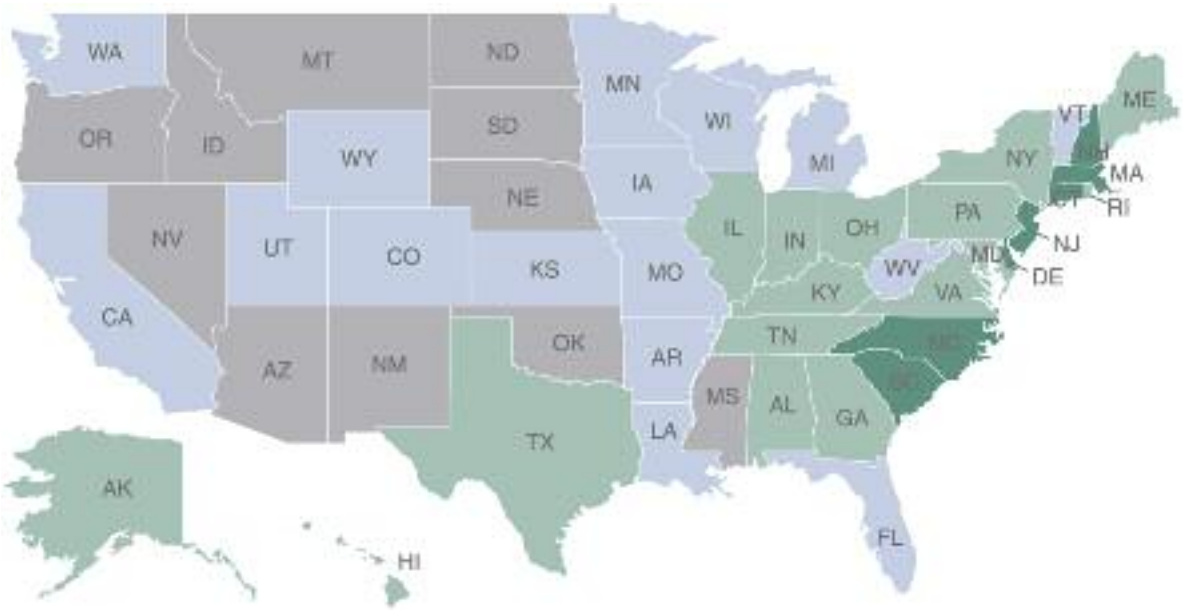
The Top Five		Percentage of workforce employed by foreign companies
1	Delaware	7.3%
2	South Carolina	6.9%
3	Connecticut	6.6%
4	New Hampshire	6.6%
5	New Jersey	6.5%
	U.S. Average	**4.7%**

Source: U.S. Department of Commerce, 2008 data.

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	Kansas	42	25	17
2	Alaska	25	21	4
2	Arkansas	37	33	4
2	Colorado	32	28	4
2	Nebraska	45	41	4

* 2007 state ranks have been revised for data comparability.

"FDI in the United States increased to $129 billion in 2009 from $53 billion in 2003."

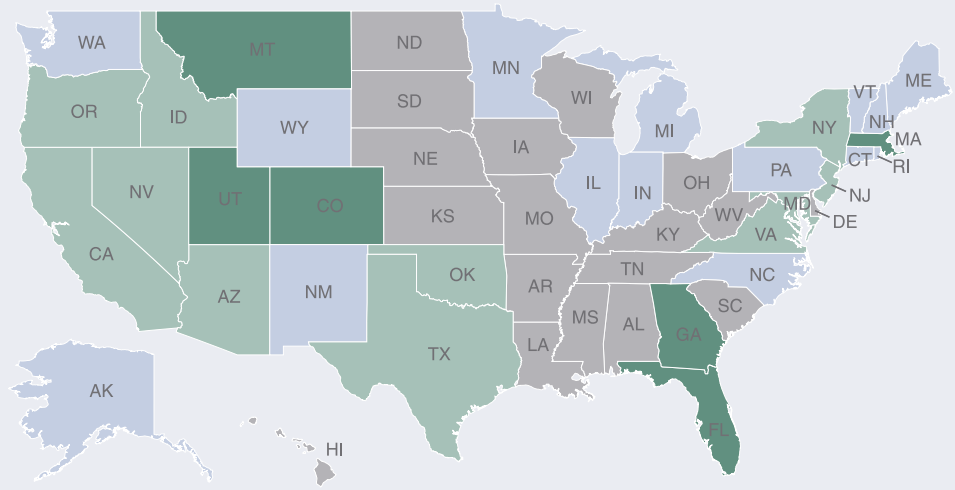


ECONOMIC DYNAMISM

The old economy was epitomized by large companies facing limited competition in stable markets with high barriers to entry. The New Economy is about economic dynamism and competition, epitomized by the fast-growing, entrepreneurial companies that are one of its hallmarks. As innovation has become an important determinant of competitive advantage, the ability of state economies to rejuvenate themselves through the formation of new, innovative companies is critical to their economic vitality.

The dynamism and competition indicators in this section measure five aspects of economic dynamism: 1) the degree of job churning (which is a product of new business startups and existing business failures); 2) the number of *Deloitte Technology Fast 500* and *Inc. 500* firms; 3) the value of companies' IPOs; 4) the number of entrepreneurs starting new businesses; and 5) the number of individual inventor patents issued.

Aggregated Economic Dynamism Scores



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

Source: Authors' calculations based on the states' scores in five indicators—job churning, fastest-growing firms, initial public offerings, entrepreneurial activity, and inventor patents.

2010 Rank	State	2010 Score	2007 Rank*
1	Utah	14.94	1
2	Colorado	13.74	3
3	Georgia	13.38	18
4	Massachusetts	13.30	10
5	Florida	13.09	15
6	Montana	12.87	12
7	Arizona	12.64	23
8	Nevada	12.56	2
9	California	12.01	4
10	Idaho	11.86	5
11	New York	11.30	14
12	Texas	11.16	9
13	New Jersey	11.09	8
14	Virginia	11.08	13
15	Maryland	11.01	7
16	Oregon	10.96	17
17	Oklahoma	10.55	11
18	Alaska	10.40	20
19	Wyoming	10.26	25
20	New Hampshire	10.25	28
21	Vermont	10.14	21
22	Connecticut	9.89	19
23	Rhode Island	9.86	46
24	Michigan	9.81	34
25	New Mexico	9.68	27
26	Minnesota	9.59	16
27	Maine	9.24	26
28	Illinois	9.05	22
29	Washington	8.98	6
30	North Carolina	8.91	29
31	Indiana	8.67	30
32	Pennsylvania	8.24	31
33	North Dakota	8.23	49
34	South Carolina	8.02	41
35	Tennessee	7.96	24
36	Delaware	7.82	35
37	Wisconsin	7.79	38
38	Ohio	7.61	37
39	Arkansas	7.51	36
40	South Dakota	7.47	42
41	Kansas	7.41	45
42	Louisiana	7.19	39
43	Nebraska	7.06	43
44	Kentucky	7.04	47
45	West Virginia	7.02	50
46	Hawaii	6.99	40
47	Mississippi	6.64	32
48	Iowa	6.36	48
49	Alabama	6.11	44
50	Missouri	5.99	33
	U.S. Average	**10.00**	

* Due to methodological improvements and/or data discrepancies between the *2007* and *2010 Index*, ranking comparisons are not exact.

JOB CHURNING

The number of new startups and business failures, combined, as a share of the total firms in each state[43]

Why Is This Important? Steady growth in employment masks the constant churning of job creation and destruction, as less-innovative and -efficient companies downsize or go out of business, and more-innovative and -efficient companies grow or take their place. While new firms account for only 3 percent of total employment, all of these jobs are new jobs, and therefore help grow the economy. Indeed, given that total average employment growth over the last decade has averaged 1.8 percent, startups create jobs at almost double the rate of the economy as a whole. The service sector is particularly volatile, representing more than 75 percent of total job creations and losses. This process of dynamic equilibrium is a result of the highly competitive reality of the New Economy. While such turbulence increases the economic risk faced by workers, companies, and even regions, it also helps drive economic innovation and growth.

The Rankings: Churning is, in part, related to fast employment growth.[44] As a result, some fast-growing states (like Florida, Colorado, Idaho, Nevada, and Utah) experience a great deal of churning. In part, this is because fast-growing economies produce more startups, especially in local-serving industries (such as restaurants, dry cleaners, or accountants). Yet, interestingly, there is virtually no correlation between state unemployment and churn rates, indicating that much of the recent job loss has been predominately in large firms that have not gone under, while most new jobs come from startups.

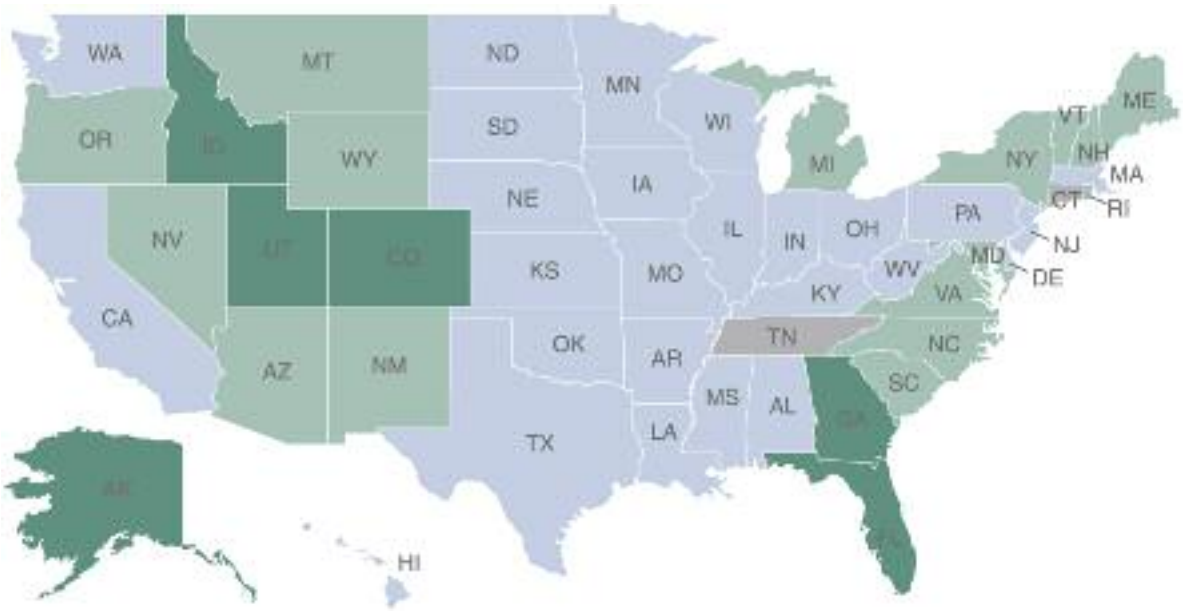
"Over the last decade, new jobs in new firms grew at twice the rate of new jobs in general."

The Top Five		Business startups and failures as a percentage of total firms
1	Florida	47.1%
2	Alaska	46.4%
3	Idaho	44.7%
4	Georgia	44.2%
5	Colorado	44.2%
	U.S. Average	**34.3%**

Source: U.S. Department of Labor, 2009 data.[45]

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	Minnesota	46	23	23
2	Maine	31	10	21
3	Virginia	35	16	19
4	Hawaii	43	32	11
5	Arkansas	40	30	10

* 2007 state ranks have been revised for data comparability.



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

FASTEST-GROWING FIRMS

The number of Deloitte Technology Fast 500 and Inc. 500 firms as a share of total firms[46]

Why Is This Important? The *Fast 500* and *Inc. 500* lists are composed of the fastest-growing firms. To make the *Fast 500* list, every firm had experienced revenue growth of at least 200 percent over a four-year span. Making the *Inc. 500* list required 300 percent growth in three years. While firms attaining such growth rates generally have fewer than 100 employees, they represent a state's most successful entrepreneurial efforts and hold the most promise for continued growth. In fact, a number of well-known companies (including Microsoft and Paul Mitchell) were listed on the *Inc. 500* before they became household names. A state's performance in this measure is one indication of the vitality of its entrepreneurial network.

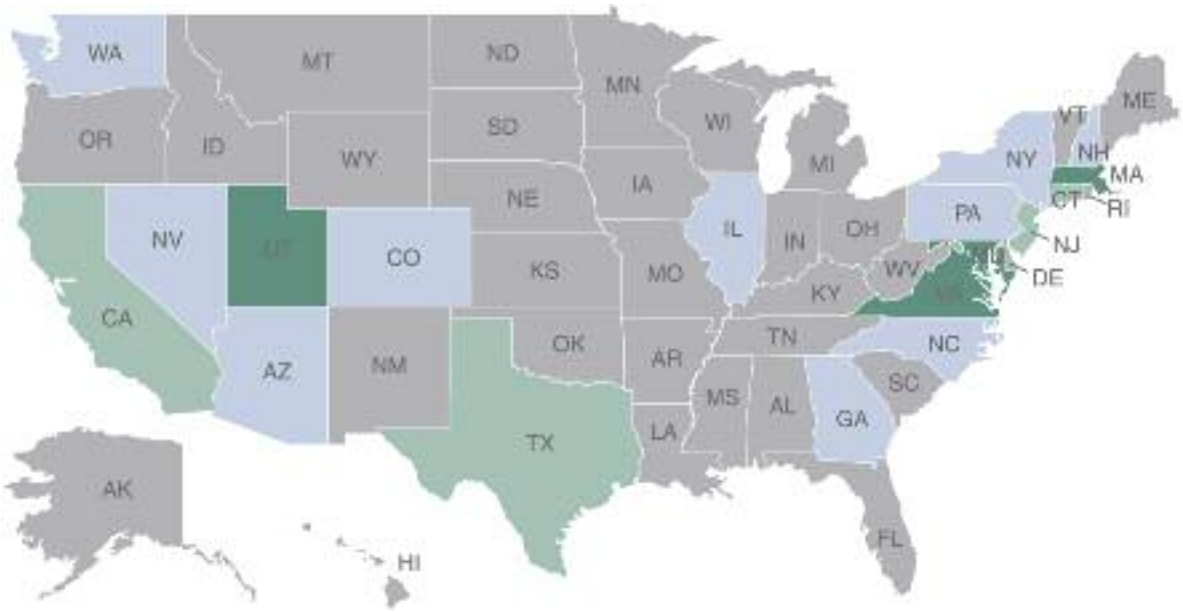
The Rankings: Not surprisingly, states that perform well generally are known for their entrepreneurial technology sectors. Indeed, the majority of *Inc. 500* firms in the top states, especially Virginia and Maryland, are IT or telecommunications companies, while Massachusetts has a large number of medical technology firms. Many states that perform well have developed clusters of well-organized, fast-growing firms and support systems to help firms grow. For example, local university partnerships have helped Provo, Utah, become the highest *Inc. 500* per capita metro area in the country. Similarly, Austin, Texas, (after California, Texas houses the most *Fast 500* companies) has 7.5 *Inc. 500* firms per million residents, in part due to increased oil prices, but also because of local startups associated with the University of Texas.[47] However, fast-growing firms are not limited to specific geographic areas; between 2008 and 2009 the median number of *Inc. 500* companies in the states increased by 55 percent, indicating that fast-growing firms were becoming less concentrated and spreading beyond a few states.

The Top Five		Percentage of firms that are fast-growing
1	Massachusetts	0.034%
2	Virginia	0.031%
3	Utah	0.031%
4	Maryland	0.026%
5	Connecticut	0.021%
	U.S. Average	**0.013%**

Source: *Deloitte Fast 500,* 2007 and 2008 data and *Inc. 500,* 2008 and 2009 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	West Virginia	49	27	22
2	North Dakota	47	28	19
3	South Carolina	33	20	13
3	Vermont	43	30	13
5	Illinois	28	16	12

"More than 50 percent of *Inc.* and *Fast 500* firms are located in five states: California, Texas, Massachusetts, New York, and Virginia."



INITIAL PUBLIC OFFERINGS

A weighted measure of the number and value of initial public stock offerings of companies as a share of total worker earnings[48]

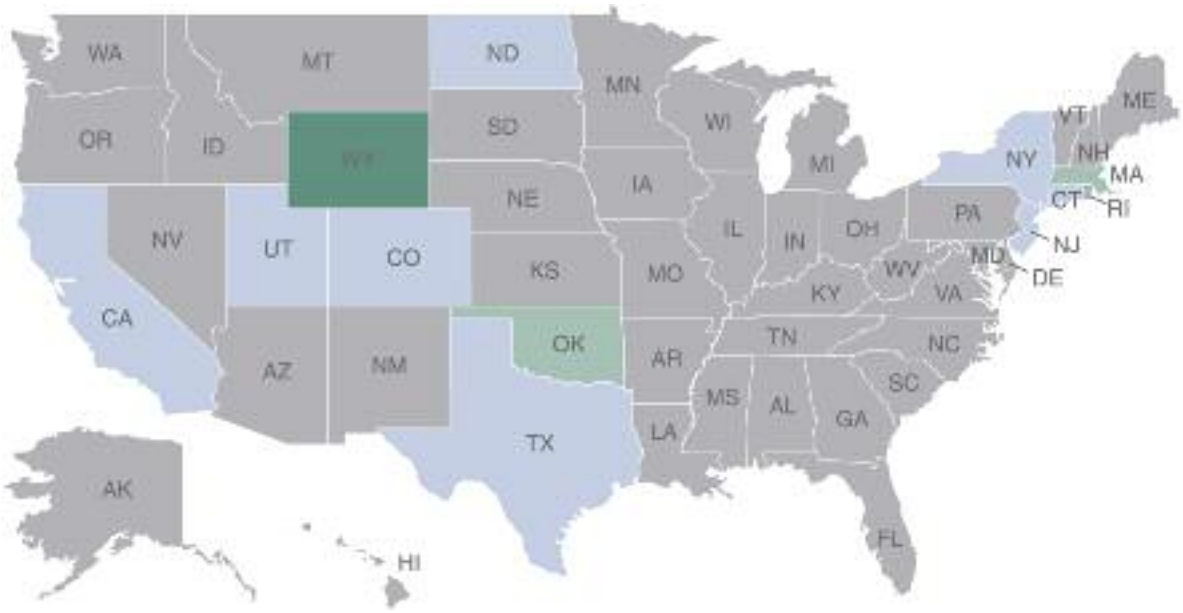
Why Is This Important? In the last two decades, financial markets have embraced entrepreneurial dynamism. One measure of this is the number of initial public offerings (first rounds of companies' stock sold when they make their debut in public markets). After growing by 50 percent since the 1960s, IPOs peaked in the 1990s. The Internet slump and economic recession reduced the number of offerings in 2001–2003 to just 20 percent of 2000 numbers. IPOs grew again from 2004–2007 at more than twice the rate of the previous three years. In fact, the number of IPOs in 2007 was at the highest level since 2000.[49] Yet the economic downturn clearly affected the number of IPOs. Between 2007 and 2009, IPOs' value declined from $33.4 billion to $15.6 billion.

The Rankings: States with smaller gross state products can disproportionately boost their economies by attracting a few large deals. Wyoming and Oklahoma, ranked first and second this year, are two such examples. Wyoming's sole IPO, Cloud Peak Energy's $459 million dollar public offering, constituted 1.6 percent of its gross state product. Similarly, the natural gas company Chesapeake Midstream Partners helped Oklahoma secure second place. States such as California, Massachusetts, and Texas perform well on the strength of their high-tech sectors. But the generation of companies with high growth potential is not limited to what are generally viewed as the high-tech leaders: States like Nevada and South Dakota also ranked high. Colorado's strong performance comes from a variety of sectors, including technology, health care, and natural resource extraction.

The Top Five		IPOs score
1	Wyoming	8.84
2	Oklahoma	7.01
3	Massachusetts	6.75
4	California	6.03
5	Colorado	5.80
	U.S. Average	**5.00**

Source: Renaissance Capital's IPOHome.com, 2008–2009 data.

"The number of IPOs in 2007 was at the highest level since 2000"[50]



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

ENTREPRENEURIAL ACTIVITY

The adjusted number of entrepreneurs starting new businesses[51]

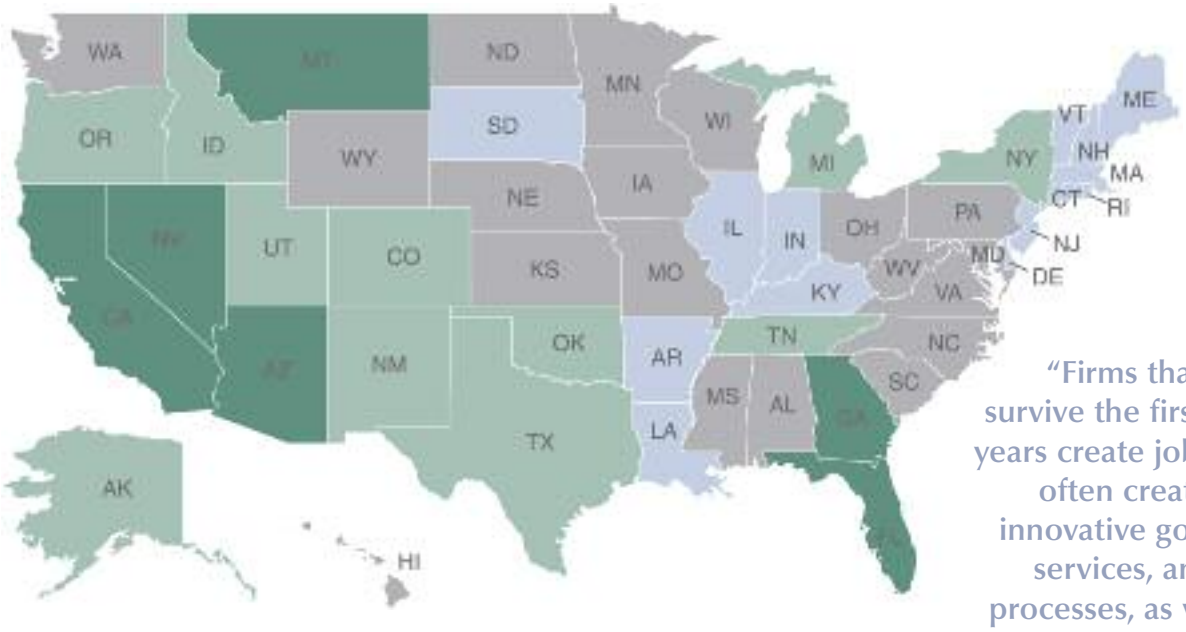
Why Is This Important? In the New Economy, competitive advantage increasingly is based on innovation and the generation of new business models. Moreover, in a global economy with low-wage developing nations, fewer U.S. companies are establishing greenfield plants domestically. For both reasons, entrepreneurial activity is more important to state economic well-being. Although only one in twenty entrepreneurial firms is high growth in terms of adding jobs, firms that survive the first few years create jobs and often create innovative goods, services, and processes, as well.[52]

The Rankings: While Western states continue to have the highest concentration of entrepreneurs, entrepreneurial activity within the West has declined sharply since 2008, while entrepreneurial rates have grown the most in the Midwest and South. In particular, entrepreneurial activity was highest in 2009 within the construction sector. States with a high concentration of those industries performed well in 2009.[53] Even after adjusting for different state growth rates, (fast-growing states provide a disproportionate number of entrepreneurial opportunities), the rankings may reflect some residual growth effects that have not been accounted for. There is a modest correlation between state per-capita income and entrepreneurial activity (0.17), indicating that, if entrepreneurialism is a function of wealth, it is not a strong relationship. Instead, there appear to be many factors affecting levels of entrepreneurial activity, making it difficult to predict which states will fare better than others. For example, a state that ranks second-to-last in job growth from 2002 to 2009, Nevada, ranks sixth in entrepreneurial activity. In part this may be an example of entrepreneurship stimulated by the loss in existing firms.

The Top Five		Adjusted number of entrepreneurs as a percentage of population
1	Georgia	0.50%
2	Arizona	0.47%
3	Montana	0.45%
4	Florida	0.45%
5	California	0.43%
	U.S. Average	**0.30%**

Source: The Kauffman Foundation, 2010 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	Nevada	46	6	40
2	Arizona	35	2	33
3	Florida	32	4	28
4	Michigan	40	13	27
5	Tennessee	41	15	26



"Firms that survive the first few years create jobs and often create innovative goods, services, and processes, as well."

100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

INVENTOR PATENTS

The number of independent inventor patents per 1,000 people[54]

Why Is This Important? From Benjamin Franklin to Bill Gates, the independent inventor is an established American icon. Today, many owners of individual patents—those patents not assigned to any organization—are not mere tinkerers. More often, they are trained scientists, engineers, or students, pursuing independent research. Because the New Economy places a premium on innovation, this wellspring of innovative activity has become an important foundation for many entrepreneurial ventures. However, as with several other indicators, inventor patents have not been immune from the economic downturn. The number of independent inventor patents declined from 14,000 in 2006 to 12,500 in 2009.

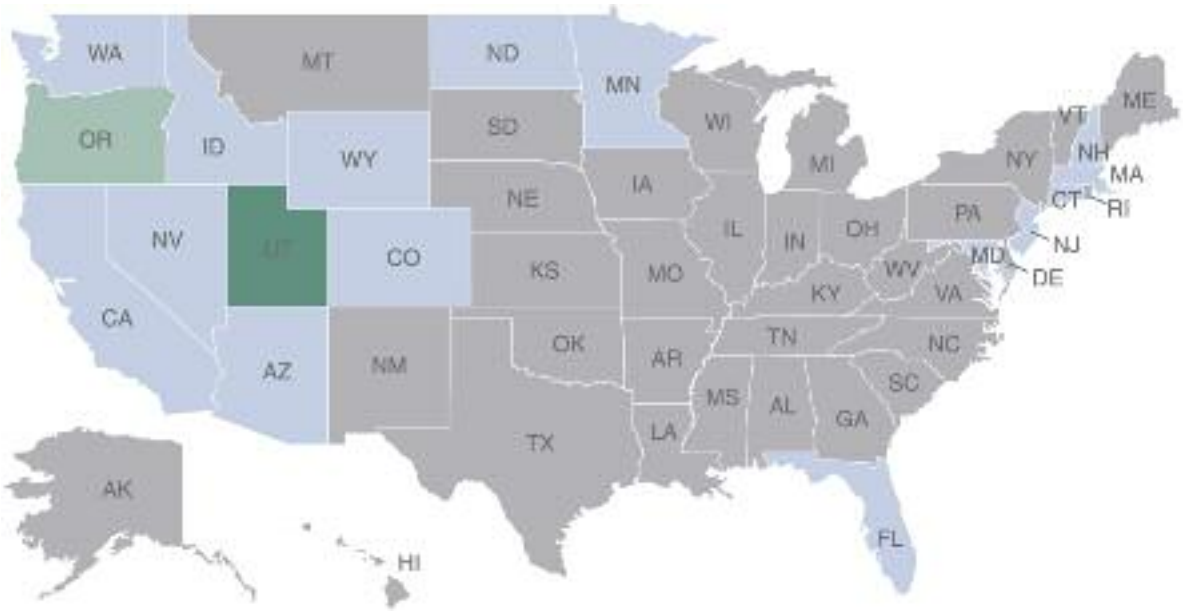
The Rankings: Not surprisingly, states with a large number of inventor patents also are likely to have a large number of scientists and engineers.[55] Many of these states, e.g., Connecticut, also have strong higher education science and engineering programs. Accordingly, Washington's high-tech industry has helped it move up in both scientist and engineers (ranked second) and patents (ranked seventh). States that typically are strong in tech-based entrepreneurial activity, including California, Utah, and Massachusetts, also perform well. The states generating the fewest inventor patents per capita tend to be Southeastern states, with workforces rooted in agriculture and more traditional industries, and long-standing lower levels of entrepreneurial activity.

The Top Five		Patents per 1,000 people of workforce age
1	Utah	0.0221
2	Oregon	0.0144
3	California	0.0113
4	Massachusetts	0.0098
5	Connecticut	0.0094
	U.S. Average	**0.0067**

Source: U.S. Patent and Trademark Office, 2008 and 2009 data.

The Top Movers		2007 Rank	2010 Rank	Change '07–'10
1	Washington	18	7	11
2	New Mexico	30	22	8
2	Rhode Island	31	23	8
4	Virginia	35	28	7
5	Texas	32	26	6

"The number of independent inventor patents declined from 14,000 in 2006 to 12,500 in 2009."



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

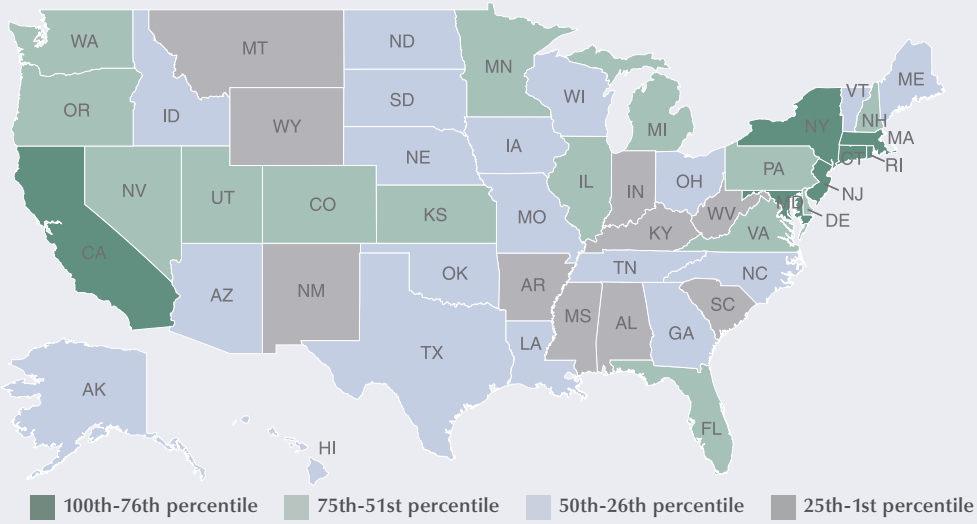
THE DIGITAL ECONOMY

In the old economy, virtually all economic transactions involved the transfer of physical goods and paper records, or the interaction of people in person or by phone. In the digital economy, a significant share of both transactions are conducted through digital electronic means. In fact, online retail sales have increased as a share of total retail sales on average by 5 percent each quarter since 1999. Moreover, between 2002 and 2007, U.S. retail sales through e-commerce increased by 23.1 percent annually, in comparison to just 5 percent for total retail sales. Total U.S. B2C e-commerce reached $135 billion in 2009.[56] Moreover, even as total retail sales fell by 9 percent during the recession, e-commerce sales grew by 5.5 percent, or $1.9 billion.[57]

As the use of IT has transformed virtually all economic sectors, the result has been a significant boost in productivity.[58] By June 2010, more than three-quarters of adults were online, and more than half of American households had broadband access.[59] Farmers use the Internet to buy seed and fertilizer, track market prices, and sell crops. Governments issue EZ passes to automate toll collection. Whether to pay bills or locate a package, consumers increasingly forgo a phone call to customer service centers in favor of more efficient self-service over the Internet. Moreover, with the advent of health IT, patients and medical staff can exchange real-time information, making health care decisions faster and more reliable. All of this translates into productivity gains and higher standards of living. In this way, digital technology is doing as much to foster state economic growth in the early twenty-first century as mechanical and electrical technologies did in the early and mid-twentieth century.

The digital economy indicators measure five aspects of the digital economy: 1) the percentage of the population online; 2) the use of IT to deliver state government services; 3) the percentage of farmers online and using computers; 4) the deployment of broadband telecommunications; and 5) health IT.

Aggregated Digital Economy Scores



Source: Authors' calculations based on the states' scores in five indicators—online population, domain-name registrations, e-government, online agriculture, and broadband telecommunications.

2010 Rank	State	2010 Score	2007 Rank*
1	Massachusetts	16.40	1
2	Rhode Island	15.53	3
3	New Jersey	15.13	7
4	Maryland	14.29	11
5	Connecticut	14.09	6
6	California	14.07	10
7	New York	14.03	18
8	Oregon	13.58	4
9	Washington	13.41	2
10	Virginia	12.82	15
11	New Hampshire	12.71	12
12	Illinois	12.64	13
13	Minnesota	12.54	5
14	Colorado	12.48	19
15	Delaware	12.47	33
16	Florida	12.15	9
17	Michigan	11.97	16
18	Utah	11.47	14
19	Pennsylvania	11.38	25
20	Nevada	11.32	23
21	Kansas	11.24	24
22	Hawaii	11.14	41
23	Georgia	10.93	17
24	Texas	10.49	32
25	Arizona	10.47	26
26	Wisconsin	10.28	35
27	South Dakota	10.25	27
28	Iowa	10.20	21
29	Missouri	10.17	36
30	Louisiana	10.08	43
31	Ohio	9.77	34
32	Nebraska	9.71	20
33	North Carolina	9.67	31
34	Maine	9.56	22
35	Oklahoma	9.37	42
36	Vermont	9.24	28
37	Tennessee	9.15	39
38	Idaho	9.11	30
39	Alaska	9.03	8
40	North Dakota	8.97	37
41	Indiana	8.46	29
42	Kentucky	8.42	44
43	Wyoming	8.10	40
44	Montana	8.04	38
45	West Virginia	7.72	46
46	Arkansas	6.80	49
47	New Mexico	6.50	48
48	Alabama	6.45	47
49	South Carolina	6.33	45
50	Mississippi	5.93	50
	U.S. Average	**10.00**	

*Due to methodological improvements and/or data discrepancies between the *2007* and *2010 Index*, ranking comparisons are not exact.

ONLINE POPULATION

Internet users as a share of the population

Why Is This Important? The number of people online is probably the most basic indicator of a state's progress toward a digital economy. While in 2000, 46 percent of adults were online, by 2010 this number had grown to 77 percent and the number of rural Americans with Internet in their homes has increased by more than 50 percent since 2000.[60] And the overall number of households with Internet access grew by 9 percent between 2007 and 2009.[61] The average income and education levels of Internet users continue to drop so that the online population is looking more and more like the American population in general, with the exception of seniors, who are lagging significantly behind in Internet use.[62]

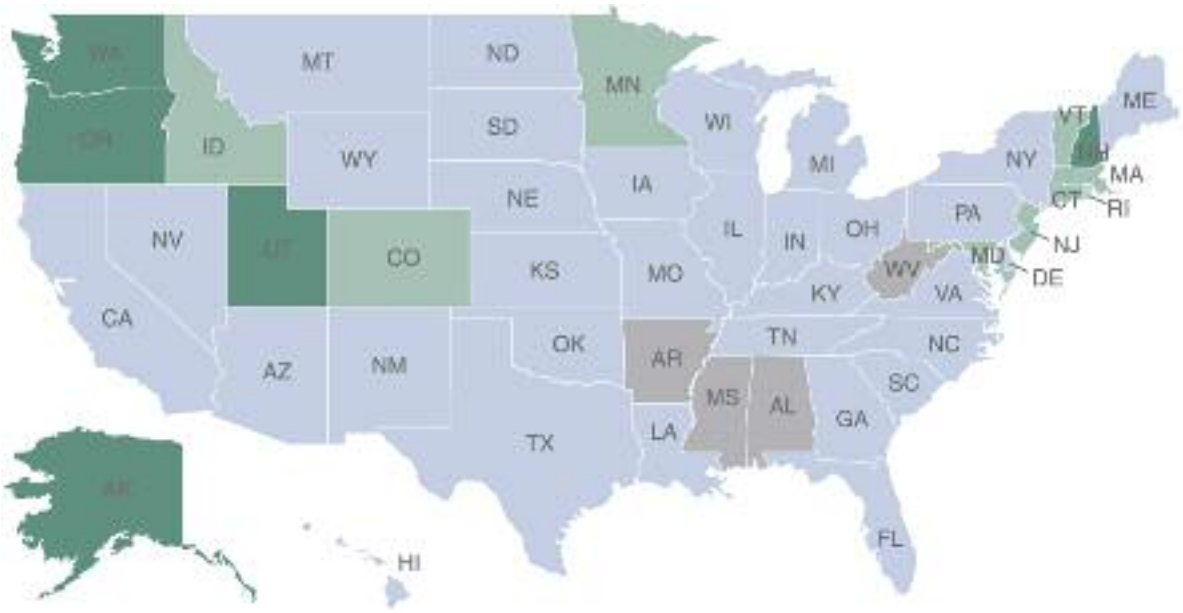
The Rankings: While Internet use by states differs, all states are moving ahead. Despite top-ranked Alaska having 26 percent more of its citizens online than bottom-ranked West Virginia, the national average is up 18 percent from 2003. States with more highly educated workforces tend to score well (including Maryland, Colorado, and Washington), as do states with higher per-capita incomes.[63] To some extent, state policies affect the level of Internet access; these range from taxation of Internet access to policies that promote rural Internet penetration. Yet the percent of a state's urban population matters as well, because connectivity is cheaper and generally faster in cities. For example, Utah has a majority of its populations living within Salt Lake City and, while coverage in the rural areas of this state is low, only a small percentage of the population lives in more remote areas. States that rank lower generally are those that have lower incomes and less-educated residents, as both income and education drive Internet use nationally.

	The Top Five	Percentage of population online
1	Utah	86.4%
2	Alaska	86.3%
3	Washington	86.3%
4	Oregon	84.0%
5	New Hampshire	83.1%
	U.S. Average	**76.8%**

Source: National Telecommunications and Information Administration, 2009 data.

	The Top Five Movers	2007 Rank	2010 Rank	Change '07–'10
1	Idaho	31	9	22
2	Arizona	29	18	11
2	Massachusetts	23	12	11
4	Florida	32	22	10
5	Connecticut	21	13	8

"The number of American households with Internet access grew by 18 percent between 2003 and 2009."



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

E-GOVERNMENT

A measure of the utilization of digital technologies in state governments[64]

Why Is This Important? State governments that fully embrace the potential of networked information technologies not only will increase the quality and cut the costs of government services, but also will help to foster broader use of information technologies among residents and businesses. State governments have made considerable progress in using the Internet to allow individuals to interact with government—from paying taxes to renewing drivers' licenses. But the next phase of e-government—breaking down bureaucratic barriers to create functionally oriented, citizen-centered government Web presences designed to give citizens a self-service government—has only just begun.[65] In particular, most states need to go much further to help businesses interact with local and state governments online. While some states like Wisconsin and Oregon have online wizards to navigate users through the process of creating a business, most states continue to see online business portals only as places to house government documents. Yet, on the whole, states are moving in the right direction. According to a recent report, the number of government sites offering fully executable services online increased from 86 percent to 89 percent over the last year.[66]

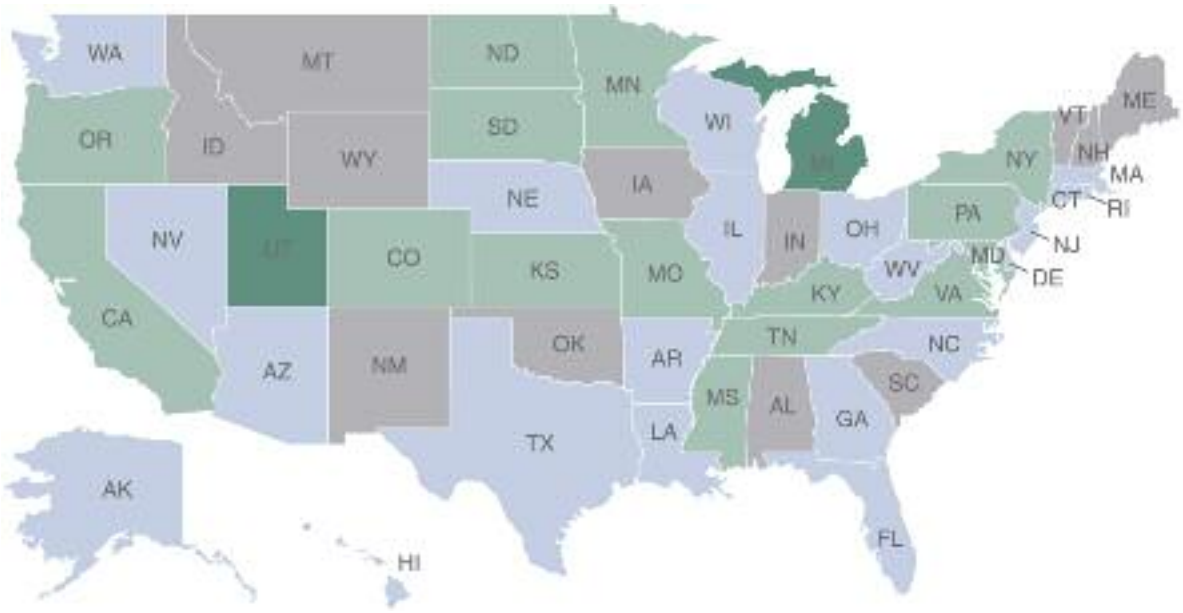
The Rankings: States with a tradition of "good government," such as Virginia, Maryland, Michigan, and Utah, appear to have gone farther along the path toward digital government than states without "good government." But this relationship is not completely predictive. In part, this may be because the move to digital government appears to be driven by the efforts of particular individuals, including governors, secretaries of state, and legislative committee chairmen. Strong gubernatorial leadership is surely at play in explaining some states' higher scores. In addition, because making the transformation to a digital government is expensive, more populous states with bigger budgets also tend to score higher. However, the relative volatility in scores between years indicates states' ability to rather radically improve their digital government.

The Top Five		Composite score
1	Utah	7.67
2	Michigan	7.14
3	Virginia	6.71
4	New York	6.44
5	California	6.27
	U.S. Average	**5.00**

Source: The Center for Digital Government, 2009 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	Oregon	35	5	30
2	West Virginia	47	24	23
3	Colorado	30	8	22
3	Missouri	32	10	22
5	Louisiana	44	26	18

"The number of government sites offering fully executable services online increased from 86 percent to 89 percent over the last year."



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

ONLINE AGRICULTURE

A measure of the percentage of farmers with Internet access and using computers for business[67]

Why Is This Important? While agriculture accounts for less than 5 percent of national employment, in many states it remains an important component of the economy. Just as in other sectors, the New Economy is transforming agriculture. Farmers and ranchers increasingly use the Internet to buy feed and seed, check on weather conditions, obtain the latest technical information, and even to sell their livestock or crops. In 2009, 60 percent of farms had access to the Internet, compared to 51 percent in 2005 and 29 percent in 1999, and farms with DSL as their primary method of Internet access went from 13 percent to 36 percent from 2005 to 2009.[68] The degree to which farmers take advantage of the New Economy will increasingly determine their competitive success. Two measures of this are the percentage of farmers with Internet access and the percentage that use computers to run their farms.

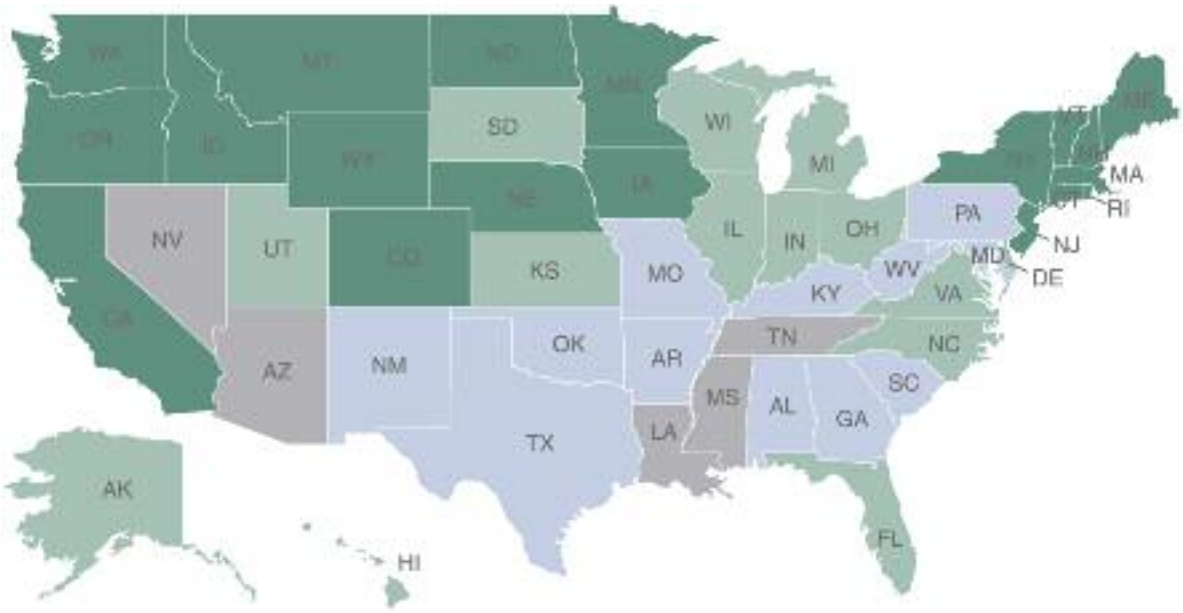
The Rankings: Farmers in Northeastern and Western states lead the nation in computer use and access to the Internet. Between 2008 and 2010, Northeastern states—particularly Connecticut, Maine, and New Jersey—have moved ahead. Southern states generally fall near the bottom.

The Top Seven[69]		Composite scores
1	Washington	8.33
2	Connecticut	7.80
2	Maine	7.80
2	Massachusetts	7.80
2	New Hampshire	7.80
2	Rhode Island	7.80
2	Vermont	7.80
	U.S. Average	**5.00**

Source: U.S. Department of Agriculture, 2009 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	New Jersey	34	9	25
2	Washington	11	1	10
3	Alabama	48	40	8
3	Kansas	30	22	8
3	Minnesota	22	14	8

"Farms with DSL as the primary method of Internet access nearly tripled from 2005 to 2009."



BROADBAND TELECOMMUNICATIONS

A weighted measure of the adoption of residential broadband services and median download speed[70]

Why Is This Important? Over computer networks, bandwidth measures the "size of the pipes" between the sender and receiver of the data. Greater bandwidth allows faster transmission of larger amounts of data, which is important for the increasing number of businesses that use the Internet to communicate with customers, suppliers, and other parts of the company. Broadband access for households is also important, not only allowing a state's residents to more robustly engage in e-commerce, but also enabling telecommuting, distance education, tele-medicine, and a host of other applications that can boost productivity and quality of life.[71] It is no surprise, then, that broadband deployment and adoption are proceeding at a robust pace. The number of residential high-speed lines grew by 19 percent between 2007 and 2009. Between 2008 and 2009 alone, the average broadband download speed nearly doubled.[72]

The Rankings: Broadband adoption and speeds tend to be highest in high-tech, high-income states, including the top-five-ranked states of New Jersey, Maryland, Massachusetts, Connecticut, and Rhode Island. The fact that these are also states served by Verizon, which has widely deployed fiber-to-the-home technology, prompting competitive response from cable providers, also helps. Also important to a state's score seems to be its population density. Because it is less costly to invest in broadband in metropolitan areas, states that are predominately urban are much more likely to have extensive broadband networks. Indeed, there is a strong correlation (.76) between the score on broadband telecommunications and state population density.[73] Therefore, it comes as little surprise that, for the most part, the states making up the bottom five, Mississippi, Montana, West Virginia, Wyoming, and New Mexico, respectively, are those with more rural populations.

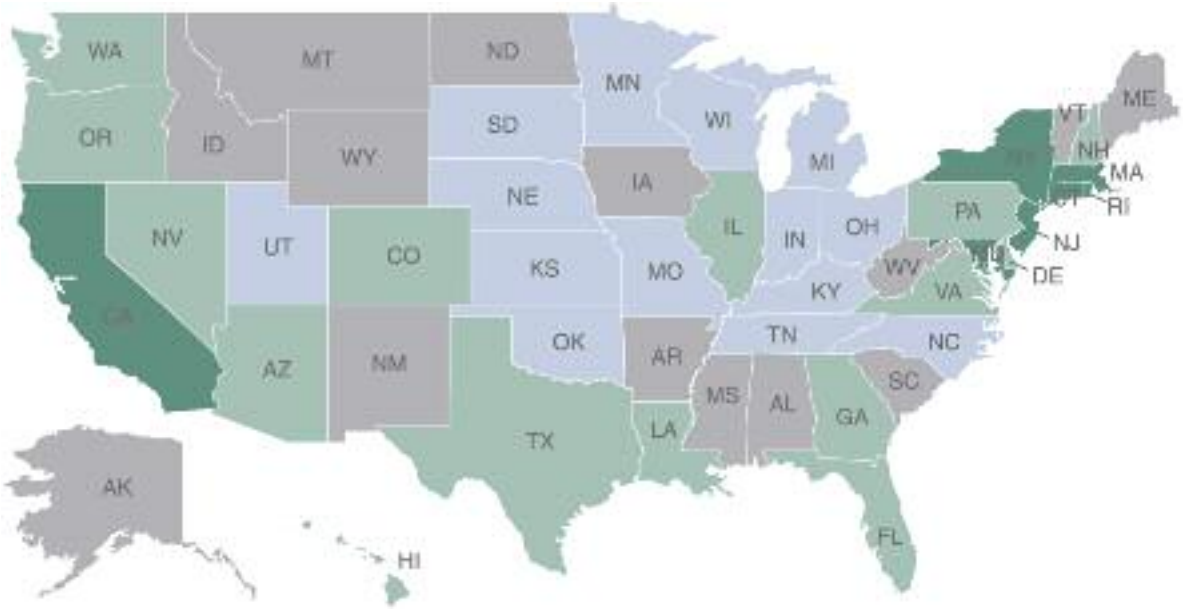
The Top Five		Composite score
1	New Jersey	8.58
2	Maryland	8.10
3	Rhode Island	8.00
4	Massachusetts	7.79
5	Connecticut	7.51
	U.S. Average	**5.00**

Source: Federal Communications Commission, 2009 data. Communication Workers of America, 2009 data.

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	South Dakota	50	35	15
2	Pennsylvania	34	20	14
3	North Dakota	49	39	10
4	Nevada	17	8	9
4	Texas	26	17	9

* 2007 state ranks have been revised for data comparability.

"The number of residential high-speed lines increased by 19 percent between 2007 and 2009, and, between 2008 and 2009 alone, the average broadband download speed nearly doubled."



HEALTH IT

Total number of prescriptions routed electronically as a percentage of total number of prescriptions eligible for electronic routing

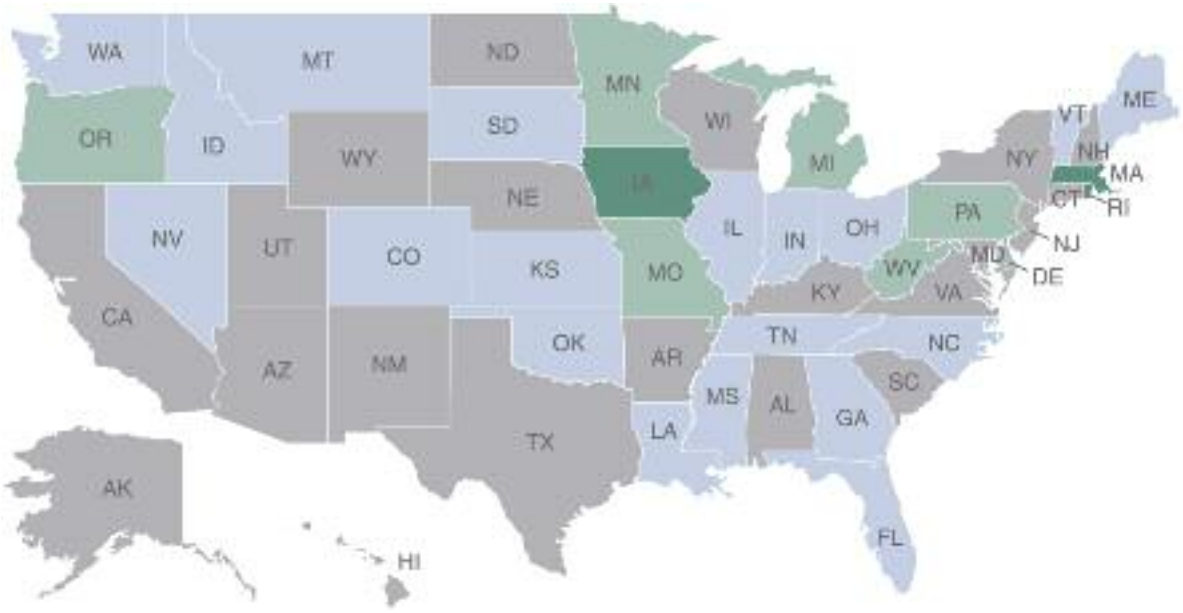
Why Is This Important? Significant improvements in health care in the future will come from increased use of IT. Robust adoption of health IT could reduce America's health bill by $80 billion annually.[74] And, with health care costs rising annually, the need for innovative, cost-saving strategies has never been greater. Health care costs have increased from $253 billion in 1980 to $2.3 trillion in 2008.[75] To date, adoption of health IT has been relatively slow, but in one area, electronic prescribing, adoption has been faster and, as such, can serve as a proxy for overall health IT adoption. In 2009, 303 million prescriptions, or 8.2 percent of all prescriptions, were routed electronically.[76] This is up from 79 million e-prescriptions in 2008. E-prescribing cuts medical transaction costs by eliminating the need for confirmation phone calls and faxes, and reduces health risks associated with prescription delays.

The Rankings: In 2004, more than half of states had legislation banning e-prescribing. Today, all fifty states allow, and many have begun to promote, e-prescribing. Moreover, in 2009, fourteen states had more than one-quarter of prescriptions filled electronically. State ranks appear to be determined, in part, by the extent to which leadership in the health care industry and state government makes this a priority. Massachusetts' top position reflects leadership from state government, as well as the fact that the state's research hospitals are some of the most advanced in the nation.[77] Rhode Island's second-place ranking appears to stem from similar factors, including an organized effort to make the state a leader in e-prescribing.[78] Other states near the top, including Oregon, California, Florida, and New Hampshire, have used health information technology legislation to encourage electronic prescribing.

The Top Five		Percent e-prescribing
1	Massachusetts	57%
2	Rhode Island	49%
3	Iowa	48%
4	Minnesota	38%
5	Oregon	37%
	U.S. Average	**8%**

Source: SureSripts, 2009 data.

"In 2009, fourteen states used electronic prescriptions for more than one-quarter of total prescriptions."

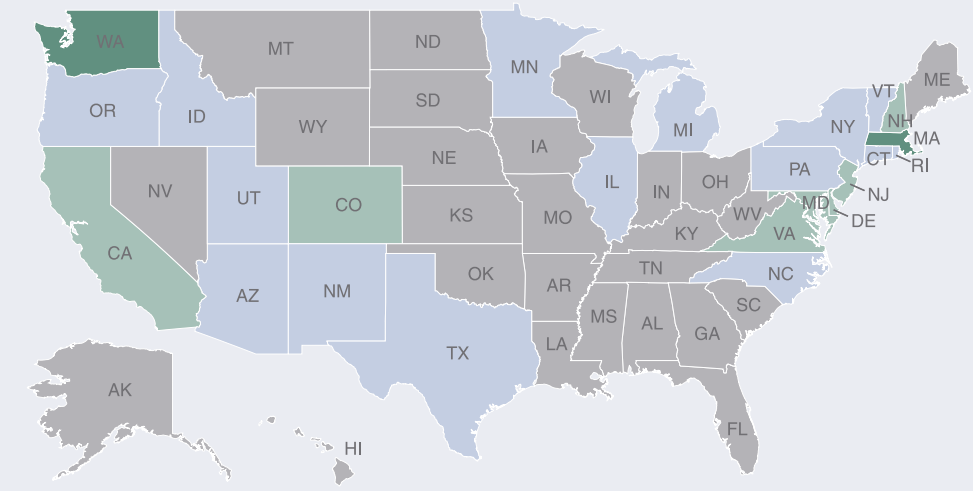


INNOVATION CAPACITY

Most growth in the New Economy, especially growth in per-capita incomes, stems from increases in knowledge and innovation. Studies show that it is not the amount of capital, but the effectiveness with which it is used that accounts for as much as 90 percent of the variation in growth of income per worker.[79] Technological innovation is a fundamental growth driver because it transforms the way capital is put to use.

The innovation capacity indicators in this section measure seven aspects of innovation capacity: 1) share of jobs in high-tech industries; 2) scientists and engineers as a share of the workforce; 3) the number of patents relative to the size of the workforce; 4) industry R&D as a share of worker earnings; 5) non-industrial R&D as a share of GSP; 6) green energy production; and 7) venture capital invested as a share of worker earnings.

Aggregated Innovation Scores



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

Source: Authors' calculations based on the states' scores in seven indicators—high-tech jobs, scientists and engineers, patents, industry investment in R&D, non-industry investment in R&D, movement toward a green economy, and venture capital.

2010 Rank	State	2010 Score	2007 Rank*
1	Massachusetts	19.0	1
2	Washington	17.5	9
3	California	15.0	2
4	Maryland	13.4	4
5	Delaware	13.1	3
6	Colorado	13.0	7
7	New Hampshire	12.2	15
8	New Jersey	12.2	5
9	Virginia	12.0	12
10	New Mexico	11.8	10
11	Connecticut	11.8	11
12	Idaho	11.7	6
13	Michigan	11.3	16
14	Oregon	11.2	13
15	Minnesota	10.8	14
16	Vermont	10.4	17
17	Pennsylvania	9.5	19
18	Arizona	9.3	23
19	Illinois	9.1	24
20	Utah	9.0	18
21	New York	8.8	20
22	North Carolina	8.5	21
23	Texas	8.5	22
24	Rhode Island	8.2	8
25	Ohio	7.5	25
26	Georgia	7.4	26
27	Alabama	7.4	34
28	Wisconsin	7.1	28
29	Missouri	6.8	30
30	Kansas	6.7	27
31	Montana	6.6	32
32	Florida	6.6	31
33	South Carolina	6.5	43
34	Maine	6.3	39
35	Iowa	6.2	35
36	Indiana	6.1	29
37	Nebraska	6.0	37
38	Tennessee	5.6	40
39	North Dakota	5.3	33
40	Alaska	5.2	46
41	Hawaii	4.9	42
42	Arkansas	4.7	49
43	Nevada	4.7	38
44	Kentucky	4.5	47
45	South Dakota	4.4	48
46	Oklahoma	4.4	41
47	West Virginia	4.0	45
48	Louisiana	4.0	50
49	Mississippi	3.8	36
50	Wyoming	3.6	44
	U.S. Average	**10.00**	

* Due to methodological improvements and/or data discrepancies between the *2007* and *2010 Index*, ranking comparisons are not exact.

HIGH-TECH JOBS

Jobs in electronics manufacturing, software and computer-related services, telecommunications, and biomedical industries as a share of total employment[80]

Why Is This Important? The high-tech sector remains a key engine of innovation and a source of high-paying jobs. The 2000 meltdown, growth of IT offshoring, and faster productivity growth in the IT sector all caused a decline in high-tech employment, which finally began to rebound in 2004 and 2005. Between 2005 and 2006, 60 percent more high-tech jobs were created than between 2004 and 2005. Yet, high-tech jobs were not immune from the recession. In 2009, the U.S. high-tech industry lost 245,600 jobs, a 4 percent decline (slightly less than the 5 percent decline experienced by the private sector as a whole). While the country as a whole shed high-tech jobs, some states added employment in the tech sector. California and Texas both added more than 14,000 tech jobs, with Virginia, Massachusetts, and Washington adding more than 5,000 each. Indeed, despite the economic downturn, forty-one states added high-tech jobs in 2008.[81] High-tech jobs also remain a stronghold of high-wage, skilled jobs: The average high-tech industry wage was 86 percent higher than the average private-sector wage nationwide.[82]

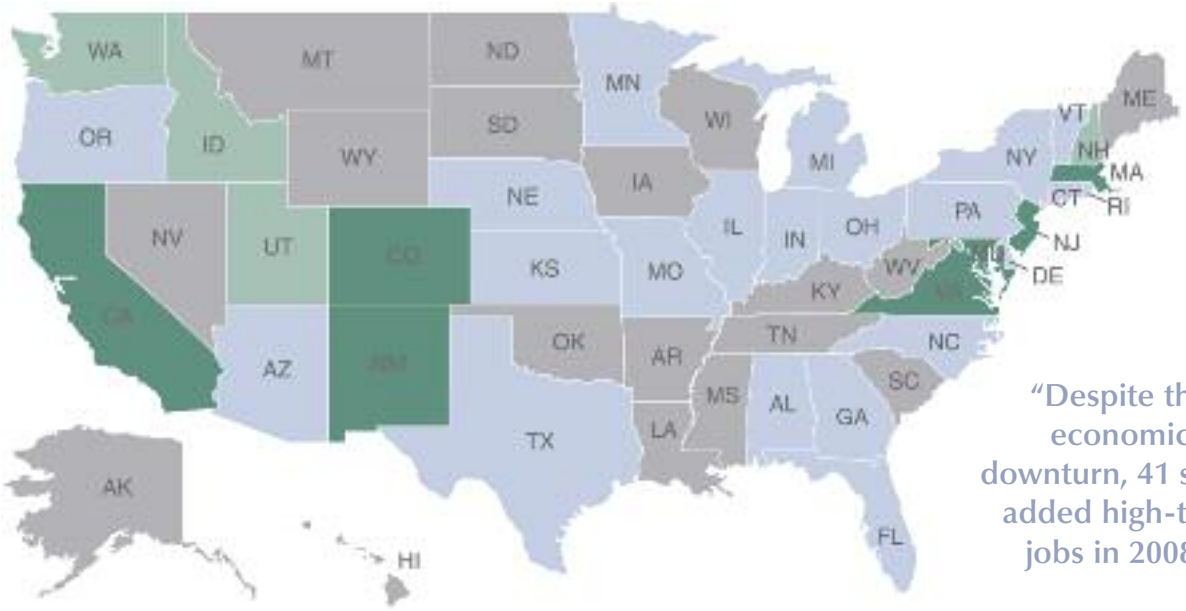
The Rankings: High-tech specialization of states varies significantly, from a high of 7.7 percent of the Massachusetts workforce to 1.4 percent in Wyoming. While all states have high-tech jobs, the leaders tend to be in the Northeast, the Mountain states, and the Pacific region. High-tech occupations often are concentrated in particular regions of a state: information technology in southern New Hampshire; software around Provo, Utah, and Seattle; semiconductors in Boise, Idaho; Internet, telecommunications and biotechnology in the Washington, D.C., region; telecommunications in Denver; semiconductors in Albuquerque; and a broad mix of technologies in Silicon Valley and Los Angeles. States with lower rankings tend to be natural resource-dependent states (e.g., Alaska, Montana, Wyoming), or Southern states with more branch-plant traditional industries (Mississippi, Louisiana, Kentucky).

The Top Five		High-tech jobs as a percentage of all jobs
1	Massachusetts	7.7%
2	New Mexico	6.8%
3	Virginia	6.6%
4	Maryland	6.2%
5	Colorado	5.9%
	U.S. Average	**4.1%**

Source: AeA, 2010 data, and Bureau of Labor Statistics (for biomedical sectors), 2009 data.

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	New Mexico	6	2	4
1	North Carolina	24	20	4
1	North Dakota	39	35	4
4	Alaska	38	36	2
4	Hawaii	43	41	2

*2007 state ranks have been revised for data comparability.[83]



"Despite the economic downturn, 41 states added high-tech jobs in 2008."

SCIENTISTS AND ENGINEERS

Scientists and engineers as a percentage of the workforce[84]

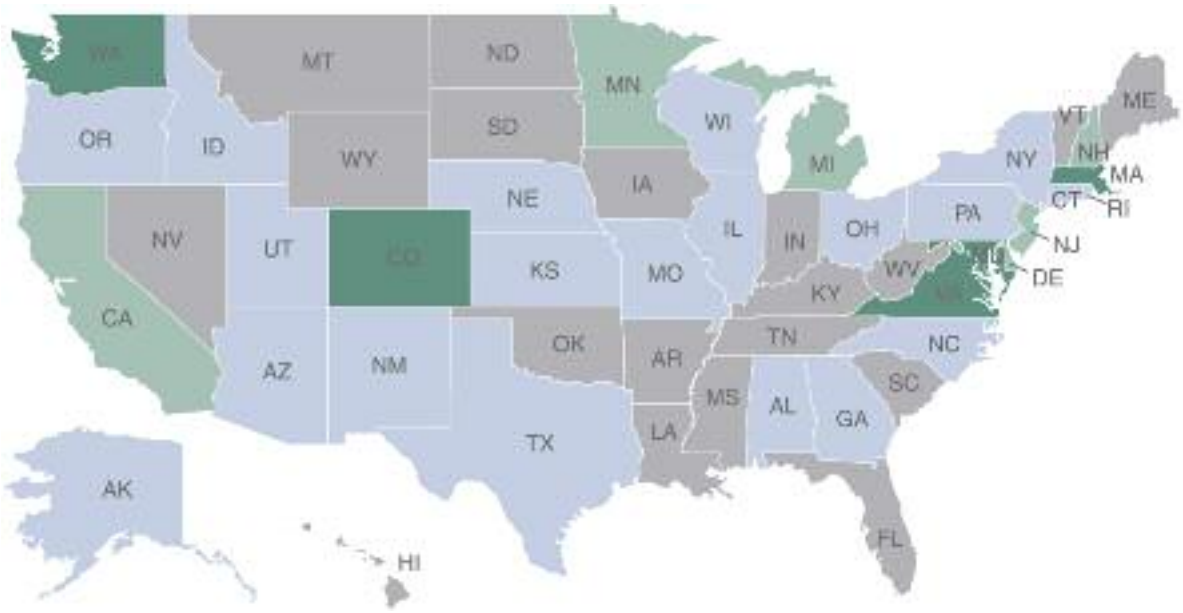
Why Is This Important? A key engine of growth, technology and research-based companies, is fueled by a large and high-caliber scientific and engineering workforce. The economy continues to become more technology-intensive, as the number of scientists and engineers actually grew to 2.9 percent of the workforce in 2009, despite a 5 percent decline in jobs in the overall economy.[85] The annual average growth rate of scientists and engineers between 1950 and 2007 was 6.2 percent—nearly four times as great as the growth rate for the workforce as a whole.[86] In addition, in spite of the concern about "brain drain" of newly minted scientists and engineers to other states, the correlation between the number of employed PhD scientists and engineers, and PhD degrees in science and engineering from universities in a state is remarkably high (0.90). So growing or attracting a high-quality scientific workforce is critical to continued economic growth. These workers enable more innovation in state economies (in both new products and production processes), and, in so doing, lead to higher value-added and higher-wage jobs.

The Rankings: States with the highest rankings tend to be high-tech states such as Virginia, Massachusetts, Colorado, and Washington; states with significant corporate R&D laboratory facilities (such as Delaware, Connecticut, New Jersey, New York, and Michigan); or states with significant federal laboratory facilities (like Maryland). In addition, many of these states have robust science and engineering higher education programs. States that lag behind have few high-tech companies or labs, and relatively limited science and engineering higher education programs.

The Top Five		Scientists and engineers as a percentage of the workforce
1	Virginia	5.00%
2	Washington	4.69%
3	Maryland	4.56%
4	Massachusetts	4.53%
5	Colorado	4.39%
	U.S. Average	**2.93%**

Source: National Science Foundation, 2009 data.

"The annual average growth rate of working scientists and engineers between 1950 and 2007 was 6.2 percent—nearly four times as great as the growth rate for the workforce as a whole."



PATENTS

The number of patents issued to companies or individuals per 1,000 workers[87]

Why Is This Important? The capacity of firms to develop new products will determine their competitive advantage and ability to pay higher wages. One indicator of the rate of new product innovation is the number of patents issued. As technological innovation has become more important, patents issued per year have grown from 40,000 in 1985 to more than 82,000 in 2009. Indeed, despite the economic downturn, the number of patents filed increased from 2007 to 2009 by 6 percent, although down from an all-time high in 2003.

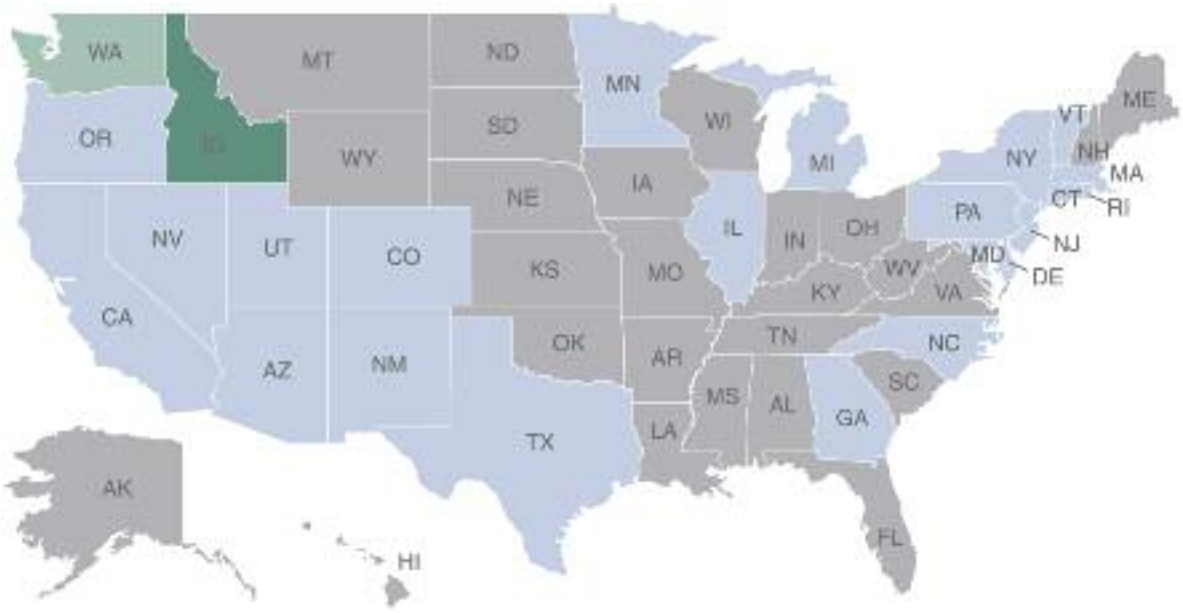
The Rankings: States with an above-average share of either high-tech corporate headquarters or R&D labs tend to score the highest. Idaho's extremely high patent ratio—more than 3.5 times the national average – is likely owed to the presence of Micron, a major semiconductor firm located in a relatively small state. Colorado has a strong telecommunications and technology industry base. Oregon's electronic and high-tech manufacturing sector has helped move it up the rankings. Many Northeastern states, as well as West Coast high-tech states, like California and Washington, also score high.

The Top Five		Adjusted patents per 1,000 workers
1	Idaho	2.47
2	Washington	2.18
3	California	1.53
4	Vermont	1.32
5	Delaware	1.25
	U.S. Average	**0.73**

Source: U.S. Patent and Trademark Office, 2007, 2008, and 2009 data.

The Top Five Movers		2007 Rank	2010 Rank	Change '07–'10
1	Indiana	48	40	8
2	Vermont	10	4	6
2	New Hampshire	36	30	6
2	Tennessee	47	41	6
5	North Carolina	27	22	5

"Patents issued have increased from 40,000 in 1985 to 82,300 in 2009."



INDUSTRY INVESTMENT IN R&D

Industry-performed research and development as a percentage of total worker earnings[88]

Why Is This Important? Research and development yields product innovations, adds to the knowledge base of industry, and is a key economic growth driver. Business provides just under two-thirds of all R&D funding. After steadily rising in the 1980s and falling in the early 1990s, business-funded R&D as a share of GDP climbed to its highest point ever in 2000. A slight decline followed, but it has remained at a level higher than any year before 1999, with R&D as a share of GDP growing again in 2004. And, despite the economic downturn, industry R&D increased by 8 percent between 2007 and 2008.[89]

The Rankings: Delaware, Massachusetts, and Michigan take the top three spots in R&D intensity. DuPont and other R&D-intensive chemical and pharmaceutical firms are responsible for Delaware's top rank, while much of Michigan's success is due to its auto industry. Delaware not only has twice the R&D per worker earnings than the national average but also has ranked first in the 2007 and 2008 Indexes and second in the 2002 Index. In general, states with significant corporate R&D laboratory facilities or a large number of high-tech firms score well. Washington's high score reflects its robust aerospace and high-tech sector, specifically, Boeing and Microsoft.

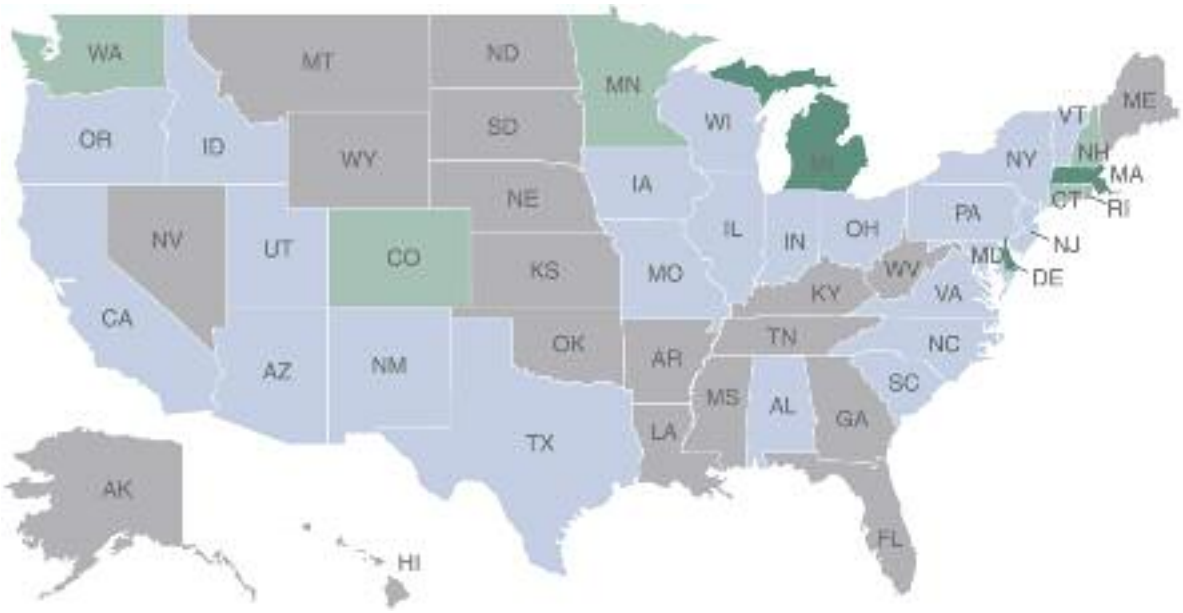
The Top Five		Adjusted R&D as a percentage of worker earnings
1	Delaware	7.82%
2	Massachusetts	6.48%
3	Michigan	5.99%
4	Washington	5.57%
5	Connecticut	5.20%
	U.S. Average	**3.44%**

Source: National Science Foundation, 2008 data.

The Top Five Movers		2007 Rank*	2010 Rank	Change '07–'10
1	Washington	31	4	27
2	Arizona	25	15	10
2	New Mexico	37	27	10
4	Alabama	34	25	9
5	Colorado	16	8	8

*2007 state ranks have been revised for data comparability.[90]

"Despite the economic downturn, industry funding for R&D increased by 8 percent between 2007 and 2008."



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

NON-INDUSTRY INVESTMENT IN R&D

Non-industrial research and development as a percentage of GSP

Why Is This Important? While non-industry investment in R&D is only about one-third as large as industry R&D, federal, state, university, and nonprofit investments in R&D have had a substantial impact on innovation. For example, in 2006, seventy-seven of the eighty-eight U.S. entities that produced award-winning innovations were beneficiaries of federal funding.[91] Moreover, non-industry R&D helps lay the foundation for profitable future private-sector research.

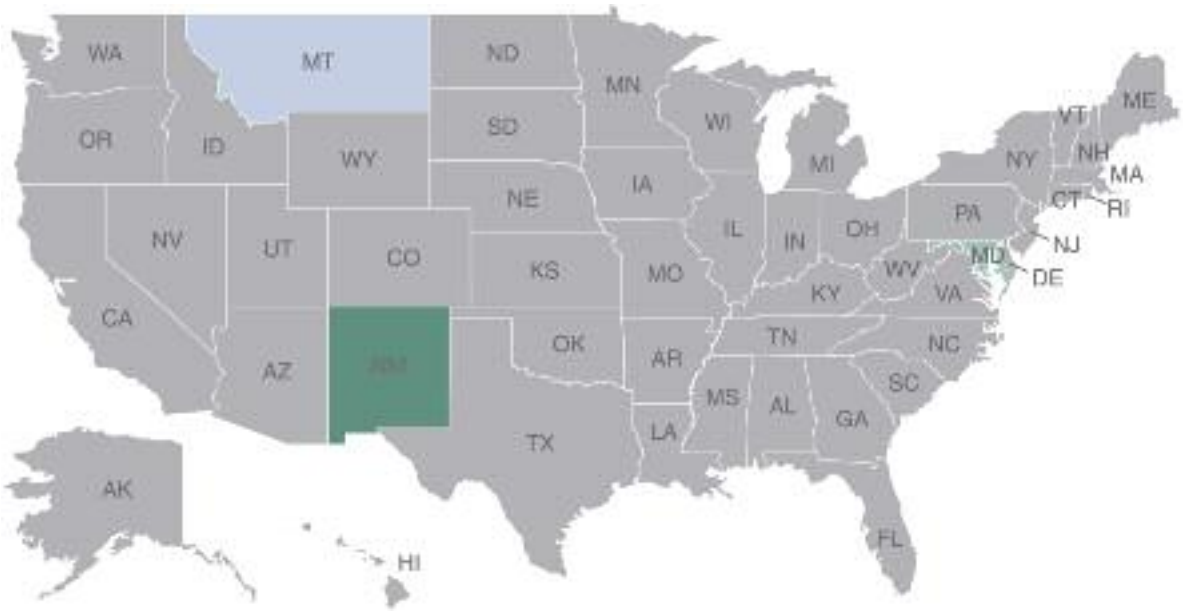
The Rankings: With Los Alamos and Sandia National Laboratory accounting for more than 80 percent of New Mexico's non-industry R&D, the state far exceeds any other state in non-industry R&D as a share of GSP, at ten times the national average. Maryland ranks second, with six times the national average, building on DoD laboratories and NASA's Goddard Space Flight Center.[92] In fact, among the top five states (New Mexico, Maryland, Montana, Massachusetts, and Rhode Island), only in Massachusetts does a minority of non-industrial R&D come from sources other than federal labs. In Massachusetts, university R&D makes up the lion's share of R&D performed. Other states with large federal facilities, such as Alabama, Rhode Island, and Virginia, also score well. The challenge for these states is to continue to find ways to translate these inputs into commercial outputs within their borders.

The Top Five		R&D as a percentage of GSP
1	New Mexico	6.78%
2	Maryland	3.96%
3	Montana	2.12%
4	Massachusetts	1.44%
5	Rhode Island	1.43%
	U.S. Average	**0.66%**

Source: National Science Foundation, 2007 and 2009 data.

The Top Five Movers		2008 Rank	2010 Rank	Change '08–'10
1	South Carolina	29	21	8
2	Florida	46	40	6
2	Montana	9	3	6
2	North Carolina	22	16	6
2	Ohio	24	18	6

"In 2006, seventy-seven of the eighty-eight U.S. entities that produced award-winning innovations were beneficiaries of federal funding."



100th-76th percentile 75th-51st percentile 50th-26th percentile 25th-1st percentile

MOVEMENT TOWARD A GREEN ECONOMY

The change in energy consumption per capita and the change in renewable energy consumed as a percentage of total energy

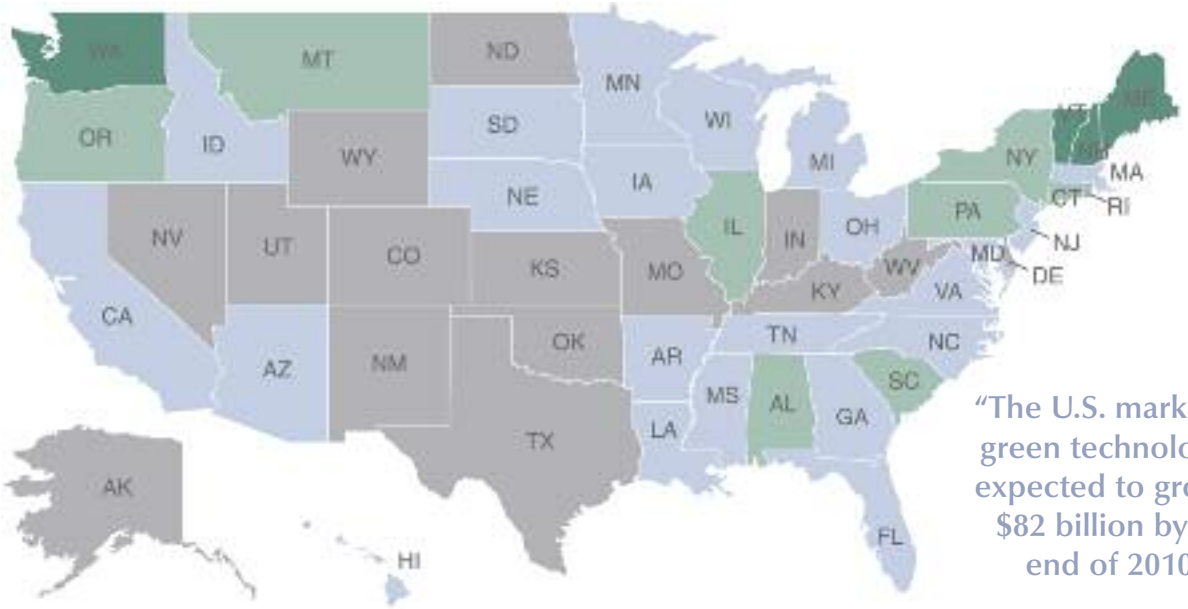
Why Is This Important? Beyond being good for the planet, reduced consumption of carbon-intensive energy sources is an emerging component of economic vitality. With oil costs showing no signs of decreasing significantly, increasing energy efficiency can lead to lower costs for businesses, governments, and residents, making the states that do so more attractive places to live and do business. Since 1980, household energy consumption has declined by nearly one-third.[93] By the end of 2010, the U.S. market for green technology is expected to grow by $82 billion. Between 2007 and 2008, clean energy consumption grew by more than 10 percent, reaching above 7 percent of total energy consumed.[94] Part of this growth likely is related to the decline in overall consumption stemming from the poor economy, but much of it also can be associated with states making concerted efforts to grow their domestic renewable resources.

The Rankings: Between 2003 and 2008, fourteen states increased their clean energy consumption (including nuclear, geothermal, wind, solar, biomass, and hydro) by more than 25 percent. And, in each of the top six states (Vermont, New Hampshire, Washington, Maine, South Carolina, and Oregon), clean energy makes up more than one-third of total energy consumed. Nuclear power accounts for one-third of energy in Vermont and can be credited for much of Vermont's national leadership. Washington's score is due, in part, to its strong reduction in energy consumption throughout its transportation, commercial, and industry sectors, as well as its reliance on hydroelectric power—which accounts for close to one-third of its energy consumption. Like its Northwest neighbor, Oregon relies on hydroelectric power for almost one-third of its energy. On the opposite coast, Maine is one of the largest users of biomass, accounting for one-third of its energy consumption. New Hampshire and South Carolina also have used nuclear power for at least one-third of their energy use to reduce their carbon footprint. Other states near the top of the rankings have decreased their energy consumption. New York, for example, has reduced industry energy consumption by 25 percent since 2004 (some of the decline is due to a decline in industry activity). Some states, such as Hawaii, Alaska, and Massachusetts, rank well for energy savings but have not done as good a job at relying on clean energy.

The Top Five		Combined score
1	Vermont	8.04
2	New Hampshire	7.61
3	Washington	7.60
4	Maine	6.95
5	South Carolina	6.78
	U.S. Average	**5.00**

Source: Energy Information Administration, 2008 data.

The Top Five Movers		2008 Rank*	2010 Rank	Change '08–'10
1	New Jersey	48	21	27
2	Hawaii	45	24	21
3	Iowa	43	27	16
4	Alaska	50	37	13
5	Maryland	34	22	12



"The U.S. market for green technology is expected to grow to $82 billion by the end of 2010."

100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

VENTURE CAPITAL

Venture capital invested as a share of worker earnings[95]

Why Is This Important? Venture capital is an important source of funding for new, fast-growing entrepreneurial companies. In effect, venture capitalists identify promising innovations and help bring them to the marketplace. Venture capital funds have clearly been hurt by the poor economy. Between the first quarter of 2008 and the first quarter of 2009, the amount of venture capital invested declined by 56 percent.[96] However, by the second quarter of 2010 (the most recently available quarter at the time of writing), there were significant signs of rebounding, with venture funds reaching more than $6.5 billion (an increase of 92 percent over the first quarter of 2009).[97] Also, venture capital in clean energy reached $5.9 billion in 2008, 48 percent over 2007.[98]

The Rankings: In 2010, more than two-thirds of venture capital was located in California, Massachusetts, and New York. Massachusetts, for example, receives four times more venture capital as a share of gross state product than the national average. The states at the top generally have strong university engineering and science programs and an existing base of high-tech companies, both of which can be the source of entrepreneurial startups or spinoffs. There is also considerable continuity over the last few years: Four of the top five states have been within the top six states in the 2002, 2007, 2008, and 2010 indexes.

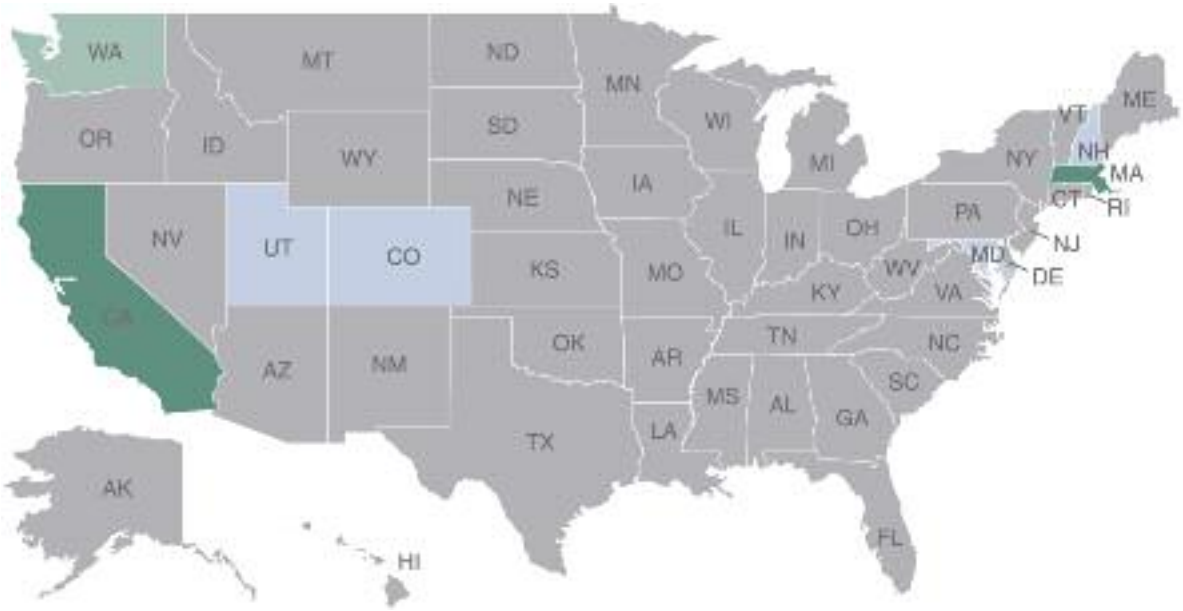
"Between the first quarter of 2009 and the second quarter of 2010, venture capital investment increased by 92 percent."

	The Top Five	Venture capital as a percentage of worker earnings
1	Massachusetts	0.97%
2	California	0.88%
3	Washington	0.33%
4	Colorado	0.31%
5	Utah	0.24%
	U.S. Average	**0.23%**

Source: PricewaterhouseCoopers/Venture Economics/NVCA, 2009–2010 data.

	The Top Six Movers	2007 Rank*	2010 Rank	Change '07–'10
1	Iowa	42	20	22
2	North Dakota	49	29	20
3	Louisiana	46	35	11
4	Delaware	28	18	10
5	Alabama	41	32	9

* 2007 state ranks have been revised for data comparability.[99]



100th-76th percentile | 75th-51st percentile | 50th-26th percentile | 25th-1st percentile

STATE ECONOMIC DEVELOPMENT IN AN ERA OF RELATIVE U.S. ECONOMIC DECLINE

It has been more than seventy years since Mississippi initiated one of the first state economic development programs: "Balance Agriculture With Industry." For most of that time, the United States led the world economy and produced a vast array of new companies, many of which grew to be global leaders with the jobs, new factories, and offices that went with that. At the same time, the competition was either relatively modest (e.g., Japan, Germany) or non-existent. Most other nations were too small to attain the economies of scale firms needed to succeed. Many were effectively isolated from the global economy behind the Iron Curtain or similar policy-made barriers. Still others mistakenly put in place a host of anti-growth policies that kept them on the global economic sidelines. In essence, to use an analogy, the United States was fielding a "dream team" while playing against mostly minor league teams.

In this environment, it didn't really matter that most U.S. states (and cities) collectively spent tens of billions of dollars a year to induce companies to move from one location in the United States to another. If, for example, one state or city wanted to spend $100 million to subsidize football or baseball fans with a better stadium, the only loss was to the taxpayers of the state or community. If a significant portion of what states and cities did contributed little or nothing to boosting overall U.S. economic competitiveness and innovation, it didn't really matter. The U.S. economic engine was still going at sixty miles per hour and we were number one.

No more. As noted above, the United States has fallen from its number one perch and is making glacial progress compared to many of its competitors. Our natural advantages have become less vital, while many of our competitors' weaknesses have ebbed. Firms in small nations can now get the scale they need by accessing global markets. China, India, Russia, and Eastern Europe have joined the global economy and are trying furiously to compete. And now, nation after nation has figured out what is needed to compete—and that one key way to do so is to put in place aggressive innovation policies, from government support for research and STEM education, to generous R&D tax credits, to strategic support for key innovation-based industries, such as life sciences, IT, and clean energy.

In this new, more competitive environment, we simply don't have the luxury of having fifty separate economic development policies that serve to redistribute the U.S. economic pie, instead of growing it. It is time for states to work together and with the federal government to reorient their economic development policies toward driving innovation and competitiveness both within their own borders and nationally. As Benjamin Franklin stated at the founding of our nation, "We must, indeed, all hang together, or most assuredly we shall all hang separately." His wisdom applies today, for if states (and the federal government) don't work together to craft policies that are win-win for individual states and the nation as whole, they ultimately will "hang separately" in lagging economies that don't create the jobs, incomes, and opportunities that Americans need.

This is not to say that competition between states (and communities) cannot be healthy. But to go back to a sports analogy, if all competing basketball teams do to compete against each other is to bid increasing amounts of money to sway the next LeBron James to their team, the overall level of basketball doesn't get better. But if they intensely compete by developing better plays, improving their athletes' conditioning, and practicing endlessly to execute plays and make shots, then this competition lifts all boats. The same is true for states (and communities). If they focus on boosting their infrastructure, education levels, business support systems, and technology development and transfer systems because they want to win, this helps not just the state but the nation. If every state engages in this kind of intense win-win competition, it will be that much easier for the entire U.S. economy to be strong and internationally competitive.

Yes, this has been said before.[100] And yes, some states have at various times tried to cooperate and end the "economic war between the states." But new times demand new approaches. Indeed, the downsides of not cooperating have never been higher and the awareness of the need for the United States as a whole to better compete has never been higher.

Too many communities and states still see their economic competitors as next door, as opposed to halfway around the world. And too many communities still compete against other communities in the same state, just as too many states still compete against other states. They use a host of incentives that do little more than change where in a state or in the United States a company locates or expands. Imagine if these resources were used to expand the quality of the educational system, co-invest with broadband companies to expand broadband, support entrepreneurial assistance programs targeted at "traded" firms, or invest in research and tech transfer. If every community in a state did this kind of thing, the state would be much more nationally and globally competitive, and, of course, on average, the communities would be better off. If every state did this, the nation would be much more globally competitive, and, of course, on average, the states would be better off.

Unfortunately for communities and states, many of the zero-sum strategies may make sense, especially for elected officials seeking reelection every few years and needing to show increasingly impatient voters tangible short-term results. The challenge is to provide the carrots and sticks to convince communities and states to pursue a different approach.

Such a new approach to economic development would entail three key aspects: 1) state policies to reduce within-state zero-sum competition; 2) state policies to spur "win-win" economic results; and 3) a new state-federal innovation-based economic development partnership.

STATES AND FEDERAL POLICIES TO REDUCE BETWEEN-STATE ZERO-SUM COMPETITION

States should start by taking steps to limit within-state zero-sum strategies. There are several ways to do this. States could develop tax-base-sharing proposals. These would require a portion of any increase in commercial and industrial property tax revenues to be shared, giving all communities an incentive to cooperate in the region's economic development. If shared tax-base revenue collected from industrial and commercial property went to schools or training, for example, it could lead to an increase in overall welfare. States also could make receipt of various state funds contingent on signing no-compete agreements stipulating that they will not provide incentives to in-state firms to relocate within the state. States also can make sure that any state programs (like state-owned industrial parks) are not used to support movement of firms from one community in the state to another.

States also should work to reduce between-state zero-sum competition. Over the last several decades, states occasionally have considered inter-state compacts or other agreements to collaborate more on economic development and engage in less zero-sum-based competition. But these efforts always have been stillborn. Yet, given the current critical need for such collaboration, perhaps the field for this is now more fertile. Toward that end, we encourage regional state groups, such as the New England Governors' Conference, and national organizations like the National Governors Association (NGA) to actively work on developing shared principles that states can sign onto to move more of their economic development efforts toward positive-sum efforts. They could start by agreeing to a one-year moratorium on any financial incentives to firms, except to U.S. firms that otherwise would move jobs outside the United States or to foreign multinationals that require incentives to move jobs to the United States.

While groups like NGA will need to create the impetus for this collaboration, the federal government will need to play a key role in enabling and supporting it. In particular, the federal government needs to do much more to help states invest more in the kind of win-win strategies

described above. Toward that end, we encourage Congress and the Administration to support a new $2 billion annual Winning Through Regional Innovation (WTRI) fund that would provide matching grants to states to support their innovation-based, win-win economic development policies and programs. States that provide financial incentives to firms that simply move a job from one state to another would receive relatively less money from the WTRI fund.

STATE POLICIES TO SPUR "WIN-WIN" ECONOMIC RESULTS

While states and communities can reduce incentives on zero-sum competition, they also can expand incentives and programs to spur win-win results that benefit both their state and the nation. Rather than list again the wide array of interesting and effective approaches, readers can refer to prior editions of the *State New Economy Index*, which list a wide array of innovative win-win policies that states already have adopted in areas such as education and workforce development, entrepreneurial development, research support, technology transfer, and commercialization and manufacturing modernization.

In an environment of fiscal constraint, however, many states face tough budget choices, and significant and needed increases in many of these initiatives are not likely to be on the table in many states for the next few years, at least. But states can and should also work creatively to identify policies that can spur innovation on a budget, essentially embracing a "poor man's innovation policy." To establish a new innovation agenda within a fiscally constrained environment, states need to do three things. First, they need to refocus on the fundamentals of economic development (See Box 1). Only in fat times can states afford to make "mistakes" in their economic development strategies.

Second, states need to reprogram funding going to zero-sum incentives (e.g., those targeted at moving firms from one state to another), cut areas that can afford to be cut, and invest in the areas that promise long-term growth and innovation. This is hard, but it can be done. A case in point is Finland. With the breakup in the early 1990s of the Soviet Union, Finland's largest trading partner, the Finnish economy went into a tail spin, contracting 10 percent in just three years. The fiscal pressures on the central government were severe. But, rather than succumb to the "everything should be on the table" view of budget cutting (a view that is all too popular in some states and in Washington, D.C.), Finland took the long view. They cut government spending, but they increased investments, particularly investments to help transform the Finnish economy from one dependent on natural resources, to one dependent on knowledge and innovation. The results are clear. Finland today stands as one of the leading innovation economies of the globe.

Thus, it is incumbent upon state governments to use the current fiscal environment as an opportunity to focus and force a re-examination of the role of state government in supporting innovation. Indeed, the current fiscal situation could help increase both political and economic slack, enabling tough cuts in programs that are not performing but that have large or powerful supporting constituencies.

Third, they need to identify ways to drive innovation by using existing resources much more effectively. If states are to meet the challenges of creating more innovation-based economies, they will need to be rigorous and bold. In particular, now is the time for fundamental "institutional innovation" that embraces new and often-untested approaches, many of which will upset existing constituencies. This is not the time for inertia, timidity, or the status quo.

States can do a number of things to get more innovation per dollar. Whenever possible, they should use existing budgets to incentivize innovation. States have a wide spectrum of options for tying resources to innovation, from explicitly making innovation priorities a requirement for state dollars, to "nudging" citizens, industries, and governments to think innovatively.

State dollars also can go further if they leverage non-state dollars and assets. Too many programs fail to take advantage of this opportunity. Of course, federal government dollars are often the first leverage source, whether federal grants that capitalize state-run revolving loan funds to increase access to low-cost capital, or other federal matching funds. Another approach is to ensure that more state programs seek to leverage private-sector and industry funding to augment support for government-funded activities.

Cluster initiatives are particularly well-suited to tough budget times because they are designed to spark local initiatives, rather than provide full funding. They also provide a good way of ensuring that federal dollars are spent well—in a manner that supports business-led strategies, rather than as a series of stove-piped federal initiatives unconnected to other federal efforts or to the regional economy in which they will be situated.

States can simulate such action and cultivate innovation and knowledge-based networks with the use of these funds. To begin with, convening private- and public-sector leaders to facilitate these networks is not an expensive endeavor, and further seeding of initiatives can be an even lower-cost strategy with the leveraging of existing funds. States can bring together leaders and assets to devise state and regional innovation strategies, from conducting assessments like gap analyses and "strength, weaknesses, opportunities, and threats" (SWOTs), to the planning and development of regional innovation clusters. Such plans and strategies increase broad-scale understanding of the importance of innovation and entrepreneurship, and serve to guide and align long-term investment. Moreover, in the face of change, some individuals and organizations do not just passively wait, but actively resist change that threatens entrenched ways of doing things and established economic positions.

Planned regional innovation strategies can empower innovators over old-economy stakeholders, whether the former are in business and government or consumers and workers. States should utilize their educational institutions to assist in the process. State governments routinely provide monies to other organizations (local governments, educational institutions, non-profit organizations, health care providers, etc.) to achieve some public purpose. But, all too often, accountability is process-based rather than outcome-based. Focusing on process-based accountability or whether the funds were spent according the organizations' budgets often stifles creativity and innovation in the organizations receiving support. States should push organizations that receive funding to achieve outcomes.

State governments could be a major engine of innovation by focusing funding on performance and organizational innovation. Indeed, state governments should explicitly use the power of purse strings to drive innovation among the recipients of those funds and allocate money on the basis of having recipient agencies, departments, or benefactors implement innovative policies or approaches. The idea is to take the same amount of money, but allocate it on the basis of incentives, to drive performance improvements and innovation. In this case, state government has a role to play in developing policies that use performance-based funding and/or incentives to push back against institutional inertia.

The federal government has done this with its Race to the Top Fund. States that are unwilling to leverage data and accountability systems to improve measurable performance outcomes, that have legislation preventing the development or expansion of innovative school approaches, or that cannot demonstrate effective alliances with local teachers' unions on performance accountability are not eligible to apply for innovation-based education funds. States could employ a similar model and reward universities that drive innovation, allocating state funds on the basis of how successful universities are at securing outside research funds, especially from industry, at commercializing technology in-state, and at producing faculty startups.

Finally, governments also need to be smarter about supporting private-sector innovation. The very fact that state governments have policies (tax, trade, regulation, spending, etc.) means they inevitably influence innovation, sometimes for good, sometimes for ill, but all too often by happenstance. Governments would be much better positioned to effectively support innovation if they were more strategic and knowledgeable about the effects of their actions on innovation.

CONCLUSION

The U.S. economy has faced challenges before and, each time, policymakers have responded with the kinds of actions we need to master the challenge. However, the challenge of economic competitiveness today is more severe than ever before, and our political system seems less able to respond with the kinds of comprehensive solutions that take the best from "both sides of the aisle." That said, more and more companies, journalists, citizens, and elected officials are recognizing the nature of the challenge. States are well positioned to be a key part of the process of national economic revitalization, but only if they stake out new ground and new approaches.

BOX 1: INNOVATION-BASED ECONOMIC DEVELOPMENT 101

Driving state economic development through innovation under current fiscal constraints will require a firm commitment to getting the fundamentals of innovation-based economic development right. The following three principles are a place to start.

Businesses that export goods or services out of the region are the ones that matter most. To reflect the insights of nineteenth-century French economist Jean Baptiste Say, for local-serving functions like hair salons and barbers, demand creates its own supply. If a local-serving firm, such as a barber, goes out of business, another one generally will emerge (or existing ones will expand) because local residents will create the demand. In contrast, demand for cars, or computers, or even banking and insurance services by a state's residents may not lead to in-state supply. That demand can just as easily be met by suppliers located outside the state's borders who ship products in by truck or by broadband Internet connection. If a large exporting establishment, e.g., an automobile assembly plant or a regional insurance processing facility, closes, the workers at that plant lose income, but so do the resident-serving firms where they spent their money (e.g., barber shops).

As such, unless policies are focused on helping local-serving firms get more productive, state economic development programs and policies should be focused on expanding the "export base" of a state (or on reducing imports of products and services that were previously exported), where exporting is defined as selling a commodity, product, or service to a firm or resident outside the state.

It's not just the number of jobs in the export sector, it's the innovation, value-added, and wage level of the jobs. To be sure, in tough economic times with high unemployment, job creation is important. But fundamentally, states need to be strategic about where they invest and what kinds of jobs they want to support. The days of state strategies being based on "shoot anything that flies and claim anything that falls" should be banished to the twentieth century. States should target their scarce economic development resources on programs and policies that help firms paying above the median wage. Indeed, if states give public money to private companies, they should at least expect their investment to lead to a higher standard of living. But it's not uncommon for states to provide incentives to firms paying wages below the median wage. Unless new jobs are created in a region with high unemployment, such incentives will not raise living standards. As a result, states should tie incentives to a wage floor so that, if a predetermined share of a company's jobs pay below a certain wage, they are ineligible for incentives.

States' economic future depends on innovation and entrepreneurship. In a global economy where low-value-added, commodity production of goods or services can gain significant competitive advantage in nations with low wages (and artificially depressed currency valuations), states are fighting a losing battle by competing on the low end. This does not mean that certain industries should be abandoned, for within every industry, regardless of the overall value-added average, there are segments and firms that compete on the basis of innovation, value-added, and high productivity. But it does mean that a state's future is dependent on firms that see their future as tied to innovation, value-added, and high productivity. In many cases, this will mean supporting new firms. In all cases, it means supporting new ideas and innovations, regardless of the age of the firm they come from. States should do everything they can to create the kind of environment that enables innovating firms to emerge, grow, and prosper. In particular, states can target their efforts even more to the small number of firms that are high-growth. These "high-impact" firms are especially important to state economic development because most small businesses are not growth businesses, and most jobs are created by a relatively small number of high-impact firms.[102] For example, between 2008 and 2009, all the new jobs created came from young firms.

Given that states have limited resources, it makes more sense to help a firm that is likely to grow rapidly and hire a larger number of employees than one that is not. Because of this, states should place a particular focus on export-based gazelles.

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Appendix: Weighting Methodology

Raw scores were calculated for each state for each indicator. In the composite analyses, the indicators are weighted according to their relative importance and so that closely correlated ones do not bias the results. In addition, to measure the magnitude of differences between states and not just their ranks, scores for each indicator were based on the standard deviation of each from the mean score of all of the states.

Weighting factors for final score:

KNOWLEDGE JOBS	**Weight**
IT Professionals	0.75
Professional and Managerial Jobs	0.75
Workforce Education	1.00
Immigration of Knowledge Workers	0.50
U.S. Migration of Knowledge Workers	0.50
Manufacturing Value-Added	0.75
Traded-Services Employment	0.75
Total	**5.00**

GLOBALIZATION	
Export Focus on Manufacturing and Services	1.00
FDI	1.00
Total	**2.00**

ECONOMIC DYNAMISM	
Job Churning	1.00
IPOs	0.50
Entrepreneurial Activity	0.75
Inventor Patents	0.50
Fastest-Growing Firms	0.75
Total	**3.50**

DIGITAL ECONOMY	
Online Population	0.50
Digital Government	0.50
Farms and Technology	0.50
Broadband	1.00
Health IT	0.50
Total	**3.00**

INNOVATION CAPACITY	
High-Tech Employment	0.75
Scientists and Engineers	0.75
Patents	0.75
Industry R&D	1.00
Non-industry R&D	0.50
Green Economy	0.50
Venture Capital	0.75
Total	**5.00**

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12 The *2008 State New Economy Index* included twenty-nine indicators but, because of a lack of updated data, this report does not include gazelle firms, number of domain names, or technology in schools.

13 This is done by measuring each industry sector's overall propensity to export (or patent or investment in R&D), and multiplying the number of jobs in each sector for each state by that sector's national propensity to export factor. These were summed to create an adjusted total number of jobs for each state. A ratio was calculated comparing the unadjusted to the adjusted numbers. If the ratio was larger than one, the state's industrial mix was slanted toward industries that tend to export less. If it was smaller than one, the state had more jobs than the national average in industries that export more. The total value of exports was multiplied by the ratio for a final adjusted score.

14 To control for the fact that IT workers are heavily employed in IT sectors, such as software, computer and office equipment, and computer-related services, which are measured in the High-Tech Jobs indicator, this indicator estimates the number of IT jobs in IT sectors and subtracts this number from the total number of workers in IT occupations in a state. This enables a more accurate picture of the extent to which non-IT industries (e.g., other than software) employ IT professionals.

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26 There is a 0.63 correlation between employment in managerial, professional, and technical jobs, and immigration of knowledge workers.

27 The correlation between workforce education and immigration of knowledge workers is quite high (0.87).

28 Nationally, each NAICS three- and four-digit manufacturing sector's value-added was divided by the number of production hours worked to obtain an average value-added per production hour worked. The same was done at the state level, and the state and national figures were compared for each sector in each state. The number of employees per state sector was multiplied by the value-added per production hour worked for that state sector as a percent of that sector's national average of value-added per production hour.

29 Of eighty-eight four- and five-digit NAICS traded service sectors, fourteen IT sectors were removed to avoid redundancy, as their employment is measured by the High-Tech Jobs indicator. Among the remaining seventy-four traded service sectors, thirty-five pay average wages above the overall median for traded service-sector average wages. Employment in these thirty-five sectors was tallied for each state, and measured as a share of each state's total service-sector employment.

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It is not the strongest of the species that survive,
nor the most intelligent,
but the ones most responsive to change.

— Charles Darwin

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