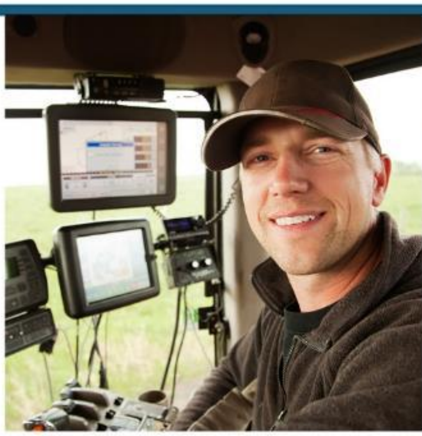
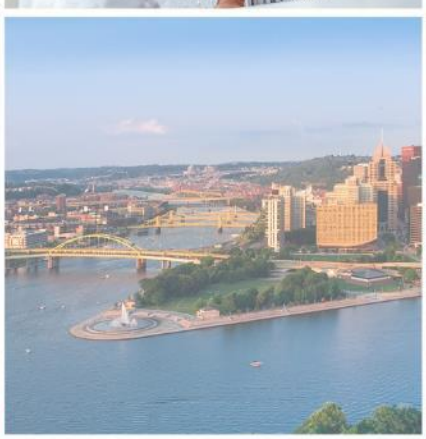
The 2020 State New Economy Index



Benchmarking Economic Transformation in the States



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The 2020 State New Economy Index

Benchmarking Economic Transformation in the States

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March 2021 Update*

* This report was first published in October 2020 and has since been updated to correct data errors that affected indicators related to knowledge jobs, economic dynamism, and digital economy.

About the Information Technology and Innovation Foundation

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INTRODUCTION

Different geographies and jurisdictions play different roles in the global economy. Some specialize in what economists call “seedbed” functions—generating new products and firms, often through cutting-edge innovation. Others specialize in corporate functions by offering attractive environments for company headquarters or other management activities. Still others specialize in more routine production functions for goods or services, handling aspects of the work that involve less innovation and have lower skill requirements. Finally, some regions specialize in resource production tied to geographical endowments, such as minerals, arable land, or lumber.

Regardless of the particular focus of a regional or state economy, however, a defining trend of this era is the degree to which all have become more reliant on innovation as new technologies have become critical drivers of productivity and competitiveness. This is abundantly clear in both traditional economic data, such as high-tech export activity, and in newer metrics, such as broadband deployment. All regions have technological or innovation-driven activity occurring locally, either because long-established industries such as agriculture, mining, manufacturing, and professional services are rapidly evolving into tech-enabled industries, or because new developments such as cloud computing and ubiquitous access to broadband Internet service allow innovators to create new, Information Technology (IT)-enabled enterprises in virtually any connected small town or rural area they may choose.

Yet policy discussions about America’s innovation-driven, high-tech economy too often spotlight just a few iconic places, such as the Route 128 tech corridor around Boston, Massachusetts; Research Triangle Park between Raleigh, Durham, and Chapel Hill, North Carolina; Austin, Texas; Seattle, Washington; and, of course, California’s always white-hot Silicon Valley. This was the case when the first edition of this report came out more than 20 years ago, and it remains true for the most part today. It has always been too myopic a view of how innovation is distributed across the country, and it is increasingly out of step with reality, because many other metropolitan areas and regions—from Denver to Salt Lake City to Minneapolis to Madison—are growing their innovation economies.

An unfortunate result of this myopia has been that policy debates about innovation and economic development have come to be seen as the province of only the few states and regions that are recognizably tech heavy, while others are typecast to focus on their traditional bread and butter. This needs to change, not only because the premise is incorrect, but also because the states’ and regions’ competitive positions in the U.S. and global economies hinge on developing broad-based understandings and support for modernizing policy frameworks to spur innovation and growth.

To be well positioned to take advantage of technological innovation, and thrive amid the ebbs and flows of the global economy, states need to be firmly grounded in what the Information Technology and Information Foundation (ITIF) and others have called “New Economy” success factors. This report assembles an index of 25 indicators across 5 economic categories to assess states’ fundamental capacities to successfully navigate an economy driven by technological innovation. It measures the degree to which state economies are knowledge based, globalized, entrepreneurial, IT driven, and innovation based. These data underscore how all states would benefit from implementing comprehensive innovation strategies. The federal government should complement those efforts by spurring development self-sustaining tech hubs in more parts of the country.

THE INDEX

The purpose of the *State New Economy Index* is to measure states' economic *structure.* Unlike other reports that assess state economic performance or state economic policies, this study focuses more narrowly on a simple question: To what degree does the structure of the 50 state economies match the ideal structure of the innovation-driven 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 measure state economies' degrees of global integration.

This edition of the *Index* builds on eight prior editions, which were published in 1999, 2002, 2007, 2008, 2010, 2012, 2014, and 2017.[1] It uses 25 indicators, which are divided into 5 categories that best capture what is important about the New Economy:

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; worker productivity in the manufacturing sector; and employment in high-wage traded services.

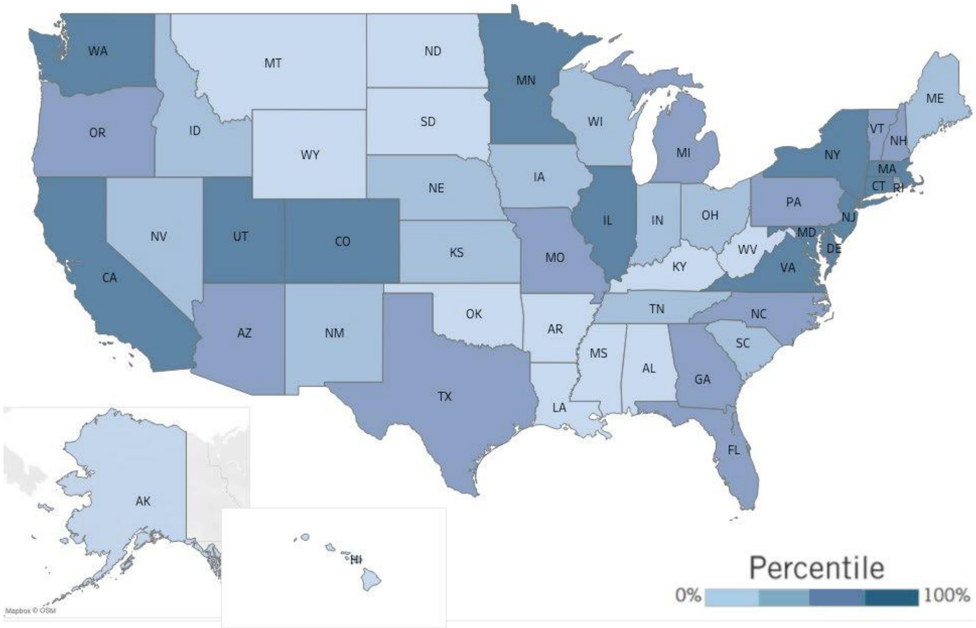
2. **Globalization:** Indicators measure foreign direct investment (FDI), export orientation of manufacturing, and the share of each state's output that goes to high-tech goods and services exports.

3. **Economic dynamism:** Indicators measure the degree of business churn (i.e., the percentage of new business start-ups and failures); the number of fast-growing firms (businesses listed in the "Inc. 5000" index); the number and value of initial public stock offerings (IPOs) by companies; and the number of individual inventor patents granted.

4. **The digital economy:** Indicators measure Internet and computer use by farmers; the degree to which state governments use information technologies to deliver services; adoption rates and speed of broadband telecommunications; and use of IT in the health care system.

5. **Innovation capacity:** Indicators measure the number of jobs in high-tech industries such as electronics manufacturing, telecommunications, and biomedical industries; the number of scientists and engineers in the workforce; the number of patents granted; industry investment in research and development (R&D); non-industry investment in R&D; movement toward a clean-energy economy; and venture capital (VC) investment.

OVERALL SCORES



2020 Rank	2020 Score	State	1999 Rank	2002 Rank	2007 Rank	2010 Rank	2012 Rank	2014 Rank	2017 Rank	Rank Change from 2017*
1	90.0	Massachusetts	1	1	1	1	1	1	1	0
2	82.2	California	2	2	5	7	4	3	2	0
3	77.7	Utah	6	16	12	12	8	9	9	+6
4	75.8	Maryland	11	5	3	3	5	5	6	+2
5	75.2	Washington	4	4	4	2	3	4	3	-2
6	74.9	Virginia	12	8	8	8	6	7	4	-2
7	72.8	New York	16	11	10	10	11	12	11	+4
8	72.4	Colorado	3	3	9	9	7	6	7	-1
9	71.5	Connecticut	5	7	6	5	9	8	10	+1
10	69.7	New Jersey	8	6	2	4	10	10	8	-2
11	69.4	Minnesota	14	14	11	13	13	13	12	+1
12	68.5	Delaware	9	9	7	6	2	2	5	-7
13	68.1	Illinois	22	19	16	15	20	16	16	+3
14	67.9	Texas	17	10	14	18	17	20	17	+4
15	67.5	Oregon	15	13	17	14	14	15	13	-2
16	64.4	Georgia	25	18	18	19	18	21	19	+3
17	63.5	Michigan	34	22	19	17	19	18	15	-2
18	62.9	New Hampshire	7	12	13	11	12	11	14	-4
19	62.1	North Carolina	30	24	26	24	25	23	22	+3

2020 Rank	2020 Score	State	1999 Rank	2002 Rank	2007 Rank	2010 Rank	2012 Rank	2014 Rank	2017 Rank	Rank Change from 2017*
20	62.0	Arizona	10	15	22	20	16	17	21	+1
21	61.6	Pennsylvania	24	21	21	22	22	22	23	+2
22	58.7	Florida	20	17	23	21	21	25	24	+2
23	58.2	Rhode Island	29	23	15	16	23	19	20	-3
24	58.0	Vermont	18	26	20	23	15	14	18	-6
25	58.0	Missouri	35	28	35	33	33	33	28	+3
26	57.0	Nevada	21	31	27	30	26	27	31	+5
27	55.9	Ohio	33	27	29	25	32	29	25	-2
28	55.8	Kansas	27	30	34	26	29	31	30	+2
29	54.9	Indiana	37	32	31	35	42	38	34	+5
30	54.8	Tennessee	31	34	36	41	39	40	32	+2
31	54.7	Nebraska	36	36	28	34	35	35	27	-4
32	54.4	Idaho	23	20	24	27	24	24	29	-3
33	53.8	Wisconsin	32	37	30	29	31	30	26	-7
33	53.2	South Carolina	38	35	39	39	40	34	35	+2
35	52.3	Iowa	42	40	38	38	38	37	37	+2
36	50.4	New Mexico	19	25	33	32	30	26	33	-3
37	50.0	Maine	28	29	32	28	27	28	36	-1
38	49.4	North Dakota	45	47	37	36	34	36	38	0
39	49.0	Kentucky	39	42	45	44	45	44	39	0
40	47.8	Louisiana	47	44	44	43	44	46	46	+6
41	47.8	South Dakota	43	46	48	45	43	42	41	0
42	47.8	Alabama	44	45	46	47	46	41	44	+2
43	46.9	Alaska	13	39	25	31	28	32	42	-1
44	45.7	Montana	46	41	42	37	37	39	43	-1
45	45.4	Wyoming	41	43	43	46	41	45	47	+2
46	45.2	Hawaii	26	38	41	40	36	43	40	-6
47	44.7	West Virginia	48	48	50	49	49	49	48	+1
48	44.0	Oklahoma	40	33	40	42	47	48	45	-3
49	39.8	Arkansas	49	49	47	48	48	47	49	0
50	37.1	Mississippi	50	50	49	50	50	50	50	0

**Due to changes in methodology, change ranks cannot be positively attributed to changes in the economic conditions or structure of a state economy.*

INDICATOR SCORES BY RANK

	OVERALL		Information Technology Jobs		Managerial, Professional, and Technical Jobs		Workforce Education		Immigration of Knowledge Workers		Internal Migration of U.S. Knowledge Workers		Manufacturing Value Added		High-Wage Traded Services		Foreign Direct Investment		Export Focus of Manufacturing		High-Tech Exports		Business Churning		Fast-Growing Firms	
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	90.0	6	2.9%	1	38.6%	3	0.58	1	0.94	8	0.71	6	$245	6	13.0%	14	6.9%	20	$96,576	19	1.9%	17	19.5%	9	0.11%
California	2	82.2	13	2.6%	10	32.1%	18	0.49	2	0.82	10	0.71	22	$223	14	11.9%	26	5.4%	11	$119,730	18	1.9%	4	22.6%	20	0.10%
Utah	3	77.7	11	2.6%	13	31.4%	12	0.52	16	0.69	19	0.65	20	$225	16	11.6%	42	3.9%	19	$96,626	21	1.7%	3	23.6%	1	0.24%
Maryland	4	75.8	1	3.7%	2	34.3%	1	0.62	8	0.78	18	0.65	3	$275	31	9.9%	24	5.5%	17	$107,508	42	0.7%	27	18.4%	6	0.14%
Washington	5	75.2	5	3.3%	11	31.9%	50	0.34	13	0.73	2	0.80	14	$229	27	10.4%	34	4.5%	2	$191,474	33	0.9%	12	20.1%	16	0.10%
Virginia	6	74.9	2	3.6%	4	33.2%	5	0.56	5	0.80	12	0.70	2	$283	7	13.0%	20	6.1%	27	$85,320	36	0.8%	35	18.0%	2	0.22%
New York	7	72.8	19	2.4%	6	33.1%	11	0.53	6	0.80	25	0.59	26	$216	2	15.0%	19	6.2%	6	$145,470	38	0.7%	24	18.6%	18	0.10%
Colorado	8	72.4	4	3.3%	5	33.2%	2	0.59	10	0.75	28	0.57	7	$245	11	12.0%	30	5.0%	36	$76,681	40	0.7%	9	21.4%	4	0.15%
Connecticut	9	71.5	16	2.5%	3	34.1%	4	0.56	11	0.75	13	0.67	5	$250	4	14.2%	7	7.5%	21	$95,668	37	0.8%	49	15.4%	33	0.06%
New Jersey	10	69.7	8	2.8%	12	31.9%	6	0.56	9	0.77	23	0.62	48	$182	13	12.0%	3	8.2%	8	$129,847	11	2.3%	13	19.8%	15	0.10%
Minnesota	11	69.4	9	2.7%	7	32.8%	9	0.54	14	0.73	6	0.73	11	$238	3	14.6%	27	5.4%	29	$81,949	25	1.4%	45	15.8%	17	0.10%
Delaware	12	68.5	3	3.3%	15	30.7%	27	0.46	24	0.65	22	0.63	23	$220	1	16.8%	17	6.6%	10	$124,372	6	2.9%	10	20.7%	32	0.07%
Illinois	13	68.1	14	2.6%	8	32.8%	14	0.51	4	0.81	3	0.79	29	$215	5	14.1%	15	6.8%	12	$119,254	14	2.0%	26	18.4%	7	0.13%
Texas	14	67.9	22	2.3%	28	29.0%	35	0.44	21	0.65	27	0.57	8	$245	22	11.2%	21	6.0%	1	$208,394	2	4.8%	11	20.6%	8	0.13%
Oregon	15	67.5	23	2.3%	17	30.3%	13	0.51	17	0.68	40	0.51	12	$233	23	11.0%	46	3.7%	22	$95,642	3	4.6%	31	18.2%	25	0.08%
Georgia	16	64.4	12	2.6%	16	30.4%	24	0.46	36	0.59	21	0.64	18	$226	12	12.0%	13	6.9%	16	$110,533	31	1.0%	7	21.4%	3	0.16%
Michigan	17	63.5	27	2.1%	21	30.0%	29	0.45	28	0.63	11	0.70	31	$214	25	10.6%	9	7.2%	23	$94,546	23	1.6%	50	15.3%	30	0.07%
New Hampshire	18	62.9	31	1.8%	19	30.1%	45	0.39	23	0.65	34	0.54	19	$225	30	10.1%	4	7.8%	30	$81,629	10	2.5%	16	19.5%	24	0.08%
North Carolina	19	62.1	20	2.4%	27	29.1%	21	0.47	22	0.65	31	0.56	13	$229	24	10.8%	6	7.5%	31	$80,954	17	1.9%	19	19.3%	14	0.10%
Arizona	20	62.0	7	2.9%	18	30.2%	30	0.45	29	0.62	39	0.51	4	$260	21	11.2%	32	4.7%	13	$118,120	16	2.0%	8	21.4%	5	0.15%
Pennsylvania	21	61.6	24	2.2%	20	30.0%	16	0.50	18	0.67	17	0.65	21	$224	9	12.6%	22	6.0%	37	$73,619	24	1.5%	40	16.6%	13	0.10%
Florida	22	58.7	28	2.0%	36	27.6%	31	0.45	38	0.58	38	0.51	25	$217	17	11.6%	31	4.8%	5	$150,335	20	1.8%	5	22.4%	10	0.11%
Rhode Island	23	58.2	17	2.4%	14	30.8%	26	0.46	7	0.78	49	0.32	45	$187	8	12.9%	18	6.3%	47	$42,481	35	0.9%	14	19.6%	45	0.03%
Vermont	24	58.0	39	1.6%	9	32.4%	7	0.55	3	0.81	35	0.54	42	$191	47	6.8%	41	3.9%	26	$87,612	1	5.5%	36	17.1%	42	0.04%
Missouri	25	58.0	18	2.4%	26	29.2%	32	0.44	25	0.64	7	0.73	30	$214	18	11.4%	25	5.4%	42	$61,023	32	1.0%	2	24.2%	28	0.08%
Nevada	26	57.0	47	1.3%	50	22.0%	10	0.53	46	0.47	48	0.42	1	$323	40	8.7%	39	4.1%	4	$156,751	29	1.3%	1	24.6%	21	0.09%
Ohio	27	55.9	21	2.3%	22	29.9%	37	0.43	26	0.64	30	0.56	27	$216	15	11.6%	23	5.8%	28	$82,939	27	1.4%	48	15.7%	11	0.11%
Kansas	28	55.8	25	2.2%	30	28.5%	15	0.50	33	0.61	20	0.65	39	$205	29	10.2%	28	5.3%	32	$79,754	34	0.9%	30	18.4%	22	0.09%
Indiana	29	54.9	43	1.5%	41	26.5%	42	0.41	40	0.57	4	0.76	24	$219	43	8.1%	5	7.6%	38	$71,829	5	3.0%	44	16.1%	26	0.08%
Tennessee	30	54.8	32	1.8%	35	27.6%	41	0.41	37	0.59	44	0.47	10	$240	32	9.9%	11	7.1%	24	$92,951	8	2.7%	32	18.2%	12	0.11%
Nebraska	31	54.7	10	2.7%	23	29.6%	19	0.49	35	0.60	24	0.60	34	$211	10	12.3%	43	3.8%	15	$112,790	39	0.7%	21	19.1%	29	0.07%
Idaho	32	54.4	36	1.7%	37	27.6%	39	0.43	44	0.50	16	0.65	41	$192	42	8.5%	49	2.7%	43	$56,852	9	2.6%	6	22.4%	31	0.07%
Wisconsin	33	53.8	15	2.5%	32	27.9%	36	0.44	30	0.61	42	0.48	33	$211	20	11.2%	38	4.3%	41	$63,401	26	1.4%	37	17.0%	35	0.06%
South Carolina	34	53.2	38	1.6%	46	25.5%	38	0.43	31	0.61	15	0.66	32	$211	35	9.4%	2	8.3%	7	$136,903	22	1.6%	15	19.6%	23	0.09%
Iowa	35	52.3	26	2.1%	29	28.7%	34	0.44	39	0.57	5	0.74	16	$228	19	11.3%	36	4.4%	34	$78,184	28	1.3%	47	15.7%	37	0.05%
New Mexico	36	50.4	33	1.8%	33	27.7%	40	0.43	20	0.66	47	0.43	36	$209	49	6.4%	48	2.8%	9	$125,049	15	2.0%	18	19.3%	47	0.02%
Maine	37	50.0	34	1.8%	24	29.6%	49	0.36	12	0.74	9	0.71	43	$191	37	9.0%	16	6.7%	48	$41,864	44	0.7%	23	18.7%	41	0.04%
North Dakota	38	49.4	30	1.8%	40	26.7%	25	0.46	48	0.46	29	0.56	15	$229	44	8.1%	45	3.7%	25	$87,798	43	0.7%	34	18.1%	34	0.06%
Kentucky	39	49.0	42	1.5%	47	25.4%	46	0.39	42	0.54	43	0.47	40	$204	41	8.6%	1	8.7%	14	$117,040	7	2.8%	38	16.9%	38	0.05%
Louisiana	40	47.8	50	0.9%	42	26.4%	22	0.47	34	0.61	33	0.55	17	$228	36	9.3%	37	4.3%	3	$174,255	4	3.8%	41	16.4%	36	0.06%
South Dakota	41	47.8	41	1.6%	44	26.2%	33	0.44	43	0.54	41	0.48	35	$211	28	10.3%	47	3.6%	44	$52,602	47	0.3%	39	16.7%	27	0.08%
Alabama	42	47.8	40	1.6%	43	26.3%	44	0.39	41	0.54	36	0.53	37	$209	38	8.9%	10	7.1%	40	$65,870	30	1.3%	42	16.4%	19	0.10%
Alaska	43	46.9	35	1.7%	25	29.6%	23	0.46	32	0.61	37	0.51	50	$160	33	9.7%	8	7.3%	49	$17,366	50	0.1%	22	18.9%	50	0.01%
Montana	44	45.7	45	1.4%	38	27.3%	20	0.48	19	0.66	14	0.67	38	$206	45	7.3%	50	2.0%	18	$97,131	45	0.6%	28	18.4%	40	0.05%
Wyoming	45	45.4	48	1.0%	49	24.9%	28	0.46	27	0.64	1	1.15	49	$165	50	6.3%	44	3.7%	33	$79,709	48	0.3%	25	18.5%	44	0.03%
Hawaii	46	45.2	46	1.4%	45	25.7%	17	0.50	15	0.69	32	0.55	28	$216	39	8.8%	12	7.0%	50	$15,270	49	0.1%	29	18.4%	48	0.02%
West Virginia	47	44.7	44	1.5%	31	28.1%	8	0.54	50	0.42	50	0.02	9	$241	46	6.9%	29	5.0%	35	$76,756	12	2.2%	43	16.2%	43	0.03%
Oklahoma	48	44.0	29	2.0%	34	27.7%	43	0.39	45	0.47	45	0.46	46	$186	34	9.5%	40	3.9%	46	$45,836	46	0.6%	20	19.1%	39	0.05%
Arkansas	49	39.8	37	1.7%	39	26.7%	48	0.36	49	0.46	46	0.45	47	$182	26	10.4%	33	4.6%	45	$49,839	41	0.7%	33	18.1%	46	0.02%
Mississippi	50	37.1	49	1.0%	48	25.1%	47	0.38	47	0.46	26	0.59	44	$188	48	6.5%	35	4.4%	39	$66,168	13	2.0%	46	15.8%	49	0.01%
U.S. Average	-	59.0	-	0.0	-	0.3	-	0.5	-	0.6	-	0.6	-	219.9	-	0.1	-	0.1	-	$94,405	-	0.0	-	0.2	-	0.0

State	Initial Public Offerings		Inventor Patents		Online Agriculture		E-government		Broadband Telecommunications		Health IT		High-Tech Jobs		Scientists and Engineers		Patents		Industry Investment in R&D		Non-Industry Investment in R&D		Movement Toward a Green Economy		Venture Capital	
	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
MA	1	7.9	5	0.11	2	6.3	24	90.0	6	6.1	17	5.3	1	8.2%	5	5.1%	3	2.2	4	6.1%	4	2.4%	1	6.1	2	1.6%
CA	3	7.4	2	0.14	9	6.1	6	96.7	27	4.8	20	5.1	5	7.0%	7	4.4%	1	2.7	1	8.3%	11	1.2%	19	5.0	1	1.9%
UT	10	5.6	1	0.27	1	6.5	1	100.0	15	5.6	8	5.7	6	6.8%	14	3.5%	11	1.3	17	2.4%	32	0.8%	4	5.8	4	0.6%
MD	27	4.6	11	0.09	29	4.7	14	93.3	3	6.5	13	5.4	8	6.3%	2	5.8%	22	0.8	29	1.4%	2	7.5%	23	5.0	17	0.2%
WA	24	4.7	6	0.10	21	5.3	6	96.7	9	5.9	45	4.3	4	7.3%	3	5.8%	2	2.4	2	7.7%	12	1.2%	2	6.0	5	0.5%
VA	17	4.9	24	0.06	40	4.2	6	96.7	4	6.3	28	4.8	15	4.9%	1	6.0%	27	0.7	33	0.9%	6	1.9%	3	5.8	23	0.1%
NY	2	7.8	16	0.08	19	5.6	6	96.7	10	5.8	3	6.2	22	4.3%	27	2.9%	14	1.1	28	1.6%	22	0.9%	17	5.1	3	0.9%
CO	11	5.5	4	0.11	8	6.2	14	93.3	26	4.8	47	4.2	7	6.6%	4	5.2%	10	1.3	21	2.0%	9	1.3%	14	5.3	6	0.5%
CT	12	5.4	20	0.07	2	6.3	14	93.3	7	5.9	1	6.6	19	4.5%	17	3.4%	5	1.9	6	4.6%	21	0.9%	32	4.8	22	0.1%
NJ	21	4.8	10	0.09	10	5.8	48	80.0	1	6.9	37	4.6	11	5.4%	8	4.0%	13	1.2	8	4.1%	46	0.6%	45	4.5	13	0.2%
MN	18	4.9	7	0.10	20	5.5	6	96.7	23	5.0	6	5.9	13	5.3%	9	3.9%	7	1.7	11	3.3%	43	0.6%	11	5.3	10	0.2%
DE	5	6.4	34	0.05	29	4.7	14	93.3	5	6.1	40	4.5	30	3.8%	18	3.4%	30	0.7	7	4.6%	41	0.7%	39	4.7	14	0.2%
IL	14	5.3	25	0.06	23	5.3	14	93.3	14	5.6	48	4.1	26	4.0%	21	3.2%	17	1.0	13	2.8%	27	0.8%	9	5.4	12	0.2%
TX	7	6.3	23	0.07	34	4.6	24	90.0	13	5.7	32	4.8	21	4.3%	11	3.7%	18	1.0	20	2.1%	33	0.7%	35	4.8	19	0.2%
OR	37	4.2	19	0.07	16	5.6	24	90.0	17	5.5	18	5.3	10	5.5%	13	3.6%	4	2.0	5	5.9%	39	0.7%	8	5.4	8	0.3%
GA	13	5.3	33	0.05	28	4.8	1	100.0	18	5.4	36	4.6	24	4.1%	22	3.2%	25	0.7	26	1.7%	30	0.8%	24	5.0	15	0.2%
MI	36	4.4	14	0.08	25	5.1	1	100.0	42	4.3	10	5.6	14	5.1%	6	4.5%	6	1.8	3	6.7%	15	1.0%	28	4.9	29	0.1%
NH	35	4.4	3	0.12	2	6.3	45	83.3	12	5.7	22	5.1	3	7.4%	10	3.9%	8	1.6	27	1.7%	20	0.9%	26	4.9	26	0.1%
NC	33	4.5	38	0.05	36	4.5	24	90.0	16	5.5	24	4.9	9	5.8%	12	3.7%	20	0.9	14	2.6%	13	1.2%	18	5.0	16	0.2%
AZ	30	4.6	9	0.09	48	3.5	24	90.0	29	4.7	41	4.4	16	4.7%	19	3.3%	15	1.1	16	2.5%	24	0.9%	22	5.0	31	0.1%
PA	8	6.1	27	0.06	46	3.7	14	93.3	8	5.9	29	4.8	17	4.6%	23	3.1%	23	0.8	19	2.4%	10	1.3%	36	4.8	7	0.3%
FL	16	5.1	13	0.08	26	5.0	24	90.0	11	5.7	14	5.3	34	3.7%	34	2.5%	31	0.6	35	0.8%	42	0.6%	46	4.5	25	0.1%
RI	37	4.2	31	0.05	2	6.3	48	80.0	2	6.6	5	6.0	33	3.7%	30	2.8%	19	0.9	22	2.0%	5	2.3%	6	5.5	30	0.1%
VT	37	4.2	32	0.05	2	6.3	41	86.7	34	4.6	4	6.0	20	4.4%	37	2.2%	9	1.4	30	1.3%	38	0.7%	30	4.9	11	0.2%
MO	31	4.6	41	0.05	39	4.3	1	100.0	24	4.9	19	5.2	27	3.9%	24	3.1%	34	0.5	23	1.9%	34	0.7%	44	4.5	27	0.1%
NV	4	7.3	8	0.09	48	3.5	45	83.3	20	5.1	34	4.7	39	3.3%	50	1.3%	33	0.6	44	0.5%	50	0.3%	12	5.3	42	0.0%
OH	26	4.6	29	0.06	47	3.7	1	100.0	31	4.7	23	4.9	36	3.6%	15	3.4%	21	0.9	24	1.9%	23	0.9%	42	4.7	24	0.1%
KS	28	4.6	17	0.08	17	5.6	41	86.7	22	5.0	39	4.5	32	3.7%	28	2.9%	29	0.7	25	1.7%	37	0.7%	15	5.2	20	0.2%
ID	15	5.2	37	0.05	27	4.9	6	96.7	28	4.8	21	5.1	29	3.8%	31	2.7%	24	0.8	12	2.9%	29	0.8%	34	4.8	37	0.0%
TN	9	5.8	35	0.05	45	3.7	14	93.3	19	5.2	30	4.8	35	3.6%	41	2.2%	36	0.5	41	0.6%	8	1.6%	43	4.6	28	0.1%
NE	37	4.2	45	0.04	13	5.7	24	90.0	38	4.5	9	5.6	31	3.7%	32	2.6%	43	0.3	38	0.8%	25	0.9%	31	4.9	36	0.0%
ID	34	4.5	22	0.07	11	5.7	14	93.3	45	4.0	25	4.9	12	5.3%	35	2.4%	12	1.3	9	3.9%	7	1.8%	21	5.0	33	0.1%
WI	20	4.8	28	0.06	22	5.3	6	96.7	21	5.0	44	4.3	18	4.5%	20	3.3%	16	1.0	15	2.6%	26	0.8%	49	4.2	38	0.0%
SC	37	4.2	46	0.04	42	4.0	24	90.0	35	4.6	35	4.7	25	4.0%	29	2.9%	32	0.6	32	1.0%	31	0.8%	33	4.8	43	0.0%
IA	37	4.2	36	0.05	24	5.2	24	90.0	40	4.3	27	4.8	37	3.5%	33	2.6%	28	0.7	18	2.4%	16	1.0%	13	5.3	46	0.0%
NM	37	4.2	21	0.07	50	2.2	24	90.0	47	3.7	38	4.6	2	7.4%	25	3.1%	26	0.7	43	0.6%	1	12.1%	40	4.7	9	0.3%
ME	37	4.2	44	0.04	2	6.3	14	93.3	41	4.3	2	6.3	40	3.2%	42	2.1%	40	0.4	39	0.7%	47	0.5%	29	4.9	18	0.2%
ND	22	4.8	39	0.05	15	5.7	6	96.7	25	4.9	11	5.4	41	3.0%	47	1.6%	44	0.3	31	1.0%	19	0.9%	37	4.8	32	0.1%
KY	32	4.5	48	0.03	37	4.4	24	90.0	32	4.7	26	4.9	42	3.0%	39	2.2%	37	0.4	40	0.7%	48	0.5%	16	5.2	34	0.1%
LA	29	4.6	30	0.05	35	4.5	24	90.0	43	4.2	42	4.4	47	2.6%	49	1.6%	46	0.3	50	0.2%	44	0.6%	50	4.1	39	0.0%
SD	37	4.2	15	0.08	17	5.6	41	86.7	37	4.6	7	5.8	38	3.3%	38	2.2%	41	0.4	37	0.8%	45	0.6%	7	5.5	41	0.0%
AL	25	4.7	47	0.04	41	4.0	41	86.7	46	3.9	12	5.4	23	4.2%	16	3.4%	45	0.3	34	0.8%	3	2.9%	48	4.3	45	0.0%
AK	37	4.2	26	0.06	31	4.7	48	80.0	39	4.4	33	4.7	28	3.8%	26	3.1%	49	0.2	10	3.4%	17	1.0%	20	5.0	49	0.0%
MT	37	4.2	18	0.07	14	5.7	24	90.0	49	3.6	46	4.2	46	2.7%	40	2.2%	39	0.4	47	0.4%	18	1.0%	25	5.0	21	0.1%
WY	6	6.4	12	0.09	12	5.7	45	83.3	44	4.1	16	5.3	49	2.3%	44	1.7%	35	0.5	46	0.5%	40	0.7%	47	4.4	35	0.0%
HI	19	4.9	43	0.04	31	4.7	14	93.3	30	4.7	50	3.6	44	2.7%	43	1.8%	48	0.2	49	0.2%	28	0.8%	41	4.7	40	0.0%
WV	37	4.2	49	0.03	44	3.9	24	90.0	33	4.7	15	5.3	48	2.5%	46	1.6%	47	0.2	45	0.5%	36	0.7%	38	4.8	50	0.0%
OK	23	4.7	40	0.05	38	4.3	24	90.0	36	4.6	49	3.8	45	2.7%	36	2.3%	38	0.4	36	0.8%	35	0.7%	10	5.4	47	0.0%
AR	37	4.2	42	0.04	33	4.6	24	90.0	48	3.6	31	4.8	50	2.1%	48	1.6%	42	0.4	42	0.6%	49	0.5%	27	4.9	44	0.0%
MS	37	4.2	50	0.02	43	4.0	24	90.0	50	2.9	43	4.4	43	3.0%	45	1.7%	50	0.2	48	0.4%	14	1.2%	5	5.6	48	0.0%
U.S.	-	5.0	-	0.1	-	5.0	-	91.5	-	5.0	-	5.0	-	0.0	-	0.0	-	0.9	-	0.0	-	0.0	-	5.0	-	0.2%

INDICATOR SCORE BY STATE

	OVERALL		Information Technology Jobs		Managerial, Professional, and Technical Jobs		Workforce Education		Immigration of Knowledge Workers		Internal Migration of U.S. Knowledge Workers		Manufacturing Value Added		High-Wage Traded Services		Foreign Direct Investment		Export Focus of Manufacturing		High-Tech Exports		Business Churning		Fast-Growing Firms	
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	42	47.8	40	1.6%	43	26.3%	44	0.39	41	0.54	36	0.53	37	$209	38	8.9%	10	7.1%	40	$65,870	30	1.3%	42	16.4%	19	0.10%
Alaska	43	46.9	35	1.7%	25	29.6%	23	0.46	32	0.61	37	0.51	50	$160	33	9.7%	8	7.3%	49	$17,366	50	0.1%	22	18.9%	50	0.01%
Arizona	20	62.0	7	2.9%	18	30.2%	30	0.45	29	0.62	39	0.51	4	$260	21	11.2%	32	4.7%	13	$118,120	16	2.0%	8	21.4%	5	0.15%
Arkansas	49	39.8	37	1.7%	39	26.7%	48	0.36	49	0.46	46	0.45	47	$182	26	10.4%	33	4.6%	45	$49,839	41	0.7%	33	18.1%	46	0.02%
California	2	82.2	13	2.6%	10	32.1%	18	0.49	2	0.82	10	0.71	22	$223	14	11.9%	26	5.4%	11	$119,730	18	1.9%	4	22.6%	20	0.10%
Colorado	8	72.4	4	3.3%	5	33.2%	2	0.59	10	0.75	28	0.57	7	$245	11	12.0%	30	5.0%	36	$76,681	40	0.7%	9	21.4%	4	0.15%
Connecticut	9	71.5	16	2.5%	3	34.1%	4	0.56	11	0.75	13	0.67	5	$250	4	14.2%	7	7.5%	21	$95,668	37	0.8%	49	15.4%	33	0.06%
Delaware	12	68.5	3	3.3%	15	30.7%	27	0.46	24	0.65	22	0.63	23	$220	1	16.8%	17	6.6%	10	$124,372	6	2.9%	10	20.7%	32	0.07%
Florida	22	58.7	28	2.0%	36	27.6%	31	0.45	38	0.58	38	0.51	25	$217	17	11.6%	31	4.8%	5	$150,335	20	1.8%	5	22.4%	10	0.11%
Georgia	16	64.4	12	2.6%	16	30.4%	24	0.46	36	0.59	21	0.64	18	$226	12	12.0%	13	6.9%	16	$110,533	31	1.0%	7	21.4%	3	0.16%
Hawaii	46	45.2	46	1.4%	45	25.7%	17	0.50	15	0.69	32	0.55	28	$216	39	8.8%	12	7.0%	50	$15,270	49	0.1%	29	18.4%	48	0.02%
Idaho	32	54.4	36	1.7%	37	27.6%	39	0.43	44	0.50	16	0.65	41	$192	42	8.5%	49	2.7%	43	$56,852	9	2.6%	6	22.4%	31	0.07%
Illinois	13	68.1	14	2.6%	8	32.8%	14	0.51	4	0.81	3	0.79	29	$215	5	14.1%	15	6.8%	12	$119,254	14	2.0%	26	18.4%	7	0.13%
Indiana	29	54.9	43	1.5%	41	26.5%	42	0.41	40	0.57	4	0.76	24	$219	43	8.1%	5	7.6%	38	$71,829	5	3.0%	44	16.1%	26	0.08%
Iowa	35	52.3	26	2.1%	29	28.7%	34	0.44	39	0.57	5	0.74	16	$228	19	11.3%	36	4.4%	34	$78,184	28	1.3%	47	15.7%	37	0.05%
Kansas	28	55.8	25	2.2%	30	28.5%	15	0.50	33	0.61	20	0.65	39	$205	29	10.2%	28	5.3%	32	$79,754	34	0.9%	30	18.4%	22	0.09%
Kentucky	39	49.0	42	1.5%	47	25.4%	46	0.39	42	0.54	43	0.47	40	$204	41	8.6%	1	8.7%	14	$117,040	7	2.8%	38	16.9%	38	0.05%
Louisiana	40	47.8	50	0.9%	42	26.4%	22	0.47	34	0.61	33	0.55	17	$228	36	9.3%	37	4.3%	3	$174,255	4	3.8%	41	16.4%	36	0.06%
Maine	37	50.0	34	1.8%	24	29.6%	49	0.36	12	0.74	9	0.71	43	$191	37	9.0%	16	6.7%	48	$41,864	44	0.7%	23	18.7%	41	0.04%
Maryland	4	75.8	1	3.7%	2	34.3%	1	0.62	8	0.78	18	0.65	3	$275	31	9.9%	24	5.5%	17	$107,508	42	0.7%	27	18.4%	6	0.14%
Massachusetts	1	90.0	6	2.9%	1	38.6%	3	0.58	1	0.94	8	0.71	6	$245	6	13.0%	14	6.9%	20	$96,576	19	1.9%	17	19.5%	9	0.11%
Michigan	17	63.5	27	2.1%	21	30.0%	29	0.45	28	0.63	11	0.70	31	$214	25	10.6%	9	7.2%	23	$94,546	23	1.6%	50	15.3%	30	0.07%
Minnesota	11	69.4	9	2.7%	7	32.8%	9	0.54	14	0.73	6	0.73	11	$238	3	14.6%	27	5.4%	29	$81,949	25	1.4%	45	15.8%	17	0.10%
Mississippi	50	37.1	49	1.0%	48	25.1%	47	0.38	47	0.46	26	0.59	44	$188	48	6.5%	35	4.4%	39	$66,168	13	2.0%	46	15.8%	49	0.01%
Missouri	25	58.0	18	2.4%	26	29.2%	32	0.44	25	0.64	7	0.73	30	$214	18	11.4%	25	5.4%	42	$61,023	32	1.0%	2	24.2%	28	0.08%
Montana	44	45.7	45	1.4%	38	27.3%	20	0.48	19	0.66	14	0.67	38	$206	45	7.3%	50	2.0%	18	$97,131	45	0.6%	28	18.4%	40	0.05%
Nebraska	31	54.7	10	2.7%	23	29.6%	19	0.49	35	0.60	24	0.60	34	$211	10	12.3%	43	3.8%	15	$112,790	39	0.7%	21	19.1%	29	0.07%
Nevada	26	57.0	47	1.3%	50	22.0%	10	0.53	46	0.47	48	0.42	1	$323	40	8.7%	39	4.1%	4	$156,751	29	1.3%	1	24.6%	21	0.09%
New Hampshire	18	62.9	31	1.8%	19	30.1%	45	0.39	23	0.65	34	0.54	19	$225	30	10.1%	4	7.8%	30	$81,629	10	2.5%	16	19.5%	24	0.08%
New Jersey	10	69.7	8	2.8%	12	31.9%	6	0.56	9	0.77	23	0.62	48	$182	13	12.0%	3	8.2%	8	$129,847	11	2.3%	13	19.8%	15	0.10%
New Mexico	36	50.4	33	1.8%	33	27.7%	40	0.43	20	0.66	47	0.43	36	$209	49	6.4%	48	2.8%	9	$125,049	15	2.0%	18	19.3%	47	0.02%
New York	7	72.8	19	2.4%	6	33.1%	11	0.53	6	0.80	25	0.59	26	$216	2	15.0%	19	6.2%	6	$145,470	38	0.7%	24	18.6%	18	0.10%
North Carolina	19	62.1	20	2.4%	27	29.1%	21	0.47	22	0.65	31	0.56	13	$229	24	10.8%	6	7.5%	31	$80,954	17	1.9%	19	19.3%	14	0.10%
North Dakota	38	49.4	30	1.8%	40	26.7%	25	0.46	48	0.46	29	0.56	15	$229	44	8.1%	45	3.7%	25	$87,798	43	0.7%	34	18.1%	34	0.06%
Ohio	27	55.9	21	2.3%	22	29.9%	37	0.43	26	0.64	30	0.56	27	$216	15	11.6%	23	5.8%	28	$82,939	27	1.4%	48	15.7%	11	0.11%
Oklahoma	48	44.0	29	2.0%	34	27.7%	43	0.39	45	0.47	45	0.46	46	$186	34	9.5%	40	3.9%	46	$45,836	46	0.6%	20	19.1%	39	0.05%
Oregon	15	67.5	23	2.3%	17	30.3%	13	0.51	17	0.68	40	0.51	12	$233	23	11.0%	46	3.7%	22	$95,642	3	4.6%	31	18.2%	25	0.08%
Pennsylvania	21	61.6	24	2.2%	20	30.0%	16	0.50	18	0.67	17	0.65	21	$224	9	12.6%	22	6.0%	37	$73,619	24	1.5%	40	16.6%	13	0.10%
Rhode Island	23	58.2	17	2.4%	14	30.8%	26	0.46	7	0.78	49	0.32	45	$187	8	12.9%	18	6.3%	47	$42,481	35	0.9%	14	19.6%	45	0.03%
South Carolina	34	53.2	38	1.6%	46	25.5%	38	0.43	31	0.61	15	0.66	32	$211	35	9.4%	2	8.3%	7	$136,903	22	1.6%	15	19.6%	23	0.09%
South Dakota	41	47.8	41	1.6%	44	26.2%	33	0.44	43	0.54	41	0.48	35	$211	28	10.3%	47	3.6%	44	$52,602	47	0.3%	39	16.7%	27	0.08%
Tennessee	30	54.8	32	1.8%	35	27.6%	41	0.41	37	0.59	44	0.47	10	$240	32	9.9%	11	7.1%	24	$92,951	8	2.7%	32	18.2%	12	0.11%
Texas	14	67.9	22	2.3%	28	29.0%	35	0.44	21	0.65	27	0.57	8	$245	22	11.2%	21	6.0%	1	$208,394	2	4.8%	11	20.6%	8	0.13%
Utah	3	77.7	11	2.6%	13	31.4%	12	0.52	16	0.69	19	0.65	20	$225	16	11.6%	42	3.9%	19	$96,626	21	1.7%	3	23.6%	1	0.24%
Vermont	24	58.0	39	1.6%	9	32.4%	7	0.55	3	0.81	35	0.54	42	$191	47	6.8%	41	3.9%	26	$87,612	1	5.5%	36	17.1%	42	0.04%
Virginia	6	74.9	2	3.6%	4	33.2%	5	0.56	5	0.80	12	0.70	2	$283	7	13.0%	20	6.1%	27	$85,320	36	0.8%	35	18.0%	2	0.22%
Washington	5	75.2	5	3.3%	11	31.9%	50	0.34	13	0.73	2	0.80	14	$229	27	10.4%	34	4.5%	2	$191,474	33	0.9%	12	20.1%	16	0.10%
West Virginia	47	44.7	44	1.5%	31	28.1%	8	0.54	50	0.42	50	0.02	9	$241	46	6.9%	29	5.0%	35	$76,756	12	2.2%	43	16.2%	43	0.03%
Wisconsin	33	53.8	15	2.5%	32	27.9%	36	0.44	30	0.61	42	0.48	33	$211	20	11.2%	38	4.3%	41	$63,401	26	1.4%	37	17.0%	35	0.06%
Wyoming	45	45.4	48	1.0%	49	24.9%	28	0.46	27	0.64	1	1.15	49	$165	50	6.3%	44	3.7%	33	$79,709	48	0.3%	25	18.5%	44	0.03%
U.S. Average	-	59.0	-	0.0	-	0.3	-	0.5	-	0.6	-	0.6	-	219.9	-	0.1	-	0.1	-	$94,405	-	0.0	-	0.2	-	0.0

State	Initial Public Offerings		Inventor Patents		Online Agriculture		E-government		Broadband Telecommunications		Health IT		High-Tech Jobs		Scientists and Engineers		Patents		Industry Investment in R&D		Non-Industry Investment in R&D		Movement Toward a Green Economy		Venture Capital	
	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
AL	25	4.7	47	0.04	41	4.0	41	86.7	46	3.9	12	5.4	23	4.2%	16	3.4%	45	0.3	34	0.8%	3	2.9%	48	4.3	45	0.0%
AK	37	4.2	26	0.06	31	4.7	48	80.0	39	4.4	33	4.7	28	3.8%	26	3.1%	49	0.2	10	3.4%	17	1.0%	20	5.0	49	0.0%
AZ	30	4.6	9	0.09	48	3.5	24	90.0	29	4.7	41	4.4	16	4.7%	19	3.3%	15	1.1	16	2.5%	24	0.9%	22	5.0	31	0.1%
AR	37	4.2	42	0.04	33	4.6	24	90.0	48	3.6	31	4.8	50	2.1%	48	1.6%	42	0.4	42	0.6%	49	0.5%	27	4.9	44	0.0%
CA	3	7.4	2	0.14	9	6.1	6	96.7	27	4.8	20	5.1	5	7.0%	7	4.4%	1	2.7	1	8.3%	11	1.2%	19	5.0	1	1.9%
CO	11	5.5	4	0.11	8	6.2	14	93.3	26	4.8	47	4.2	7	6.6%	4	5.2%	10	1.3	21	2.0%	9	1.3%	14	5.3	6	0.5%
CT	12	5.4	20	0.07	2	6.3	14	93.3	7	5.9	1	6.6	19	4.5%	17	3.4%	5	1.9	6	4.6%	21	0.9%	32	4.8	22	0.1%
DE	5	6.4	34	0.05	29	4.7	14	93.3	5	6.1	40	4.5	30	3.8%	18	3.4%	30	0.7	7	4.6%	41	0.7%	39	4.7	14	0.2%
FL	16	5.1	13	0.08	26	5.0	24	90.0	11	5.7	14	5.3	34	3.7%	34	2.5%	31	0.6	35	0.8%	42	0.6%	46	4.5	25	0.1%
GA	13	5.3	33	0.05	28	4.8	1	100.0	18	5.4	36	4.6	24	4.1%	22	3.2%	25	0.7	26	1.7%	30	0.8%	24	5.0	15	0.2%
HI	19	4.9	43	0.04	31	4.7	14	93.3	30	4.7	50	3.6	44	2.7%	43	1.8%	48	0.2	49	0.2%	28	0.8%	41	4.7	40	0.0%
ID	34	4.5	22	0.07	11	5.7	14	93.3	45	4.0	25	4.9	12	5.3%	35	2.4%	12	1.3	9	3.9%	7	1.8%	21	5.0	33	0.1%
IL	14	5.3	25	0.06	23	5.3	14	93.3	14	5.6	48	4.1	26	4.0%	21	3.2%	17	1.0	13	2.8%	27	0.8%	9	5.4	12	0.2%
IN	15	5.2	37	0.05	27	4.9	6	96.7	28	4.8	21	5.1	29	3.8%	31	2.7%	24	0.8	12	2.9%	29	0.8%	34	4.8	37	0.0%
IA	37	4.2	36	0.05	24	5.2	24	90.0	40	4.3	27	4.8	37	3.5%	33	2.6%	28	0.7	18	2.4%	16	1.0%	13	5.3	46	0.0%
KS	28	4.6	17	0.08	17	5.6	41	86.7	22	5.0	39	4.5	32	3.7%	28	2.9%	29	0.7	25	1.7%	37	0.7%	15	5.2	20	0.2%
KY	32	4.5	48	0.03	37	4.4	24	90.0	32	4.7	26	4.9	42	3.0%	39	2.2%	37	0.4	40	0.7%	48	0.5%	16	5.2	34	0.1%
LA	29	4.6	30	0.05	35	4.5	24	90.0	43	4.2	42	4.4	47	2.6%	49	1.6%	46	0.3	50	0.2%	44	0.6%	50	4.1	39	0.0%
ME	37	4.2	44	0.04	2	6.3	14	93.3	41	4.3	2	6.3	40	3.2%	42	2.1%	40	0.4	39	0.7%	47	0.5%	29	4.9	18	0.2%
MD	27	4.6	11	0.09	29	4.7	14	93.3	3	6.5	13	5.4	8	6.3%	2	5.8%	22	0.8	29	1.4%	2	7.5%	23	5.0	17	0.2%
MA	1	7.9	5	0.11	2	6.3	24	90.0	6	6.1	17	5.3	1	8.2%	5	5.1%	3	2.2	4	6.1%	4	2.4%	1	6.1	2	1.6%
MI	36	4.4	14	0.08	25	5.1	1	100.0	42	4.3	10	5.6	14	5.1%	6	4.5%	6	1.8	3	6.7%	15	1.0%	28	4.9	29	0.1%
MN	18	4.9	7	0.10	20	5.5	6	96.7	23	5.0	6	5.9	13	5.3%	9	3.9%	7	1.7	11	3.3%	43	0.6%	11	5.3	10	0.2%
MS	37	4.2	50	0.02	43	4.0	24	90.0	50	2.9	43	4.4	43	3.0%	45	1.7%	50	0.2	48	0.4%	14	1.2%	5	5.6	48	0.0%
MO	31	4.6	41	0.05	39	4.3	1	100.0	24	4.9	19	5.2	27	3.9%	24	3.1%	34	0.5	23	1.9%	34	0.7%	44	4.5	27	0.1%
MT	37	4.2	18	0.07	14	5.7	24	90.0	49	3.6	46	4.2	46	2.7%	40	2.2%	39	0.4	47	0.4%	18	1.0%	25	5.0	21	0.1%
NE	37	4.2	45	0.04	13	5.7	24	90.0	38	4.5	9	5.6	31	3.7%	32	2.6%	43	0.3	38	0.8%	25	0.9%	31	4.9	36	0.0%
NV	4	7.3	8	0.09	48	3.5	45	83.3	20	5.1	34	4.7	39	3.3%	50	1.3%	33	0.6	44	0.5%	50	0.3%	12	5.3	42	0.0%
NH	35	4.4	3	0.12	2	6.3	45	83.3	12	5.7	22	5.1	3	7.4%	10	3.9%	8	1.6	27	1.7%	20	0.9%	26	4.9	26	0.1%
NJ	21	4.8	10	0.09	10	5.8	48	80.0	1	6.9	37	4.6	11	5.4%	8	4.0%	13	1.2	8	4.1%	46	0.6%	45	4.5	13	0.2%
NM	37	4.2	21	0.07	50	2.2	24	90.0	47	3.7	38	4.6	2	7.4%	25	3.1%	26	0.7	43	0.6%	1	12.1%	40	4.7	9	0.3%
NY	2	7.8	16	0.08	19	5.6	6	96.7	10	5.8	3	6.2	22	4.3%	27	2.9%	14	1.1	28	1.6%	22	0.9%	17	5.1	3	0.9%
NC	33	4.5	38	0.05	36	4.5	24	90.0	16	5.5	24	4.9	9	5.8%	12	3.7%	20	0.9	14	2.6%	13	1.2%	18	5.0	16	0.2%
ND	22	4.8	39	0.05	15	5.7	6	96.7	25	4.9	11	5.4	41	3.0%	47	1.6%	44	0.3	31	1.0%	19	0.9%	37	4.8	32	0.1%
OH	26	4.6	29	0.06	47	3.7	1	100.0	31	4.7	23	4.9	36	3.6%	15	3.4%	21	0.9	24	1.9%	23	0.9%	42	4.7	24	0.1%
OK	23	4.7	40	0.05	38	4.3	24	90.0	36	4.6	49	3.8	45	2.7%	36	2.3%	38	0.4	36	0.8%	35	0.7%	10	5.4	47	0.0%
OR	37	4.2	19	0.07	16	5.6	24	90.0	17	5.5	18	5.3	10	5.5%	13	3.6%	4	2.0	5	5.9%	39	0.7%	8	5.4	8	0.3%
PA	8	6.1	27	0.06	46	3.7	14	93.3	8	5.9	29	4.8	17	4.6%	23	3.1%	23	0.8	19	2.4%	10	1.3%	36	4.8	7	0.3%
RI	37	4.2	31	0.05	2	6.3	48	80.0	2	6.6	5	6.0	33	3.7%	30	2.8%	19	0.9	22	2.0%	5	2.3%	6	5.5	30	0.1%
SC	37	4.2	46	0.04	42	4.0	24	90.0	35	4.6	35	4.7	25	4.0%	29	2.9%	32	0.6	32	1.0%	31	0.8%	33	4.8	43	0.0%
SD	37	4.2	15	0.08	17	5.6	41	86.7	37	4.6	7	5.8	38	3.3%	38	2.2%	41	0.4	37	0.8%	45	0.6%	7	5.5	41	0.0%
TN	9	5.8	35	0.05	45	3.7	14	93.3	19	5.2	30	4.8	35	3.6%	41	2.2%	36	0.5	41	0.6%	8	1.6%	43	4.6	28	0.1%
TX	7	6.3	23	0.07	34	4.6	24	90.0	13	5.7	32	4.8	21	4.3%	11	3.7%	18	1.0	20	2.1%	33	0.7%	35	4.8	19	0.2%
UT	10	5.6	1	0.27	1	6.5	1	100.0	15	5.6	8	5.7	6	6.8%	14	3.5%	11	1.3	17	2.4%	32	0.8%	4	5.8	4	0.6%
VT	37	4.2	32	0.05	2	6.3	41	86.7	34	4.6	4	6.0	20	4.4%	37	2.2%	9	1.4	30	1.3%	38	0.7%	30	4.9	11	0.2%
VA	17	4.9	24	0.06	40	4.2	6	96.7	4	6.3	28	4.8	15	4.9%	1	6.0%	27	0.7	33	0.9%	6	1.9%	3	5.8	23	0.1%
WA	24	4.7	6	0.10	21	5.3	6	96.7	9	5.9	45	4.3	4	7.3%	3	5.8%	2	2.4	2	7.7%	12	1.2%	2	6.0	5	0.5%
WV	37	4.2	49	0.03	44	3.9	24	90.0	33	4.7	15	5.3	48	2.5%	46	1.6%	47	0.2	45	0.5%	36	0.7%	38	4.8	50	0.0%
WI	20	4.8	28	0.06	22	5.3	6	96.7	21	5.0	44	4.3	18	4.5%	20	3.3%	16	1.0	15	2.6%	26	0.8%	49	4.2	38	0.0%
WY	6	6.4	12	0.09	12	5.7	45	83.3	44	4.1	16	5.3	49	2.3%	44	1.7%	35	0.5	46	0.5%	40	0.7%	47	4.4	35	0.0%
U.S.	-	5.0	-	0.1	-	5.0	-	91.5	-	5.0	-	5.0	-	0.0	-	0.0	-	0.9	-	0.0	-	0.0	-	5.0	-	0.2%

SUMMARY OF RESULTS

There has been little movement among the top states since ITIF published the 2017 edition of the *Index.* Massachusetts continues to occupy first place, as it has in the previous eight editions, while California maintains its second berth. The notable exceptions are Utah, which has moved from 9th to 3rd, and Delaware, which fell from 5th to 11th.

There are several reasons why Massachusetts continues to be the state whose economic structure best matches the realities of the New Economy. Boasting a concentration of software, hardware, and biotech firms that are supported by world-class universities such as MIT and Harvard, Massachusetts survived the economic downturn of the early 2000s and later was less affected than the nation as a whole during the Great Recession in terms of its job growth and per capita income growth. Its high standard of living may also contribute to its ability to attract scientists, engineers, and other skilled migrants in high-wage high-tech jobs.

Second-ranked California, meanwhile, thrives on indicators of innovation capacity, due in no small part to Silicon Valley and high-tech clusters in Southern California. The state also continues to dominate in VC, receiving 54 percent of U.S. venture investments; and it scores extremely well across the board on indicators of R&D, patents, entrepreneurship, and the skills of its workforce.[2] Utah, in third place, leads in economic dynamism assisted by its strong high-tech manufacturing cluster centered near Salt Lake City and Provo, and improved its standing by one to four places in every other category. Fourth-ranked Maryland holds its place among the leaders primarily because it has a high concentration of knowledge workers, many employed with the federal government or with federal contractors in the suburbs of Washington, D.C. Washington State ranks in the top five not only because of its strength in software and aviation exports, but also because of the entrepreneurial activity that has developed in the Puget Sound region, including in cloud computing, Artificial Intelligence and biotechnology, and the widespread use of digital technologies by all sectors.

Virginia, New York, Colorado, Connecticut, and New Jersey complete the top 10 in the 2020 *Index.* Virginia comes in sixth with some of the fastest-growing companies in the country, and its proximity to the nation's capital attracts high-skilled workers for the numerous R&D-focused firms in the region. New York breaks into the top 10 in 7th place largely due to its financial industry, fueling high rankings in high-wage traded services, and increasing 8 ranks in economic dynamism by ranking 2nd in initial public offerings (IPOs). Colorado, in eighth place, maintains a highly dynamic economy along with the third-most highly educated workforce in the country. In addition to its high scores on knowledge-employment indicators, the state also has become a hotbed for high-tech innovation, and it scores well on IPOs. Coming in ninth, Connecticut excels in traded services, employing a highly educated workforce, and receiving high levels of FDI and R&D. Tenth-place New Jersey's strong pharmaceutical industry, coupled with high-tech agglomeration around Princeton, an advanced services sector in northern New Jersey, and high levels of FDI, allow it to round out the top 10.

In general, these top 10 New Economy states have more in common than just high-tech firms. They also tend to have a high concentration of managers, professionals, and technical jobs; tend to attract college-educated residents working in "knowledge jobs" (jobs that require at least a two-year degree); have thriving traded-service industries that pay well; and are home to firms that experience immense growth. In fact, the variable that is most closely correlated with a high overall ranking (0.81) is IT jobs outside of the IT industry. With one or two exceptions, companies in these 10 states tend to be more geared toward global markets, both in terms of export orientation and the amount of FDI. Almost all are at the forefront of the IT revolution, with a large share of their institutions and residents embracing the digital economy. Most have a solid "innovation infrastructure" that fosters and supports technological innovation. Many attract high levels of domestic and foreign immigration of highly mobile, highly skilled knowledge workers seeking good employment opportunities and a high quality of life.

While top-ranked states tend to be richer (there is a moderate correlation of 0.51 between overall rank and per capita income), wealth is not a simple determinant of states' progress in adapting to the New Economy, as not all forms of income contribute to a place in the New Economy.[3] In particular, resource-dependent Wyoming, North Dakota, and Alaska lag behind in their scores. In fact, Alaska and Wyoming score in the bottom 10 overall, despite scoring in the top 10 when it comes to per capita income. In contrast, Utah, Arizona, Michigan, Florida, Idaho, and South Carolina fair significantly better in the *New Economy Index* than would be expected based solely by their per capita incomes.

The two states whose economies have lagged the most in making the transition to the New Economy are Mississippi and Arkansas, which have not moved from their bottom-two positions. Oklahoma, West Virginia, Wyoming, Hawaii, Montana, Alaska, Alabama, and South Dakota round out the bottom 10. This group looks almost identical to the bottom 10 in the 2017 *Index*, with Hawaii as the only new addition. Historically, the economies of many of these states have depended on natural resources, tourism, or mass-production manufacturing; and low costs rather than innovative capacity was their source of competitive advantage. In the New Economy, however, innovative capacity (derived through universities, R&D investments, scientists and engineers, highly skilled workers, and entrepreneurial capabilities) is increasingly the driver of competitive success, while states only offering low costs are being undercut by cheaper producers abroad.

Regionally, the New Economy has taken hold most strongly in the Northeast, the Mid-Atlantic, the Mountain states, and the Pacific region. Indeed, the top 15 states in this year's *Index* include all 3 Pacific-coast states, 3 of 4 Mid-Atlantic states (plus south-Atlantic states Maryland and Virginia), and 2 of 6 New England states. To that group, the Mountain states add Colorado and Utah, leaving Texas and Michigan from the Southwest and Midwest. On the other end of the spectrum, 16 of the 20 lowest-ranking states are in the Midwest, the Mountain states, and the South (the exceptions being Maine, Alaska, Hawaii, and West Virginia).

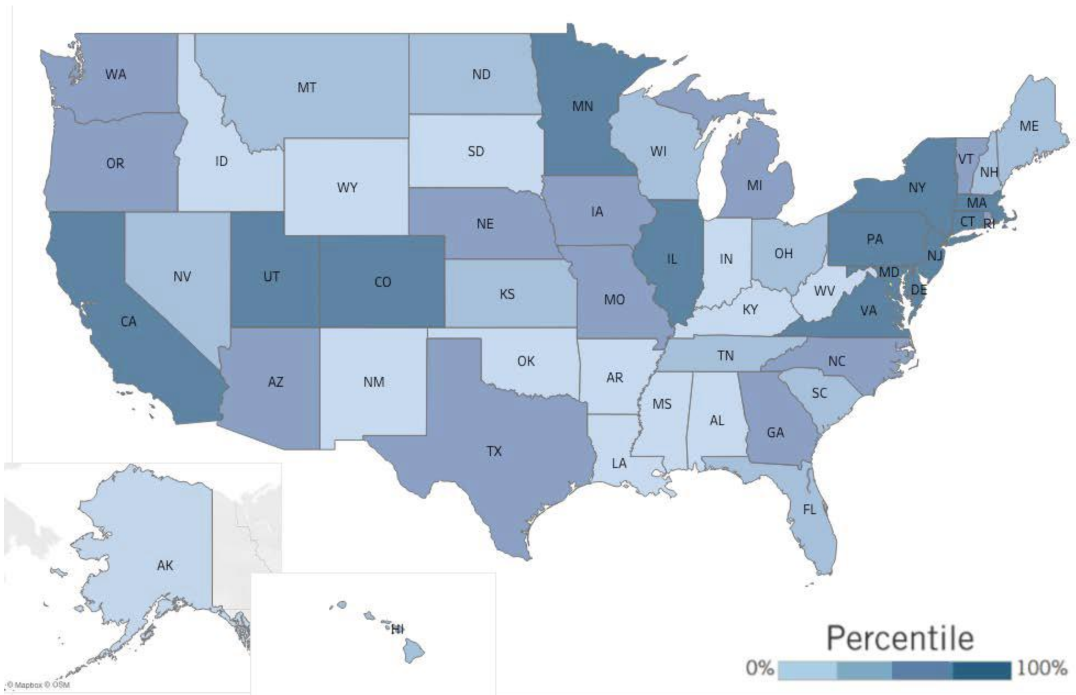
Given some states' reputations as being technology-based, New Economy states, their scores may at first seem surprising. For example, North Carolina and New Mexico rank in the middle—at 19th and 36th, respectively—in spite of the region around Research Triangle Park boasting top universities, a highly educated workforce, cutting-edge technology companies, and global connections, while Albuquerque and Los Alamos are home to two leading national laboratories. In both cases, however, many parts of the state outside these metropolitan regions are more rooted in the industrial-age 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 composites of many regional economies that differ in the degree to which they are structured to align with New Economy factors.

Previous editions of the *State New Economy Index* have found strong correlations between states' overall scores and their per capita gross domestic product (GDP) growth. But the natural-resources boom following the Great Recession has reduced this, producing big income gains in lower-scoring states such as the Dakotas and Wyoming, while higher-scoring states such as Virginia have seen incomes grow more slowly than the national average. Still, in the wake of the Great Recession, states that have embraced New Economy fundamentals have prospered. There is a positive correlation of 0.42 between states' overall scores in the 2020 *Index* and their real GDP growth from 2016 to 2019.

KNOWLEDGE JOBS

In the old economy, industries that employed workers who were skilled with their hands and could reliably perform repetitive, sometimes physically demanding tasks were the engines of growth. Today, it is knowledge-based industries and jobs that drive prosperity. These jobs tend to be managerial, professional, and technical positions that require at least two years of college. Such skilled and educated workers are key enablers of states' most important industries, from high-value-added manufacturing to high-wage traded services.

The "knowledge jobs" indicators in this report 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 educational attainment of recent U.S. inter-state migrants; 6) worker productivity in the manufacturing sector; and 7) employment in high-wage traded services.

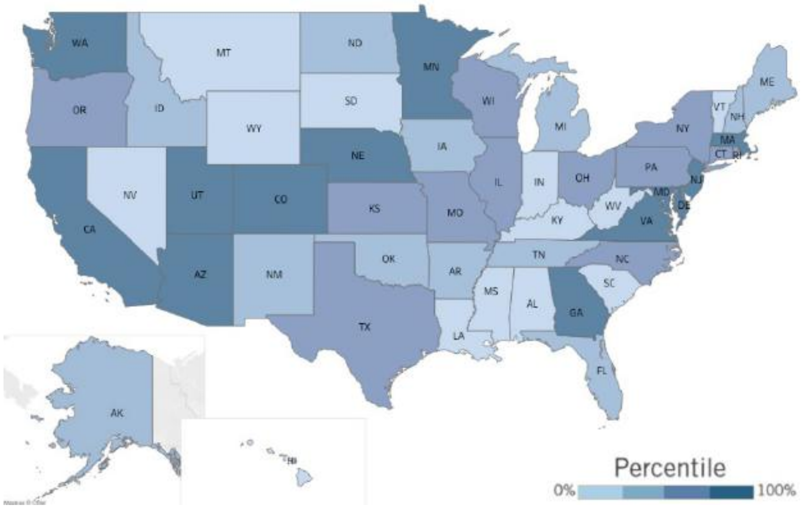


2020 Rank	State	2020 Score	2017 Rank*	2020 Rank	State	2020 Score	2017 Rank*
1	Massachusetts	18.2	1	26	Ohio	9.9	27
2	Virginia	17.6	3	27	Kansas	9.7	29
3	Maryland	17.5	4	28	Wisconsin	9.0	26
4	Connecticut	15.8	2	29	Nevada	8.8	44
5	Colorado	15.7	6	30	Florida	8.7	31
6	Minnesota	15.3	8	31	New Hampshire	8.3	13
7	Illinois	14.4	12	32	Hawaii	7.8	45
8	New York	14.3	7	33	Tennessee	7.7	34
9	Delaware	13.7	9	33	Montana	7.6	32
10	California	13.3	11	35	Maine	7.4	30
11	New Jersey	12.9	10	36	South Carolina	7.2	33
12	Utah	12.7	15	37	North Dakota	7.2	39
13	Pennsylvania	11.7	21	38	Louisiana	7.2	41
14	Arizona	11.6	20	39	Alaska	7.1	35
15	Oregon	11.3	14	40	Indiana	7.0	36
16	Georgia	11.3	19	41	South Dakota	6.8	37
17	Nebraska	11.0	18	42	West Virginia	6.6	49
18	Washington	11.0	5	43	Idaho	6.4	42
19	Missouri	10.5	23	44	Wyoming	6.1	48
20	North Carolina	10.5	22	45	New Mexico	6.1	38
21	Texas	10.4	24	46	Alabama	5.7	43
22	Vermont	10.0	16	47	Oklahoma	5.5	40
23	Iowa	10.0	28	48	Kentucky	4.9	47
24	Rhode Island	10.0	27	49	Arkansas	4.6	46
25	Michigan	10.0	25	50	Mississippi	2.9	50
					U.S. Average	10.0	

*Due to methodological changes, ranking comparisons are not exact.

INFORMATION TECHNOLOGY JOBS

Percentage of IT jobs in non-IT industries as a share private-non-IT-sector employment



"IT jobs grew by 39 percent between 2009 and 2019, versus only 12 percent for employment in general."

Why is this important? IT 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 non-IT industries are making use of IT.

IT workers, even in "traditional" industries, continue to bring IT to commerce, health care, manufacturing, and internal office operations, from finding new ways to communicate with customers to finding and acting on new insights in data. In fact, because of the continuing digital transformation of the economy, IT jobs grew by 39 percent between 2009 and 2019, versus only 12 percent for overall private-sector employment.[4]

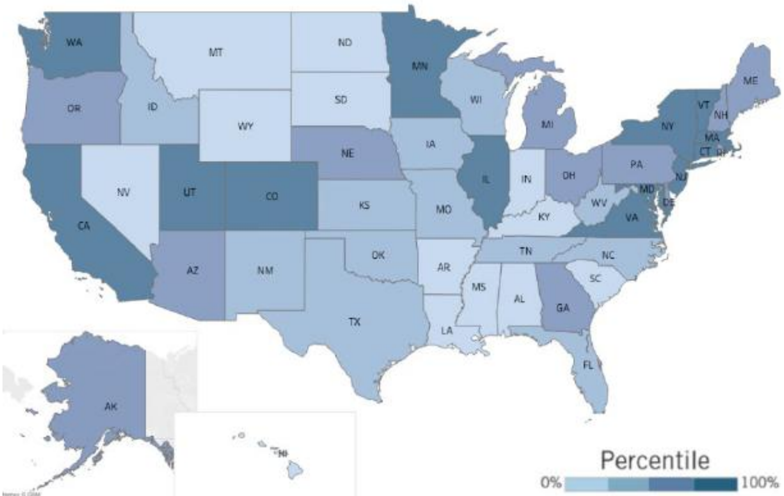
The rankings: Even after adjusting for the size of states' software- and IT-producing industries, most of the states with high scores are those with more technology-driven economies, including every one of the top five. In these states, the creation of strong IT-producing industries leads to complementary job creation in non-IT fields. Arizona is one example. A rapidly growing tech start-up ecosystem has helped crowd in IT jobs into other sectors of its economy and could explain how it jumped 15 ranks over the past 7 years to round off the top 5 for this indicator.

	The Top Five	Percentage of IT Jobs in Non-IT Industries
1	Maryland	3.7%
2	Virginia	3.6%
3	Delaware	3.3%
4	Colorado	3.3%
5	Washington	3.3%
	U.S. Average	2.1%

Source: Bureau of Labor Statistics, 2019

MANAGERIAL, PROFESSIONAL, AND TECHNICAL JOBS

Percentage of managerial, professional, and technical jobs as a share of private-sector employment



"Managerial, professional, and technical jobs grew nearly two times faster than overall private-sector employment between 2009 and 2019."

Why is this important? As the economy grows ever more knowledge-based, and many routine-based jobs are either moved offshore or automated, managers, professionals, and technicians are becoming more important. Indeed, these jobs grew nearly two times faster than overall private-sector employment between 2009 and 2019, with 20 percent growth over the period versus 12 percent growth for private-sector jobs overall.[5] These jobs include scientists and engineers, health professionals, lawyers, teachers, accountants, bankers, consultants, and engineering technicians.

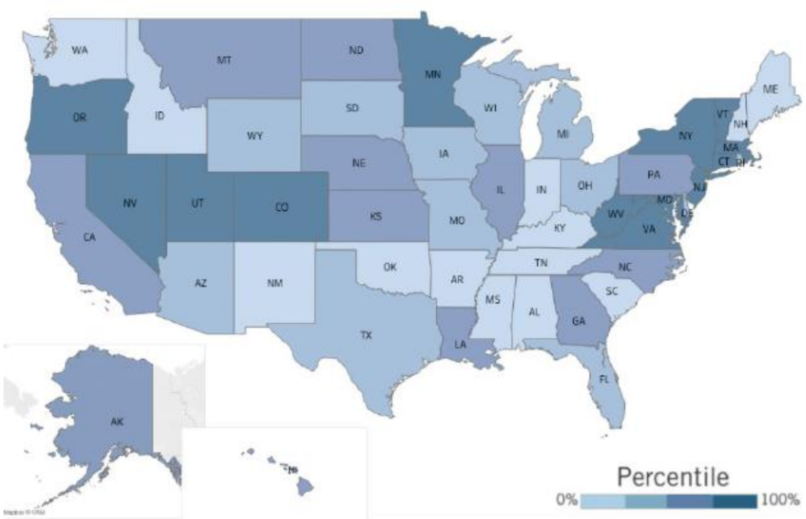
The rankings: States with the highest rankings—Massachusetts, Maryland, Connecticut, Virginia, and Colorado—tend to have more technology and professional service companies and corporate headquarters or regional offices. Massachusetts's large biotech, financial services, higher education, and health care industries are responsible for the state's lead. In Connecticut, Hartford is home to insurance and defense headquarters, while southwestern Connecticut is dominated by corporate headquarters, financial services, and high-tech jobs—many of which have relocated from New York City. While this may have hurt New York State slightly, it is still home to more than one-tenth of "Fortune 500" companies.[6] Maryland ranks highly in part because of the high number of federal contractors located in "next-door" Washington, D.C. States that rank poorly tend to be either "branch-plant" and "back-office" states such as Nevada and Mississippi, or natural-resource-based states such as Wyoming and North Dakota.

	The Top Five	Percentage of Jobs Held by Managers, Professionals, and Technicians
1	Massachusetts	38.6%
2	Maryland	34.3%
3	Connecticut	34.1%
4	Virginia	33.2%
5	Colorado	33.2%
	U.S. Average	30.3%

Source: Bureau of Labor Statistics, 2019

WORKFORCE EDUCATION

A weighted score of the working-age adult population's educational attainment



"In 2018, 33 percent of Americans over 25 years of age held at least a bachelor's degree, up from 30 percent in 2010, and 24 percent in 2000."

Why is this important? An educated workforce is important to increasing productivity and fostering innovation. Fortunately, the American workforce has become more educated (at least in terms of number of years of schooling). In 2018, 33 percent of Americans over 25 years of age held at least a bachelor's degree, up from 30 percent in 2010, 24 percent in 2000, 21 percent in 1990, and 16 percent in 1980.[7] Unfortunately, it's increasingly clear that many of these graduates are failing to gain the competencies they need.[8] For example, 4 out of 10 college graduates made no progress on the Collegiate Learning Assessment between the time they entered college and when they graduated.[9] This suggests states need to focus more on boosting quality than just boosting access.[10]

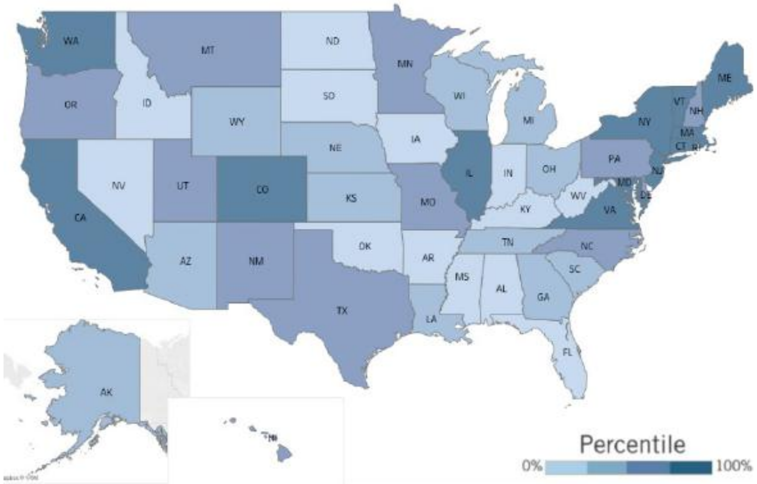
The rankings: States with strong higher education systems and high-tech industrial clusters, such as Massachusetts, Maryland, and Connecticut, tend to attract and retain skilled workers. Colorado attracts individuals from other regions who, on average, have more years of schooling than those heading to other fast-growing Western states. Likewise, Maryland and Virginia are sustained, in part, by the immigration of highly educated individuals to the Washington, D.C., area.[11] Meanwhile, states that have historically invested less in education (such as Alabama, Louisiana, Mississippi, and Arkansas) and whose economies are more cost-based tend to fall near the bottom of this ranking.

	The Top Five	Composite Score
1	Maryland	0.62
2	Colorado	0.59
3	Massachusetts	0.58
4	Connecticut	0.56
5	Virginia	0.56
	U.S. Average	0.46

Source: Census Bureau, 2019

IMMIGRATION OF KNOWLEDGE WORKERS

A weighted score of the foreign-born migrant population's educational attainment



"A third of U.S. innovators were born outside the country, even though immigrants only represent 13.5 percent of all U.S. residents."

Why is this important? To compete in the highly competitive global economy, states need a supply of talented labor with the right skills and education. And in a world with ever-increasing flows of talent across national borders, an important share of this talent pool is coming from overseas. In many cases, these workers do more than merely fill occupational gaps; by bringing new ideas and perspectives from other countries and cultures, they can enhance states' innovation capacity and boost wage levels for both themselves and native-born workers.[12] ITIF found in a 2016 study titled *The Demographics of Innovation in the United States* that more than a third of the scientists and engineers producing meaningful innovations in the United States were born outside the country, even though immigrants only represent 13.5 percent of all U.S. residents.[13] While immigrants play an outsized role in developing innovations, they also nurture future innovators. In the same study, ITIF found that 10 percent of U.S.-born innovators have at least 1 immigrant parent.

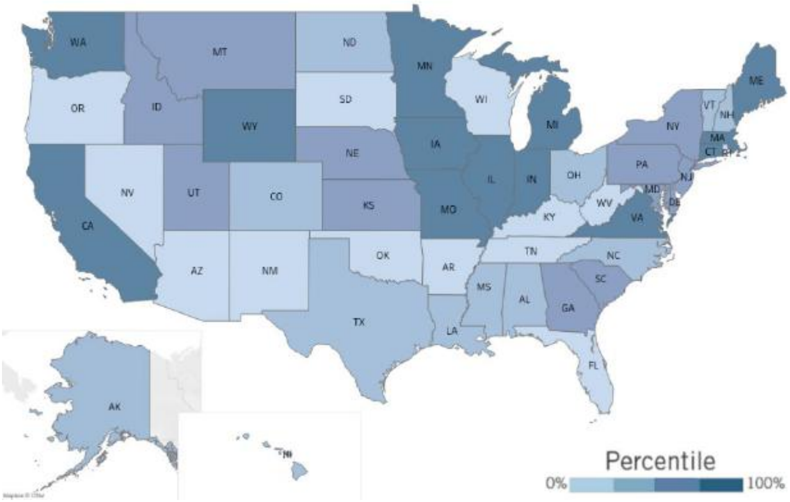
The rankings: Massachusetts and California lead this indicator, with their high-tech clusters and strong universities attracting educated foreign workers. One factor may be that leading states have fewer lower-skilled immigrants from Latin America. Except for California, the other four leading states are relatively far north and far from the Mexican border. In these states, immigrants with less than a college degree only make up less than 25 percent of the immigrant talent pool, 10 percentage points less than the national average.

	The Top Five	Composite Score
1	Massachusetts	0.94
2	California	0.82
3	Vermont	0.81
4	Illinois	0.81
5	Virginia	0.80
	U.S. Average	0.59

Source: Census Bureau, 2018

INTERNAL MIGRATION OF U.S. KNOWLEDGE WORKERS

A weighted score of educational attainment of migrant population from other U.S. states



"A 1 percent increase in the supply of college graduates increase all high school dropouts' wages by 1.6 percent, and all college graduates' wages by 0.4 percent."

Why is this important? Just as countries compete for talent, so do states. While foreign immigration of high-skilled workers is important—especially those in science, technology, math, and engineering fields—the lion's share of immigration into states involves American residents moving across state lines. Accordingly, states compete with one another to attract not only business, but also the skilled workers who can be hired by those businesses or start their own. Indeed, research has found that a 1 percent increase in a metropolitan area's level of educational attainment leads to a 0.04 increase in per capita real income, and that a 1 percent increase in the supply of college graduates increases high school dropouts' wages by 1.6 percent, and all college graduates' wages by 0.4 percent.[14]

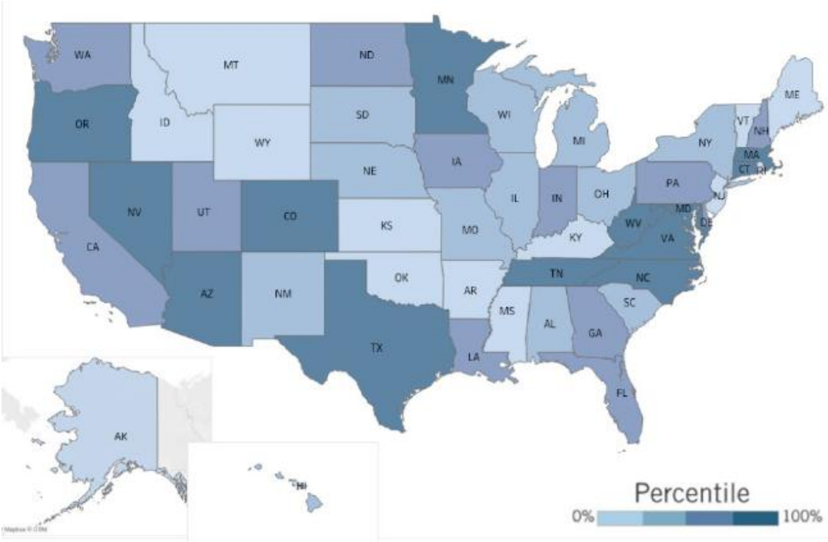
The rankings: Fueled by the natural gas boom's demand for skilled labor, Wyoming leads the nation by a wide margin in attracting a large proportion of educated domestic workers,. Washington places second, aided by Seattle's role as a tech hub, followed by a trio of Midwestern states: Illinois, Indiana, and Iowa.

	The Top Five	Composite Score
1	Wyoming	1.15
2	Washington	0.80
3	Illinois	0.79
4	Indiana	0.76
5	Iowa	0.74
	U.S. Average	0.63

Source: Census Bureau, 2018

MANUFACTURING VALUE ADDED

Manufacturing value added per production hour worked, adjusted for industry mix



"Manufacturing value-added labor productivity is in decline, falling 1.34 percent between 2012 and 2019."

Why is this important? Value added is the difference in value between inputs into the production process (such as materials and energy) and the value of final products or services sold. Within manufacturing, high-value-added firms tend to be those that are capital intensive, producing more technologically complex products and organizing their work to take better advantage of worker skills. Because their workers are more productive—generating greater value for each hour worked—they typically earn higher wages.[15] All else being equal, within sectors, firms with higher-value-added levels, are better equipped to meet competitive challenges both at home and abroad. Unfortunately, manufacturing value-added labor productivity is in decline, falling 1.34 percent between 2012 and 2019.[16]

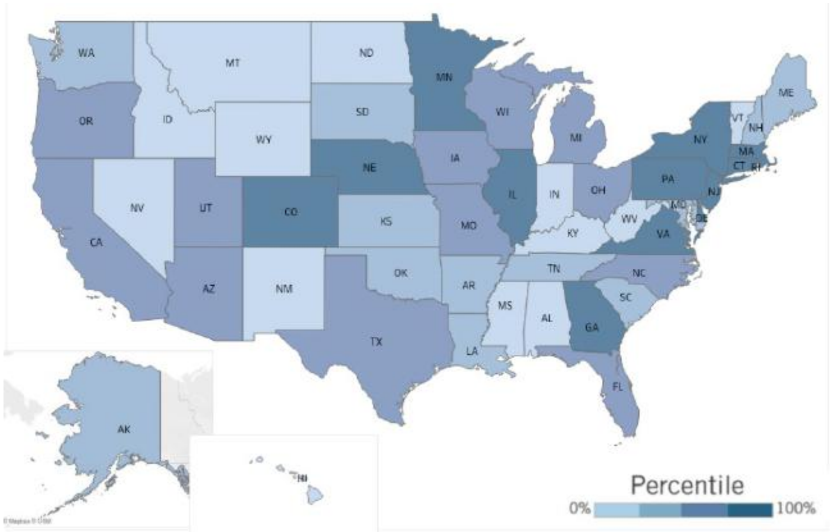
The rankings: It is not clear what factors lead states to rank highly on this indicator. Geography does not seem to have a significant impact on how states performed. States next to Washington, D.C., make up 2 of the top 5 states, while the top 10 states range from the East Coast to the West Coast. Of the six New England states, 2 made the top 10, while 3 made the bottom 10. All three Pacific coast states performed above average. But the Mountain states, Midwestern states, and southern states occupy various positions across the rankings. Alaska, a state not known for manufacturing, occupies the last position.

	The Top Five	Value Added per Production Hour Worked
1	Nevada	$323
2	Virginia	$283
3	Maryland	$275
4	Arizona	$260
5	Connecticut	$250
	U.S. Average	$218

Source: Census Bureau, 2015

HIGH-WAGE TRADED SERVICES

Employment in traded-service sectors that pay above the national median service-sector wage as a share of service-sector employment



"Traded services accounted for 18 percent of U.S. private sector employment in 2018."

Why is this important? The service sector consists of more than just locally focused, low-wage industries such as fast food. From insurance and financial services to publishing and goods transportation, traded services accounted for 18 percent of U.S. private sector employment in 2018.[17] Many of these industries, such as 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 become a significant source of employment. For example, employment in professional and business services grew by 2.7 percent annually from 2010 to 2019, 1 percentage point faster than private-sector employment.[18] We can expect this trend to continue as the IT revolution is enabling a growing share of information-based services to be physically distant from customers while remaining functionally close. For example, the Internet has transformed services such as banking and retail from locally focused industries into globally competitive ones.

The rankings: Large, traditional centers of business activity lead the rankings here. The New York and Chicago metropolitan areas are home to a wide array of corporate and regional headquarters, financial services firms, and publishers. Delaware has long focused on attracting banking and credit card firms. Connecticut is home to many insurance companies. States ranking poorly, 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	16.8%
2	New York	15.0%
3	Minnesota	14.6%
4	Connecticut	14.2%
5	Illinois	14.1%
	U.S. Average	11.3%

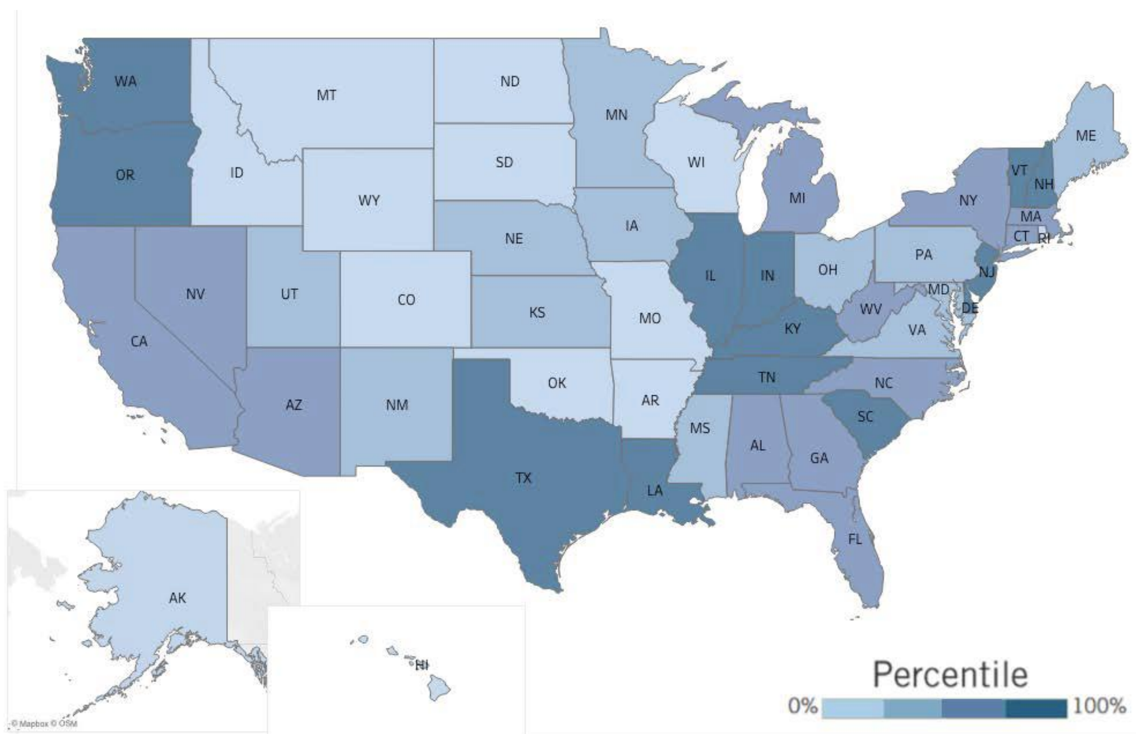
Source: Bureau of Labor Statistics, 2018

GLOBALIZATION

Despite a slowdown in the growth of trade over the last several years, globalization remains a key structural factor in the modern economy. This is evident from the ever-increasing role foreign companies play in supporting and investing in the U.S. economy. In 1988, multinational companies hired 3.8 million workers in the United States. By 2017, this number was 7.4 million.[19] Likewise, the capital expenditures from majority-owned foreign affiliates in the United States increased from 1.1 percent of GDP in 1997 to 1.3 percent in 2017.[20]

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 today's economy, the winners are the states whose businesses are best integrated into the world economy, as a global orientation ensures expanding markets for a state's industries. Since workers at globally oriented firms also earn higher wages than those at domestically oriented firms, global integration provides a state's workforce with a higher standard of living.[21]

The indicators in this section measure three aspects of globalization: 1) the share of the workforce employed by foreign-owned companies; 2) the extent to which a state's manufacturing and service workforce is employed producing goods and services for export; and 3) the share of a state's gross state product (GSP) made up of high-tech goods and services exports.

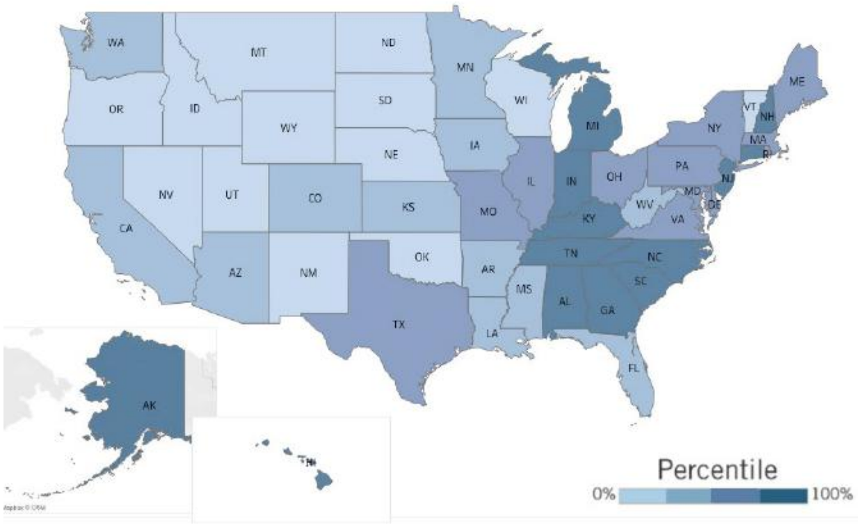


2020 Rank	State	2020 Score	2017 Rank*	2020 Rank	State	2020 Score	2017 Rank*
1	Texas	14.4	1	26	Ohio	9.7	26
2	Kentucky	12.6	10	27	Pennsylvania	9.7	21
3	Louisiana	12.3	11	28	Maryland	9.6	37
4	New Jersey	12.3	6	29	Virginia	9.6	23
5	South Carolina	12.1	7	30	Minnesota	9.5	32
6	Delaware	11.9	4	31	New Mexico	9.5	40
7	Vermont	11.6	5	32	Utah	9.3	33
8	Indiana	11.4	15	33	Mississippi	9.2	41
9	Tennessee	11.4	17	33	Kansas	9.2	25
10	New Hampshire	11.3	9	35	Nebraska	9.0	43
11	Illinois	11.3	16	36	Iowa	8.9	39
12	Oregon	11.0	12	37	Maine	8.9	35
13	Washington	10.9	2	38	Missouri	8.9	38
14	Florida	10.8	24	39	Rhode Island	8.9	27
15	North Carolina	10.8	13	40	Colorado	8.8	36
16	Massachusetts	10.8	3	41	Wisconsin	8.7	42
17	Michigan	10.7	19	42	Idaho	8.6	34
18	New York	10.7	14	43	North Dakota	8.4	48
19	California	10.6	8	44	Alaska	8.4	46
20	Georgia	10.5	18	45	Hawaii	8.1	31
21	Connecticut	10.4	20	46	Arkansas	8.1	45
22	Nevada	10.3	22	47	Wyoming	8.0	44
23	Arizona	10.2	28	48	Montana	7.8	50
24	Alabama	10.0	30	49	Oklahoma	7.7	47
25	West Virginia	9.8	29	50	South Dakota	7.4	49
					U.S. Average	10.0	

*Due to methodological changes, ranking comparisons are not exact.

FOREIGN DIRECT INVESTMENT

Employment in majority-owned foreign companies as a share of private-sector employment



"In 2017, majority-owned foreign companies employed 5.9 percent of the private-sector workforce, and accounted for 5.2 percent of U.S. GDP."

Why is this important? Incoming FDI refers to investments foreign companies make to acquire existing facilities or build new facilities in the United States. FDI grew rapidly in the late 1990s, reaching $314 billion in 2000 before dropping to $53 billion in 2003. Since then, FDI grew to a high of $440 billion in 2015 before falling to $296 billion in 2018.[22] In 2017, majority-owned foreign companies employed 5.9 percent of the private-sector workforce, and accounted for 5.2 percent of U.S. GDP, up 0.9 and 0.8 percentage points respectively and relative to 2010.[23]

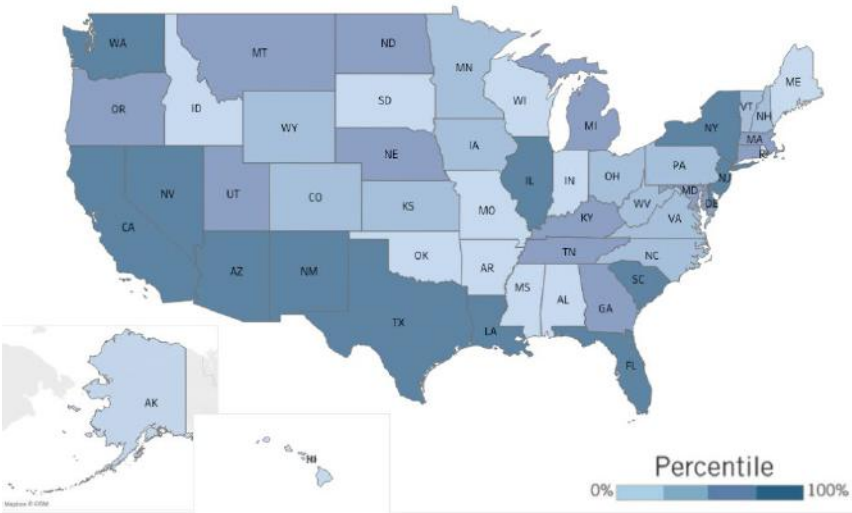
The rankings: States in the North Atlantic region have the highest percentage of their workforce employed by foreign firms, due to European private investment. Firms owned by five European countries—France, Germany, the Netherlands, Switzerland, and the United Kingdom—accounted for 50 percent of U.S. employment in foreign firms in 2017.[24] And European firms are more concentrated among northern Atlantic seaboard states, where the share of employment in firms from these 5 countries is 60 percent.[25] Outside of this region, South Carolina and Indiana have been driven by significant growth in foreign automotive firms—especially South Carolina in the Greenville-Spartanburg area, an international manufacturing hub.

	The Top Five	Percentage of Workforce Employed by Foreign Companies
1	Kentucky	8.7%
2	South Carolina	8.3%
2	New Jersey	8.2%
4	New Hampshire	7.8%
5	Indiana	7.6%
	U.S. Average	5.5%

Source: Bureau of Economic Analysis, 2017

EXPORT FOCUS OF MANUFACTURING

Value of manufacturing exports per manufacturing and service worker, adjusted for industry mix



"In the manufacturing sector, exporting firms pay their workers 25 percent more than firms that do not export."

Why is this important? A state's economic vitality depends on the ability of its firms to export goods and services outside the state, which often means exporting outside the nation. Global exports are important, in part because manufacturers that export can pay their workers 25 percent more than firms that do not export.[26] At the same time, increased digitalization of the economy is enabling many services to be performed practically anywhere in the world. And, as in manufacturing, global services exports lead to higher wages. In business services, for example, workers at exporting firms earn almost 20 percent more than their counterparts at comparable non-exporting business services firms.[27]

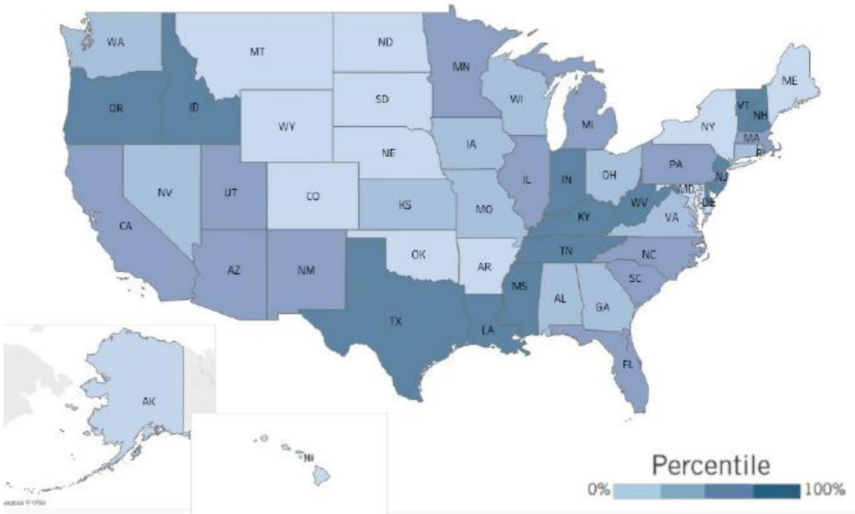
The rankings: The leading states are generally those that have high-value-added, technologically advanced manufacturing and services sectors.[28] Texas ranks first due in part to petroleum and computer electronic production. Washington ranks second in large part because of Boeing aerospace exports and Microsoft software exports.

	The Top Five	Adjusted Export Sales per Manufacturing and Service Worker
1	Texas	$208,394
2	Washington	$191,474
3	Louisiana	$174,255
4	Nevada	$156,751
5	Florida	$150,335
	U.S. Average	$68,446

Source: Census Bureau, 2018

HIGH-TECH EXPORTS

The value of high-tech goods and services exports as a share of gross state product



"Without the 35 percent growth in services exports from 2011 to 2019 and, specifically, strong growth in ICT-enabled services exports, the trade deficit's increase over the same period would have ballooned by52 percent instead of 12 percent."

Why is this important? International trade has grown from 10 percent of GDP in 1970 to 26 percent in 2019, and high-tech goods and services represent an especially important component of that activity. Without the 35 percent growth in services exports from 2011 to 2019 and specifically, strong growth in ICT-enabled services exports, the trade deficit would have increased over that period by 52 percent instead of 12 percent.[29] Meanwhile, high-tech goods exports increased by 6 percent over the same period.[30]

The rankings: On average, 1.6 percent of a state's gross product comes from high-tech exports. For smaller states, the main bulk of their high-tech exports tends to stem from one industry, while for larger states, a more diversified industry composition means various high-tech industries contribute more equally to exports. Leading state Vermont performs three times the national average due to strong exports in electronics and computers. Similar to Vermont, Oregon comes in second due to exports from its electronic and computer manufacturing industry. Texas is the only large state that makes the top five, due to sizable exports in both high-tech goods and ICT services.

	The Top Five	High-Tech Exports as a Percentage of GSP
1	Vermont	5.5%
2	Texas	4.8%
3	Oregon	4.6%
4	Louisiana	3.8%
5	Indiana	3.0%
	U.S. Average	1.6%

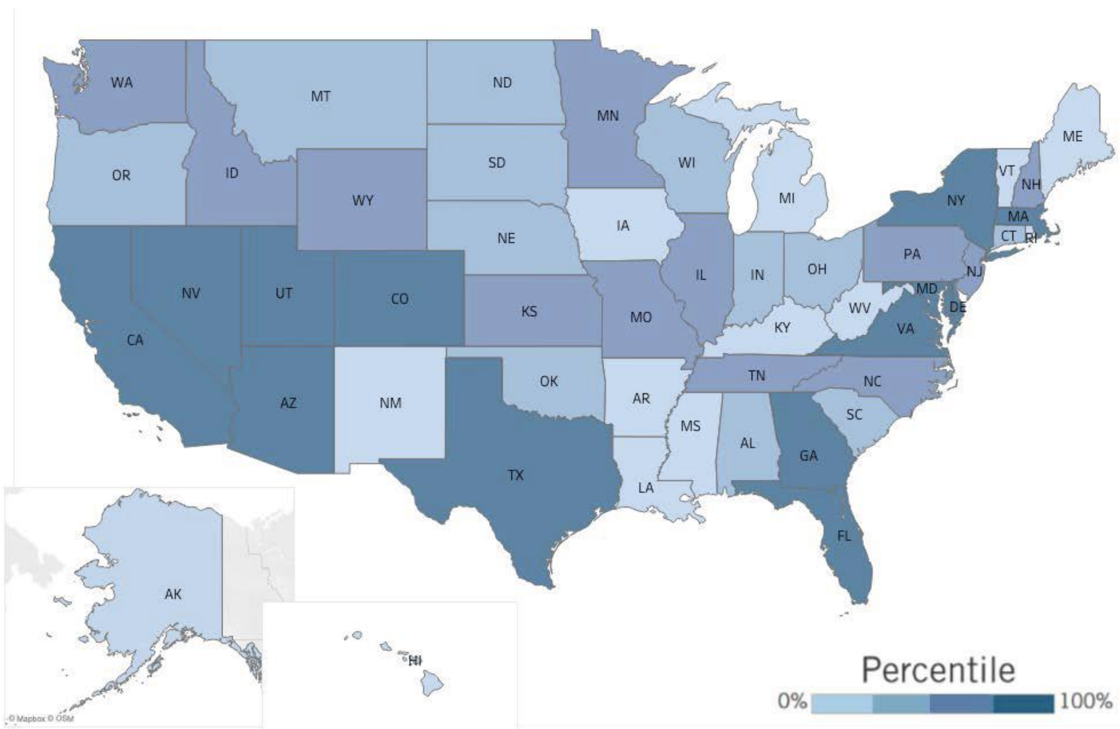
Source: Census Bureau, 2019

ECONOMIC DYNAMISM

Economic growth is enabled in no small part by economic dynamism, including the creation of new high-growth companies. So, states' ability to nurture innovative new companies is critical to economic development and vitality. But there is considerable confusion about the role of start-ups and young firms. Many small business advocates and policymakers conflate mom-and-pop start-ups with high-growth start-ups. As economist Antoinette Schoar wrote, "It is crucially important to differentiate between two very distinct sets of entrepreneurs: subsistence and transformational entrepreneurs. Recent evidence suggests that people engaging in these two types of entrepreneurship are not only very distinct in nature but that only a negligible fraction of them transition from subsistence to transformational entrepreneurship. These individuals vary in their economic objectives, their skills, and their role in the economy."[31]

And while the start-up rates for mom-and-pop firms have declined, the rates for high-growth tech companies remain strong.[32] MIT's Scott Stern found that even after controlling for the size of the U.S. economy, the second highest pace of high-growth entrepreneurship occurred in 2014 (an encouraging sign).[33]

With this as context, the indicators in this section measure four key aspects of economic dynamism: 1) the degree of business "churn" in the economy; 2) the number of fast-growing firms; 3) the number and value of companies' IPOs; and 4) the number of individual inventor patents granted.

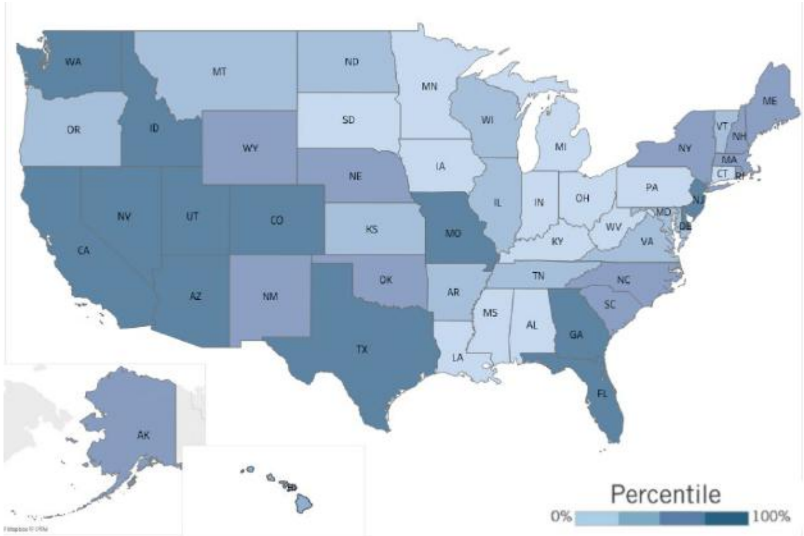


2020 Rank	State	2020 Score	2017 Rank*	2020 Rank	State	2020 Score	2017 Rank*
1	Utah	17.3	3	26	South Carolina	9.2	44
2	California	14.3	17	27	Oregon	9.2	8
3	Nevada	14.2	7	28	Ohio	9.0	24
4	Massachusetts	13.6	4	29	Indiana	8.9	23
5	Colorado	13.1	30	30	Oklahoma	8.9	37
6	Virginia	12.5	1	31	North Dakota	8.8	10
7	Texas	12.5	36	32	Nebraska	8.8	21
8	New York	12.5	7	33	Connecticut	8.8	13
9	Georgia	12.5	25	33	Alabama	8.8	48
10	Arizona	12.1	40	35	South Dakota	8.7	29
11	Florida	12.0	22	36	Montana	8.6	32
12	Delaware	11.1	12	37	Wisconsin	8.5	9
13	Maryland	11.0	5	38	Michigan	8.3	6
14	Illinois	11.0	20	39	New Mexico	8.2	47
15	Missouri	10.9	33	40	Rhode Island	8.2	14
16	Washington	10.9	2	41	Louisiana	8.1	50
17	New Jersey	10.8	16	42	Hawaii	8.0	45
18	Tennessee	10.8	28	43	Maine	8.0	19
19	Idaho	10.6	41	44	Kentucky	7.9	42
20	New Hampshire	10.5	18	45	Vermont	7.6	26
21	Pennsylvania	10.3	15	46	Alaska	7.6	34
22	Wyoming	10.0	39	47	Arkansas	7.5	43
23	North Carolina	9.9	27	48	Iowa	7.5	31
24	Kansas	9.8	46	49	West Virginia	6.8	38
25	Minnesota	9.6	11	50	Mississippi	6.2	49
					U.S. Average	10.0	

*Due to methodological changes, ranking comparisons are not exact.

BUSINESS CHURNING

The number of business establishment start-ups and business failures as a share of total private establishments, averaged over two years



"The national rate of business churning is trending slightly upward, increasing 1.2 percent from 2009–2010 to 2017–2018."

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 and take their place. Along with jobs, new businesses bring with them to the marketplace fresh new ideas and innovations—and they displace older, less innovative businesses (in the process, putting the resources that previously were tied up in failed businesses to more productive use). While this turbulence increases the economic risks faced by workers, companies, and even regions, it is an important driver of innovation and productivity growth. The national rate of business churning is trending slightly upward, increasing 1.2 percent from 2009–2010 to 2017–2018.

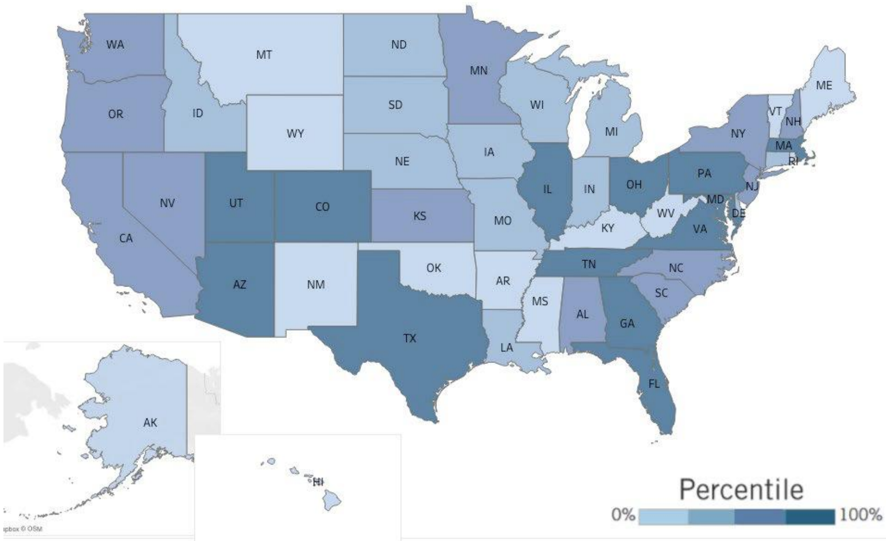
The rankings: Nevada, Missouri, Utah, California, and Florida occupy the top 5 positions, with 2.2 percentage points separating first place from fifth. In contrast, Mississippi, Iowa, Ohio, Connecticut, and Michigan occupy the bottom 5 positions, and only 0.5 percentage points separate 46th place from 50th. Nationwide, on average, 19 percent of businesses are in the process of starting up or failing. This means that for the average state, approximately 10 percent of all firms go out of business every year, and another 10 percent of all firms are new.

	The Top Five	Business Establishment Start-Ups and Failures as a Percentage of Total Establishments
1	Nevada	24.6%
1	Missouri	24.2%
1	Utah	23.6%
4	California	22.6%
4	Florida	22.4%
	U.S. Average	19.0%

Source: Bureau of Labor Statistics, 2018

FAST-GROWING FIRMS

The average number of firms on the "Inc. 5000" list over the past two years as a share of total firms



"Firms on the "Inc. 5000" list grow their annual revenues by a minimum 57 percent (3-year average), with the fastest firm in 2018 growing by 75,700 percent."

Why is this important? The "Inc. 5000" list is composed of the fastest-growing U.S. firms. Firms on this list have grown their annual revenues by a minimum three-year average of 57 percent, with the top firm in 2018 growing 75,700 percent. The firms on the list grew by 454 percent in 2019, at a median rate of 157 percent. While the number of firms in an economy attaining such growth rates is generally quite small, their growth and continued success have an outsized impact on the economy. In fact, there are a number of well-known companies (including Microsoft and the hair-care brand Paul Mitchell) that were listed on the "Inc. 5000" before they became household names.

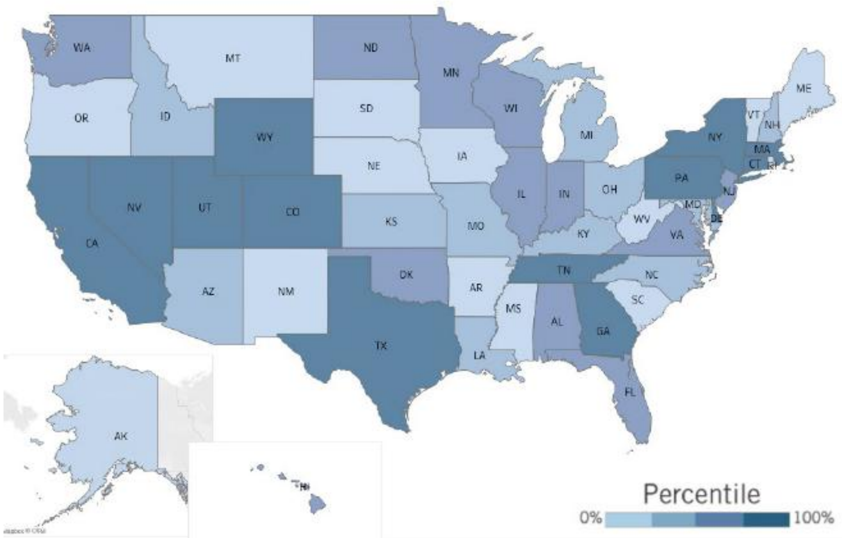
The rankings: Not surprisingly, states that perform well on the "Inc. 5000" list are generally known for having strong entrepreneurial technology sectors. Indeed, the majority of "Inc. 5000" firms in the top states, especially Virginia, Maryland, and California, are IT or telecommunications firms, while Massachusetts has a large number of medical technology firms. Many states that perform well have developed clusters of well-organized fast-growing firms, and have support systems to help firms grow. For example, local university partnerships have helped Provo, Utah, clinch first among metropolitan areas arranged by "Inc. 5000" firms per capita.[34] Arizona and Georgia also have developed innovation ecosystems conducive to firm innovation and growth.

	The Top Five	Percentage of Firms That Are Fast-Growing
1	Utah	0.24%
2	Virginia	0.22%
3	Georgia	0.16%
4	Colorado	0.15%
5	Arizona	0.15%
	U.S. Average	0.08%

Source: "Inc. 5000," 2018–2019

INITIAL PUBLIC OFFERINGS

A composite score of the value and number of IPOs as a percentage of workers' income



"The median deal size of IPOs has rebounded—from $95 million in 2016 to $108 million in 2019."

Why is this important? IPOs—the first rounds of stock companies sell when they make their debuts in public markets—are an important way high-growth firms raise capital to enable their next rounds of growth. Total proceeds from U.S. IPOs fell to $19 billion in 2016, a figure lower than the Great Recession's low of $22 billion. In the years since, IPO valuations more than doubled, to $46 billion in 2019. Similarly, the median deal size of IPOs rebounded from $95 million in 2016 to $108 million in 2019. While the total value of IPOs, the number of deals, and median deal size have varied in recent years, certain trends hold steady. For example, health care and ICT sectors dominate the IPO market, with these sectors raising the majority of IPO proceeds in every year from 2014 to 2019.[35]

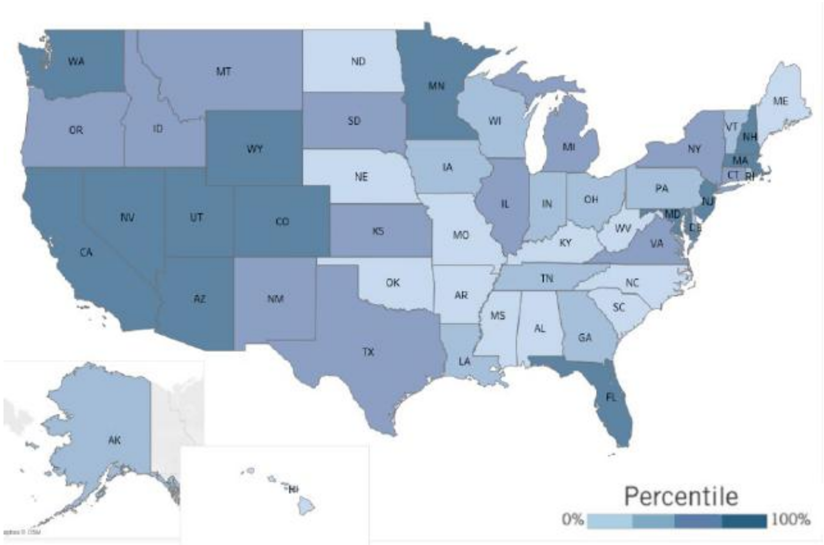
The rankings: Massachusetts ranks first in large part due to pharmaceutical IPOs. Nevada ranks fourth through a mix of technology and real estate deals, with Delaware coming in fifth from its financial deals. At the bottom of the rankings, three states had no IPOs over this period.

	The Top Five	Composite Score
1	Massachusetts	2.9
2	New York	2.8
3	California	2.4
4	Nevada	2.3
5	Delaware	1.4
	U.S. Average	0.0

Source: IPO Monitor, 2017–2019

INVENTOR PATENTS

The number of independent inventor patents as a share of the adult population



"Thirty-nine percent of independent inventor patent filers reported sales from their inventions, and 20 percent turned profits."

Why is this important? From Benjamin Franklin to Thomas Edison to Steve Jobs, 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, but trained scientists, engineers, and students pursuing independent research. This innovation can be an important foundation for entrepreneurial ventures, and some so-called "inventor patents" can spark significant economic activity. Indeed, 39 percent of independent inventor patent filers reported sales from their inventions, and 20 percent turned profits.[36]

The rankings: Not surprisingly, states with a large number of inventor patents are also likely to have a large number of scientists and engineers.[37] Many of these states also have colleges and universities with strong science and engineering programs. States that are typically strong in tech-based entrepreneurial activity, including Utah, California, and Massachusetts, perform well. The states generating the fewest inventor patents per capita tend to be southeastern states, with workforces rooted in agriculture, more traditional industries, and historically lower levels of entrepreneurial activity.

	The Top Five	Patents per 1,000 People of Workforce Age
1	Utah	0.27
2	California	0.14
3	New Hampshire	0.12
4	Colorado	0.11
5	Massachusetts	0.11
	U.S. Average	0.08

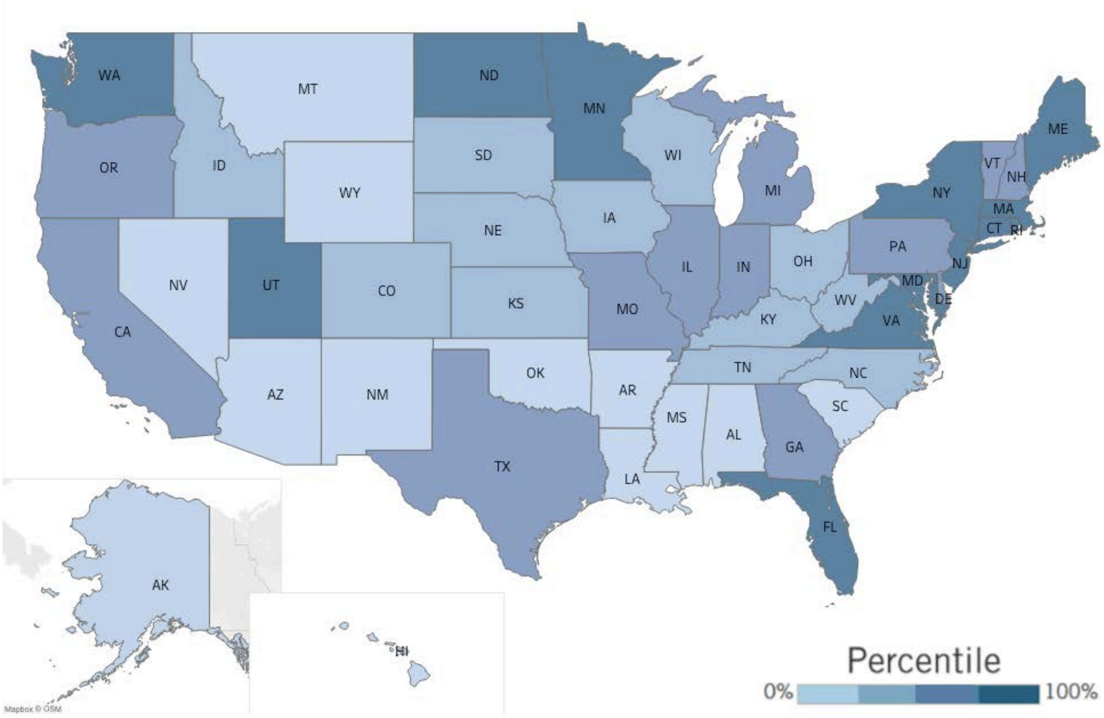
Source: Patent and Trademark Office, 2017–2018

THE DIGITAL ECONOMY

In today's digital economy, a significant share of transactions are conducted through digital means. For example, in 2019, 11.4 percent of retail sales were conducted online, as compared with only 4.2 percent in 2010.[38] Moreover, between 2010 and 2019, U.S. retail sales through e-commerce increased by 15.5 percent annually, compared with just 3.8 percent for total retail sales. Total U.S. e-commerce sales reached $602 billion in 2019—a value equivalent to 36 percent of U.S. goods exports.[39]

The increase in e-commerce activity has followed widespread adoption of IT tools and infrastructure. In 2016, 89 percent of U.S. households owned a computer and 81 percent were connected to the Internet.[40] Farmers now routinely use the Internet for everything from navigating their field equipment to buying seed and fertilizer, tracking market prices, and selling crops. Meanwhile, governments provide open data access so data scientists and engineers can develop advanced analytics to solve problems and provide solutions to societal challenges.[41]

The indicators in this section measure four aspects of the digital economy: 1) the percentage of farmers online and using computers for business; 2) the use of IT to deliver state government services; 3) the adoption and average speed of broadband telecommunications; and 4) the use of health information technologies.

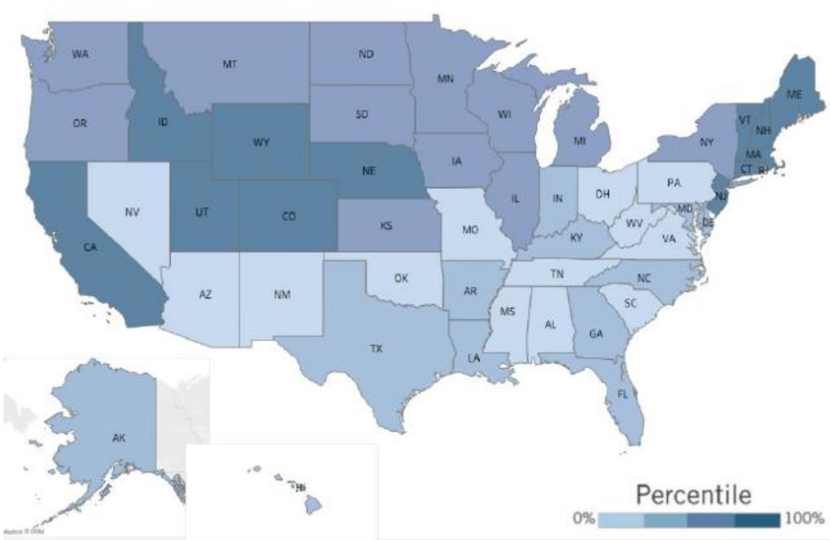


2020 Rank	State	2020 Score	2017 Rank*	2020 Rank	State	2020 Score	2017 Rank*
1	Connecticut	13.2	13	26	Wisconsin	10.2	9
2	Utah	12.9	3	27	Nebraska	10.2	21
3	New York	12.7	7	28	North Carolina	10.1	27
4	Rhode Island	12.2	14	29	South Dakota	10.0	29
5	Maryland	12.1	5	30	Colorado	10.0	30
6	Massachusett	12.1	4	31	Ohio	9.7	24
7	Virginia	11.5	1	32	Tennessee	9.6	28
8	Minnesota	11.4	11	33	Kansas	9.5	46
9	New Jersey	11.3	16	33	Idaho	9.4	41
10	Washington	11.2	2	35	West Virginia	9.1	38
11	North Dakota	11.1	10	36	Kentucky	9.1	42
12	Maine	11.1	19	37	Iowa	9.0	31
13	Florida	11.0	22	38	Wyoming	8.7	39
14	Delaware	11.0	12	39	South	8.6	44
15	Oregon	10.9	8	40	Hawaii	8.6	45
16	Georgia	10.9	25	41	Nevada	8.3	35
17	California	10.9	17	42	Arizona	8.3	40
18	New	10.8	18	43	Alabama	8.1	48
19	Missouri	10.6	33	44	Louisiana	8.1	50
20	Vermont	10.5	26	45	Oklahoma	8.1	37
21	Michigan	10.4	6	46	Montana	7.9	32
22	Pennsylvania	10.4	15	47	Arkansas	7.8	43
23	Illinois	10.3	20	48	Alaska	7.7	34
24	Texas	10.3	36	49	New Mexico	6.6	47
25	Indiana	10.2	23	50	Mississippi	6.4	49
					U.S. Average	10.0	

*Due to methodological changes, ranking comparisons are not exact.

ONLINE AGRICULTURE

A composite score of the percentage of farms that use computers for business and with Internet access



"In 2019, 75 percent of farms had access to the Internet, compared with 59 percent in 2009 and 29 percent in 1999."

Why is this important? While agriculture accounts for just 1.3 percent of U.S. employment, it is an important component in many states.[42] Farmers and ranchers use the Internet to navigate field equipment, buy feed and seed, check on weather conditions, obtain the latest technical information, and even sell their livestock or crops. In 2019, 75 percent of farms had access to the Internet, compared with 59 percent in 2009 and 29 percent in 1999. More importantly, farmers have leveraged technology to improve their operations, with 49 percent of farmers using computers to conduct business (e.g., purchase agricultural inputs, conduct marketing activities), up 6 percentage points since 2015.[43] Two measures used for this indicator are the percentage of farmers with Internet access and the percentage that use computers to run their farms.

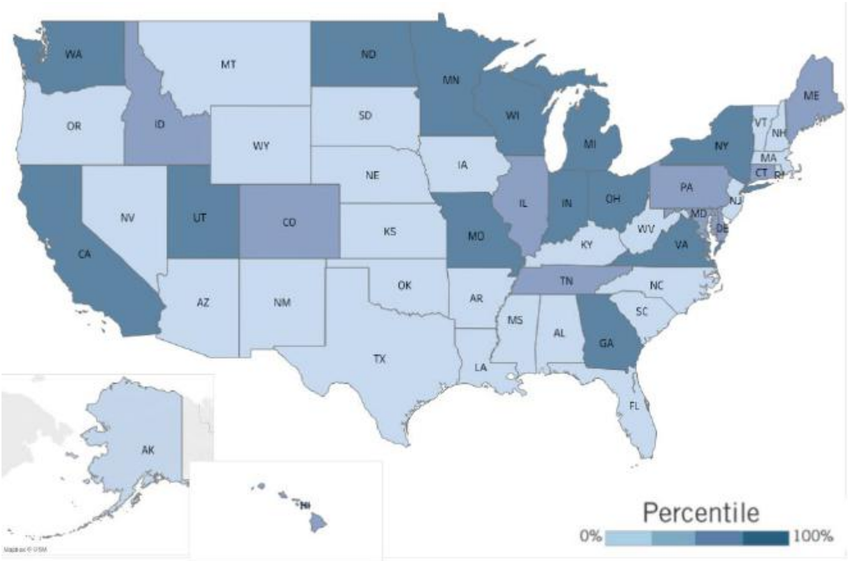
The rankings: Farmers in New England states lead the nation in both use of computers and access to the Internet, as well as in the percentage of farmers who conduct business on the United States Department of Agriculture website. Mountain states did well, while states in the South and Southwest ranked near the bottom.

	The Top Ten	Composite Score
1	Utah	1.5
2	New England States	1.3
8	Colorado	1.2
9	California	1.1
10	New Jersey	0.8
	U.S. Average	0.0

Source: Department of Agriculture, 2019; New England States comprise Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

E-GOVERNMENT

An index that scores a state government's use of digital technologies



"Government can become a highly efficient enterprise that uses technology not only to cut its own costs, but also to boost productivity for businesses and residents."

Why is this important? State governments affect economies in two ways. First, as large employers, their operations represent a significant amount of economic activity. Second, as they interact with the rest of the economy, particularly businesses, their degree of efficiency and effectiveness in providing public services can enable or retard innovation. In the absence of other good measures of state government innovation, one measure is their use of digital technologies.

Certainly, with a wide suite of technologies readily available—from cloud and mobile computing to the Internet of Things and machine learning—there is significant potential to transform state government with IT.[44] Government programs can be leaner, employing fewer workers and using fewer materials. Self-service can be ubiquitous. Every public service, from garbage collection to traffic management, could use analytics and the Internet of Things to optimize operations. In short, government can become a highly efficient enterprise that uses technology not only to cut its own costs, but also to boost productivity for businesses and residents.

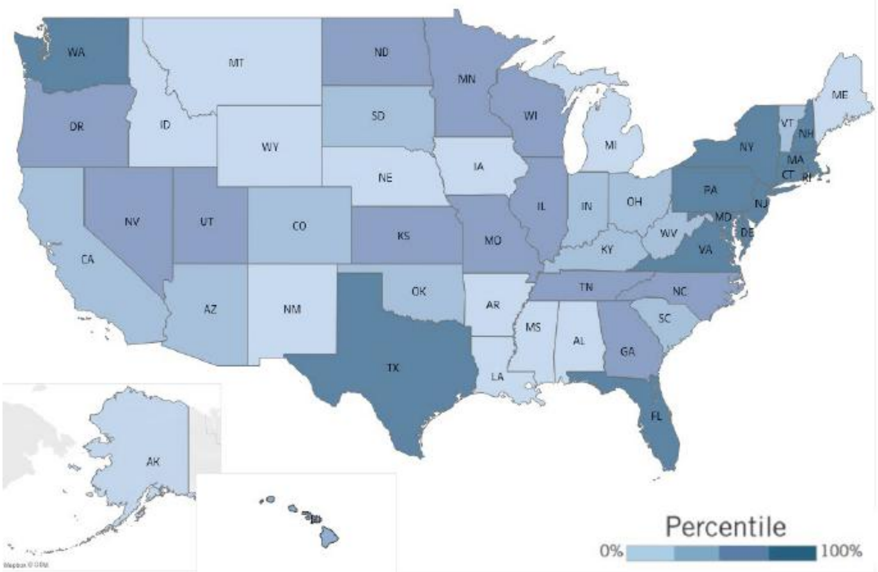
The rankings: E-government leadership is largely driven by individual factors, such as a governor's leadership, the performance of a state chief information officer, and support from legislators. As such, there is no real pattern to state leadership on this indicator. Top states have done a variety of innovative things. For example, Missouri rolled out cloud services for its state agencies and implemented analytics software to tackle tax fraud, and Ohio deployed traffic and weather sensors to provide real-time data on road conditions for maintenance workers.[45]

	The Top Five	Composite Score
1	Georgia	100
1	Michigan	100
1	Missouri	100
1	Ohio	100
1	Utah	100
	U.S. Average	91

Source: Center for Digital Government, 2018

BROADBAND TELECOMMUNICATIONS

A composite score of home broadband adoption and average Internet connection speeds



"From 2015 to 2018, average connection speeds across the country have increased by 181 percent."

Why is this important? Broadband adoption is important not just because it allows residents to more easily engage in e-commerce, but also because it enables telecommuting, distance education, telemedicine, and a host of other applications that can boost productivity and improve people's quality of life.[46] Broadband adoption rose from 10 percent of all U.S. Internet connections in 2000 to 87 percent in 2017.[47] And, from 2015 to 2018, average connection speeds increased 181 percent.[48]

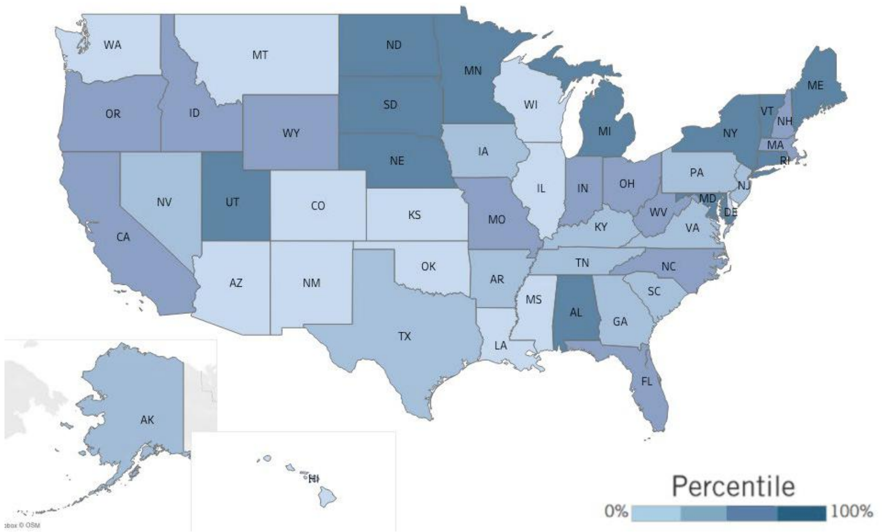
The rankings: Broadband adoption and speeds tend to be highest in high-tech, high-income states. Because it is less costly to invest in broadband in metropolitan areas, states that are predominately urban are much more likely to have extensive broadband networks. And because low-income households are less likely to subscribe to broadband, it becomes more costly to serve these areas, so low-income states tend to lag. Indeed, the broadband telecommunication score has a correlation of 0.50 to population density and GSP per capita.[49] Following the population distribution across the United States, 7 out of the top 10 states are located along the highly urbanized East Coast. Meanwhile, each state in the bottom five—Mississippi, Arkansas, New Mexico, Alabama, and Louisiana—either has low per capita incomes or a large rural population.

	The Top Five	Composite Score
1	New Jersey	1.9
2	Rhode Island	1.6
3	Maryland	1.5
4	Virginia	1.3
5	Delaware	1.1
	U.S. Average	0.0

Source: BroadbandNow, 2018; National Telecommunications and Information Administration, 2018

HEALTH IT

A composite score of pharmacies that can prescribe drugs electronically, hospitals that have basic electronic health record systems, and hospitals that have electronic patient engagement



"Since 2010, the number of patients receiving their prescriptions electronically has increased over four-fold, with more than 2.1 billion e-prescription transactions in 2019."

Why is this important? At 17.7 percent of GDP, health care is a growing share of the U.S. economy, so spurring innovation in health care produces significant benefits.[50] One indicator of innovation in health care is IT adoption, which has advanced in the last few years. Since 2010, the number of patients receiving prescriptions electronically has increased over four-fold, with over 2.1 billion e-prescription transactions in 2019.[51] Meanwhile, hospitals have increased their use of electronic health record systems (EHRs). In 2008, just under 10 percent of hospitals had adopted EHRs, but by 2017, 96 percent had.[52] Hospitals also have rolled out electronic patient engagement platforms, giving patients new ways to access their health information, pay bills, request refills, and schedule appointments—with more engagement features being released every year.[53]

The rankings: State rankings appear to be determined partly by the extent to which leaders in the health care industry and state government make health IT a priority. Only New York remains in the top five from the last edition, reflecting its serious push to modernize its health systems and adopt e-prescribing (just under 40 percent of its prescriptions were routed electronically in 2015.) Connecticut, Maine, Vermont, and Rhode Island round out the top five, reflecting both a concerted effort on the part of their hospitals to adopt EHRs and offer patients more opportunities for electronic engagement and a particular strength of New England. Approximately 9 in 10 hospitals in these 4 states have EHR systems, and 8 in 10 hospitals engage their patients electronically.

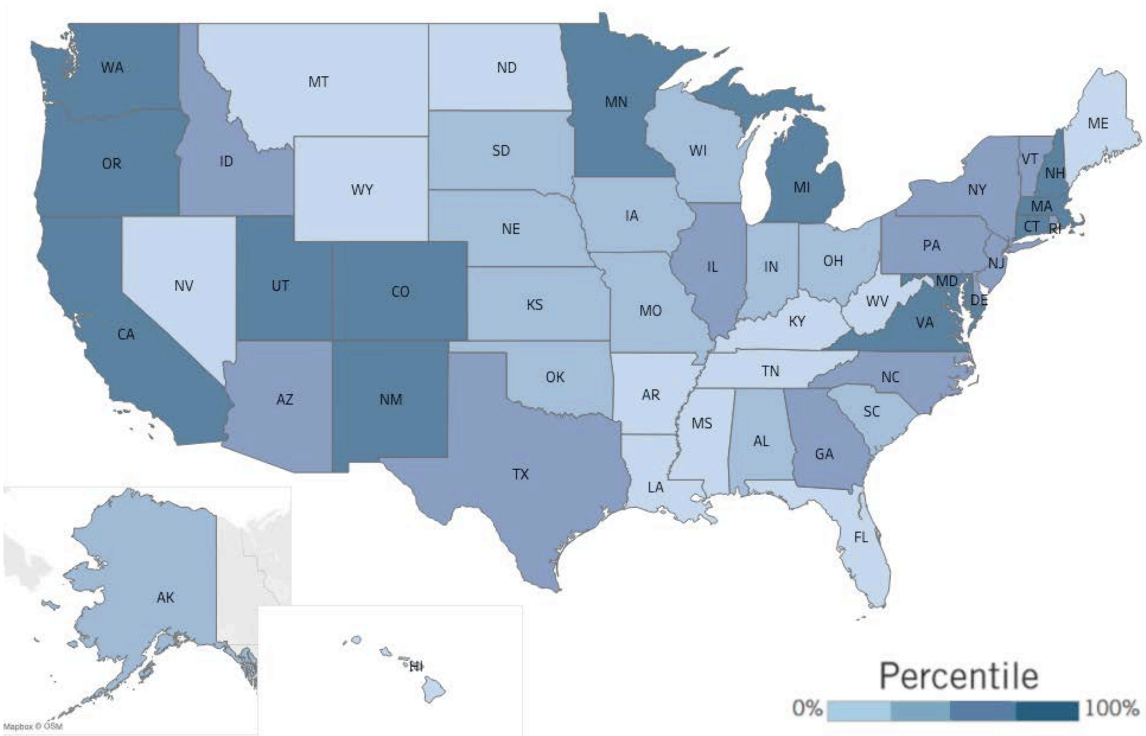
	The Top Five	Composite Score
1	Connecticut	1.6
2	Maine	1.3
3	New York	1.2
4	Vermont	1.0
5	Rhode Island	1.0
	U.S. Average	0.0

Source: Surescripts, 2018; Office of the National Coordinator for Health Information, 2017

INNOVATION CAPACITY

Innovation is key to growth and competitiveness. 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 income growth per worker.[54] Technological innovation in particular is a fundamental driver of growth because it drives efficiency.

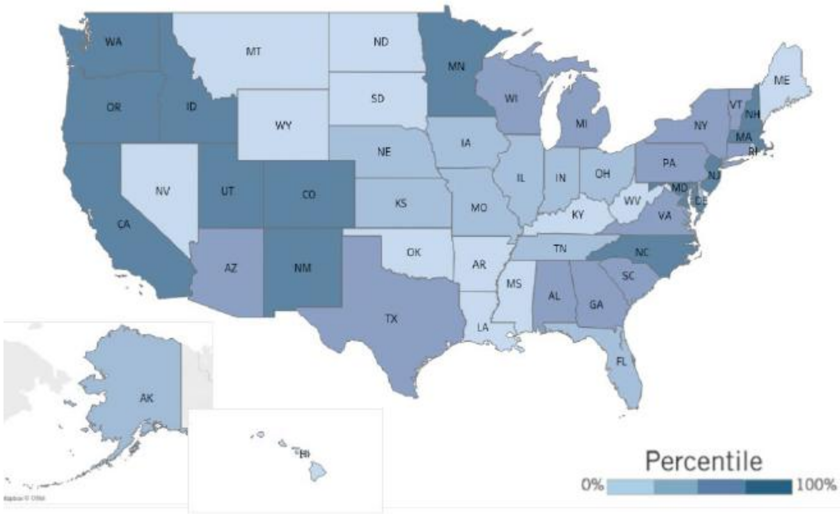
The indicators in this section measure seven aspects of innovation capacity: 1) the share of jobs in high-tech industries; 2) the share of workers who are scientists and engineers; 3) the number of patents issued to companies and individuals; 4) industry R&D as a share of GSP; 5) non-industrial R&D as a share of GSP; 6) clean energy consumption; and 7) VC invested as a share of GSP.



2020 Rank	State	2020 Score	2017 Rank*	2020 Rank	State	2020 Score	2017 Rank*
1	Massachusetts	21.4	1	26	Wisconsin	9.1	28
2	California	20.5	2	27	Kansas	9.0	23
3	Washington	19.6	4	28	Ohio	8.9	26
4	Oregon	14.7	13	29	Indiana	8.9	33
5	Michigan	14.2	5	30	Alaska	8.9	38
6	Maryland	13.9	7	31	Iowa	8.8	35
7	Colorado	13.7	6	32	Missouri	8.2	30
8	Utah	13.6	12	33	South Carolina	7.8	37
9	Minnesota	12.8	10	33	Alabama	7.8	39
10	Connecticut	12.2	14	35	South Dakota	7.5	44
11	Virginia	12.2	11	36	Nebraska	7.3	36
12	New Hampshire	12.2	19	37	Oklahoma	7.1	45
13	New Mexico	12.2	9	38	Florida	7.1	27
14	New Jersey	11.7	8	39	Tennessee	7.0	40
15	New York	11.4	18	40	Kentucky	7.0	42
16	North Carolina	11.3	21	41	Maine	6.9	34
17	Idaho	11.1	16	42	Montana	6.7	41
18	Illinois	10.6	20	43	Mississippi	6.7	49
19	Delaware	10.3	3	44	Nevada	6.6	32
20	Arizona	10.2	15	45	North Dakota	6.3	47
21	Pennsylvania	10.0	24	46	Arkansas	5.7	50
22	Rhode Island	9.9	29	47	Hawaii	5.6	31
23	Texas	9.9	25	48	West Virginia	5.5	48
24	Georgia	9.2	22	49	Wyoming	5.3	43
25	Vermont	9.2	17	50	Louisiana	4.7	46
					U.S. Average	10.0	

HIGH-TECH JOBS

Employment in high-tech industries as a share of private-sector employment



"In 2018, the average high-tech industry wage was nearly double the average private-sector wage."

Why is this important? The high-tech sector remains a key engine of innovation, export-based competitiveness, and high-paying jobs. In 2018, the average high-tech industry wage was nearly double the average private-sector wage.[55] In 2018, there were 6 million jobs in high-tech industries, accounting for 4.8 percent of U.S. employment. Moreover, most high-tech jobs are in export-serving industries that sell a majority of their output outside the state.

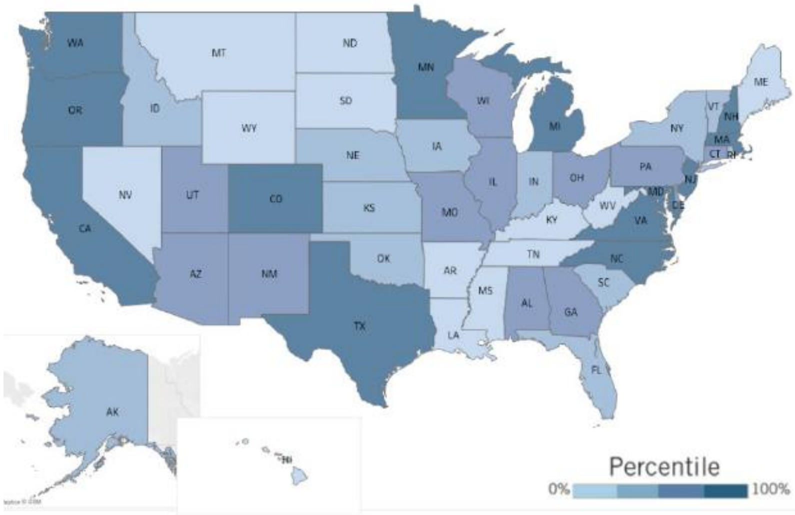
The rankings: High-tech specialization of states varies significantly, from a high of 8.2 percent of the workforce in Massachusetts to just 2.1 percent in Arkansas. While all states have high-tech jobs, the leaders tend to be in the Northeast, the Mountain states, and the Pacific region. High-tech industry jobs are often concentrated in particular regions of a state: IT in southern New Hampshire; software in Provo, Utah, and Seattle, Washington; semiconductors in Boise, Idaho, and Albuquerque, New Mexico; biotechnology in the Washington, D.C., area; telecommunications in Denver, Colorado; and a broad mix of technologies in Silicon Valley, Los Angeles, and Boston, Massachusetts. States with lower rankings tend to be natural-resource-dependent (such as Alaska, Montana, and Wyoming), or Southern states with more branch-plant traditional industries (such as Mississippi, Louisiana, and Kentucky).

	The Top Five	Percentage of Jobs in High-Tech Industries
1	Massachusetts	8.2%
2	New Mexico	7.4%
3	New Hampshire	7.4%
4	Washington	7.3%
5	California	7.0%
	U.S. Average	4.8%

Source: Bureau of Labor Statistics, 2018

SCIENTISTS AND ENGINEERS

Scientists and engineers as a share of private-sector employment



"Though scientists and engineers comprised just 3.5 percent of all private-sector jobs in 2019, they are central players in high-tech and research-based companies, and in advanced manufacturing."

Why is this important? A high-quality scientific and engineering workforce is critical to economic growth, as these workers drive innovation in both new products and production processes, which leads to higher-wage jobs and greater economic output. Though scientists and engineers comprised just 3.5 percent of all private-sector jobs in 2019, they are central players in high-tech and research-based companies, and in advanced manufacturing.[56] Moreover, states with a higher share of scientists and engineers in their private sector also tend to have a high share of fast-growing firms, and are better able to attract other high-skilled workers from other states.[57]

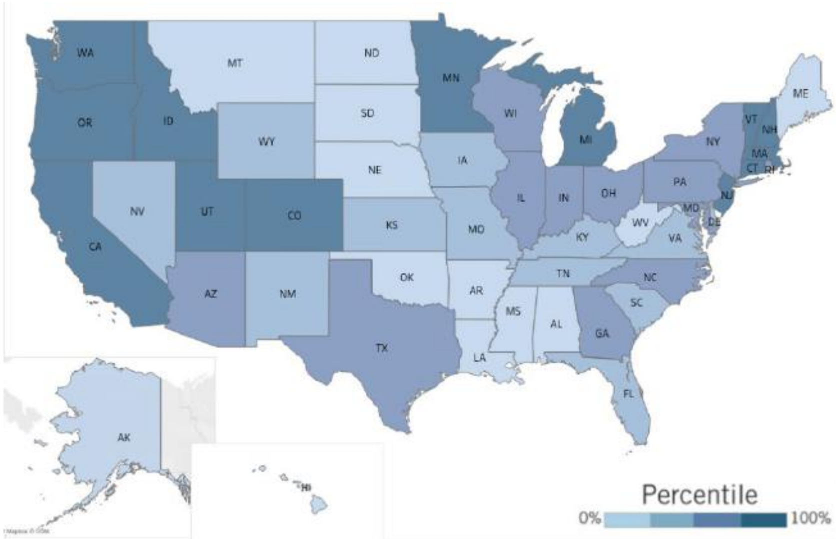
The rankings: States with the highest rankings tend to be high-tech states (such as Washington, Virginia, Massachusetts, and Colorado); states with significant corporate R&D laboratory facilities (such as Delaware, Connecticut, New Jersey, New York, and Vermont); and states with significant federal laboratory facilities (such as Maryland, New Mexico, and Rhode Island). In addition, many of these states have robust science and engineering programs in colleges and universities. 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 Total Jobs
1	Virginia	6.0%
2	Maryland	5.8%
3	Washington	5.8%
4	Colorado	5.2%
5	Massachusetts	5.1%
	U.S. Average	3.4%

Source: Bureau of Labor Statistics, 2019

PATENTS

The number of patents issued to companies per 1,000 private-sector workers, adjusted for industry mix



"Since hitting a recession low of 77,500 in 2008, patent grants have increased by over 86 percent."

Why is this important? Firms' capacity to develop new products and processes is a key determinant of their competitive advantage and ability to pay higher wages. In fact, one study found that firms not replacing at least 10 percent of their revenue streams annually with new products or services are likely to be out of business within 5 years.[58] One indicator of the rate of new product innovation is the number of patents issued. As technological innovation has become more important, the number of patents issued per year to U.S.-based inventors grew from 85,100 in 2000 to 144,400 in 2018. Indeed, since hitting a low of 77,500 in 2008, patent grants have increased by over 86 percent.[59]

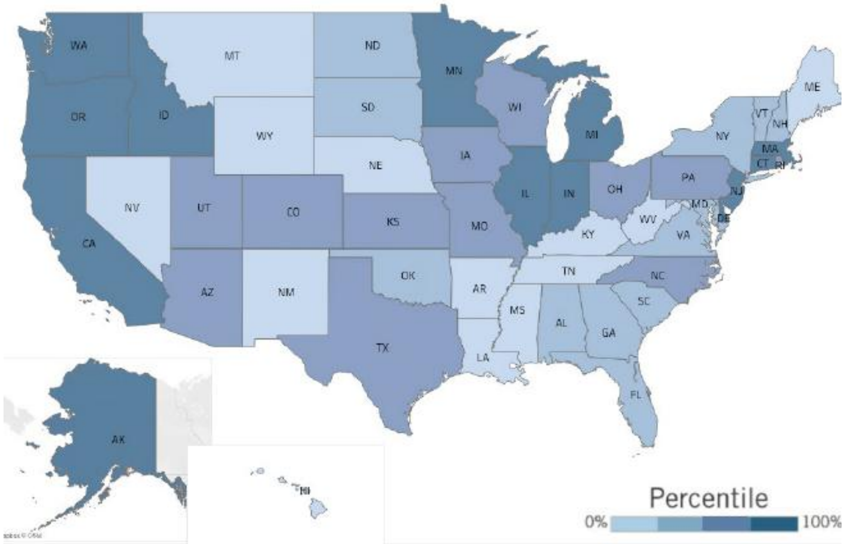
The rankings: States with an above-average share of either high-tech corporate headquarters or R&D labs tend to score the highest. On average, 1.2 patents are granted per 1,000 private-sector workers in the United States. One factor that has helped California rise to the top is a strong concentration of high-tech industries. It is no surprise that states that have strong business investment in R&D also have a high number of patents granted, with these two indicators correlated at 0.67.

	The Top Five	Adjusted Patents per 1,000 Workers
1	California	2.7
2	Washington	2.4
3	Massachusetts	2.2
4	Oregon	2.0
4	Connecticut	1.9
	U.S. Average	1.2

Source: Patent and Trademark Office, 2018

INDUSTRY INVESTMENT IN R&D

The amount of R&D paid for by industry as a share of GSP, adjusted for industry mix



"Business R&D spending reached an all-time high of 1.93 percent of GDP in 2017."

Why is this important? R&D yields product and process innovations, adds to the knowledge base of an industry, and is a key driver of economic growth. In 2017, business performed 73 percent of all U.S. R&D—and companies funded 85 percent of that research themselves.[60] After steadily rising in the 1980s and falling in the early 1990s, industry R&D as a share of GDP peaked in 2000 before declining through 2004. Business R&D spending then picked up again, reaching an all-time high of 1.93 percent of GDP in 2017.[61]

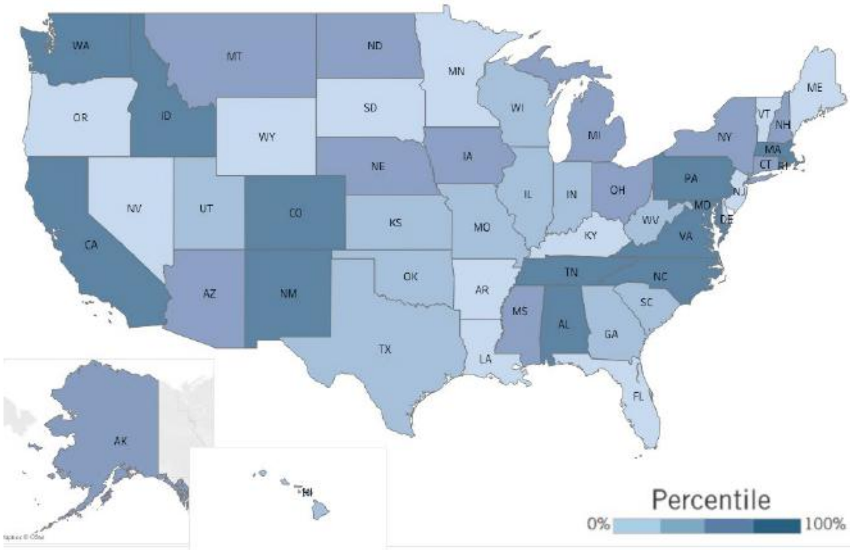
The rankings: Much of Michigan's success is due to its auto industry hub, which is home to much of North American automotive R&D. Washington, Massachusetts, and Oregon each have significant R&D functions of companies in a range of industries. In general, states with significant corporate R&D laboratory facilities or with a large number of high-tech firms score well.

	The Top Six	Adjusted R&D as a Percentage of GSP
1	California	8.3%
2	Washington	7.7%
3	Michigan	6.7%
4	Massachusetts	6.1%
5	Oregon	5.9%
	U.S. Average	1.5%

Source: National Science Foundation, 2017

NON-INDUSTRY INVESTMENT IN R&D

The amount of R&D performed outside of industry as a share of GSP



"While R&D performed outside of business constitutes only 27 percent of total U.S. R&D, federal, state, university, and nonprofit R&D has had a substantial impact on innovation."

Why is this important? While R&D performed outside of business constitutes only 27 percent of total U.S. R&D, federal, state, university, and nonprofit R&D has had a substantial impact on innovation.[62] For example, in 2006, 77 of the 88 U.S. entities that produced award-winning innovations were beneficiaries of federal funding.[63] In addition to research in U.S. universities, the federal government invests billions on federal laboratories, which foster partnerships with universities and private industries, and help lay the foundation for future private-sector research. In 2011, 350 firms, including 47 "Fortune 500" companies, used federally funded laboratory facilities and specialized equipment to conduct research that facilitated private-sector innovations.[64] Moreover, research by universities and nonprofits between 1996 and 2013 was credited with increasing GDP by $518 billion and creating 3.8 million jobs.[65]

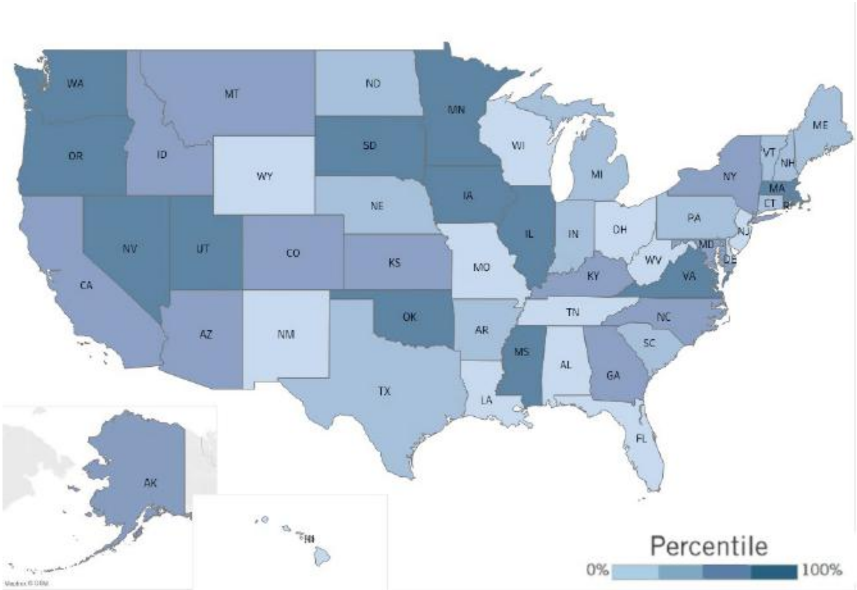
The rankings: With Los Alamos and Sandia National Laboratory accounting for more than 80 percent of New Mexico's non-industry R&D, the state far exceeds any other state in non-industry R&D as a share of GSP, at over 10 times the national average. Maryland ranks second, building on Department of Defense laboratories, the National Institute of Health, the National Institute of Standards and Technology, and NASA's Goddard Space Flight Center.[66] Of the top five, only in Massachusetts does a majority of non-industrial R&D come from sources other than federal labs, with university R&D making up the lion's share of non-industry R&D performed. Other states with large federal facilities, such as Alabama, Rhode Island, and Virginia, also score well.

	The Top Five	R&D as a Percentage of GSP
1	New Mexico	12.1%
2	Maryland	7.5%
3	Alabama	2.9%
4	Massachusetts	2.4%
5	Rhode Island	2.3%
	U.S. Average	0.7%

Source: National Science Foundation, 2017

MOVEMENT TOWARD A CLEAN ENERGY ECONOMY

A composite score of the change in energy consumption per capita, renewable energy as a share of total energy consumed, and change in renewable energy's share of total energy consumed



"From 2014 to 2017, energy consumption per capita in the United States fell by 4.5 percent, while renewable energy grew by 15.5 percent as a share of total energy consumption."

Why is this important? Beyond being good for the planet, reduced consumption of carbon-intensive energy sources is an emerging marker of economic vitality. Increased energy efficiency can lead to lower costs for businesses, governments, and residents, making a state more attractive to live and do business in. From 2014 to 2017, energy consumption per capita in the United States fell by 4.5 percent, while renewable energy grew by 15.5 percent as a share of total energy consumption—figures that are each five times greater than the period from 2011 to 2014.[67] Historically, economic growth and energy consumption display a positive relation.[68] But the fall in energy use per capita while the economy recovered suggests more efficient and productive energy use across the economy. Meanwhile, the ever-increasing growth in renewables could be attributed in part to tax credits for investment and adoption of renewable technologies.

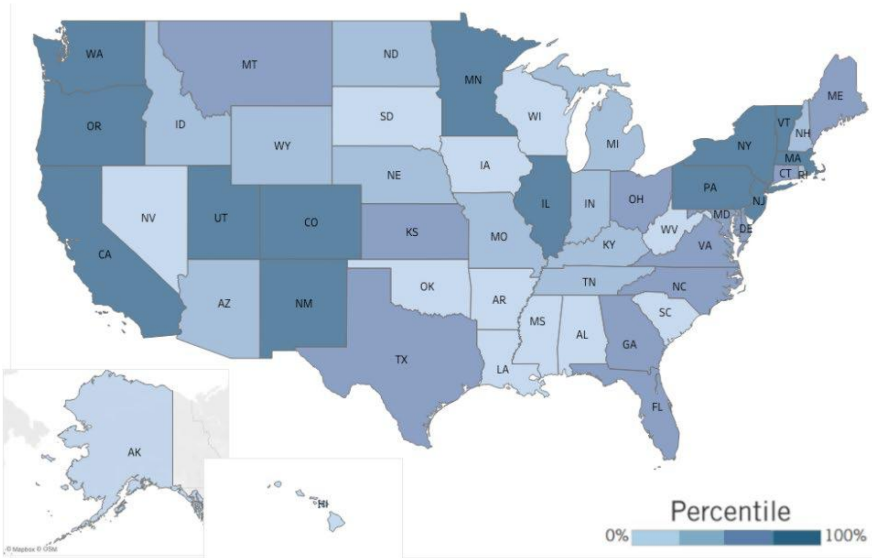
The rankings: On the whole, Massachusetts, Washington, Virginia, Utah, and Mississippi lead the movement toward a clean-energy economy. But probing into the components of this indicator, other states show signs of success, too. On per capita reductions in energy use, the leaders are Vermont, Maryland, and Massachusetts. On the metric of renewables as a share of total energy consumption, the top three are Oregon, Washington, and Maine. And Kansas, Oklahoma, and Alaska have made the biggest strides in shifting their energy consumption toward renewables. From 2011 to 2014, Kansas increased renewables as a share of total energy consumption by 86 percent—28 times the national average. Washington's and Oregon's high scores on renewables as a share of consumption are due in part to their reliance on hydroelectric power which, combined with other renewable energy sources, accounts for just under half of their energy use.

	The Top Five	Composite Score
1	Massachusetts	1.13
2	Washington	0.98
3	Virginia	0.84
3	Utah	0.75
5	Mississippi	0.60
	U.S. Average	0.00

Source: Energy Information Administration, 2014–2017

VENTURE CAPITAL

The amount of VC invested as a share of GSP



"Venture capital investment has nearly returned to its 2000 peak, with investments of $110 billion in 2019."

Why is this important? VC is an important source of funding for new, fast-growing entrepreneurial companies, as venture capitalists' goal is often to identify promising innovations and help bring them to the marketplace. Firms that got their start this way contribute an outsized share of American innovation. Indeed, among publicly traded companies, those founded after 1974 with VC backing now employ 38 percent of workers and account for 85 percent of business R&D.[69] VC funding peaked in the midst of the tech boom in 2000 at $119 billion, and then dropped precipitously after the tech bubble burst, to just $17 billion in 2003.[70] It then increased slowly until the Great Recession, when it dropped again. With the subsequent economic recovery, VC investment has nearly returned to its 2000 peak, with investments of $110 billion in 2019.[71]

The rankings: In 2019, 54 percent of all VC went to California, while an additional 23 percent went to Massachusetts and New York. Both California and Massachusetts receive nearly four times more VC as a share of GSP than the average state. Both states not only have a robust VC industry, but also strong university engineering and science programs and an existing base of high-tech companies, both of which can be the source of entrepreneurial start-ups or spin-offs that receive VC funding.

	The Top Five	Venture Capital as a Percentage of GSP
1	California	1.87%
2	Massachusetts	1.56%
3	New York	0.93%
4	Utah	0.58%
5	Washington	0.47%
	U.S. Average	0.33%

Source: PricewaterhouseCoopers, 2019

CONCLUSION

States that score well in the *State New Economy Index* are best positioned to face the challenges associated with the innovation-driven New Economy, while lower-scoring states have significant ground to make up. While low-scoring states would benefit most from implementing comprehensive innovation strategies, high-scoring states also have room for improvement. Indeed, all the states—and perhaps most importantly, the federal government—need innovation strategies to compete in the New Economy.[72] At the same time, the federal government should work to establish more self-sustaining tech hubs in more parts of the country.[73] Successful strategies will incentivize, among other things, having a workforce and jobs based on higher skills; strong global connections; dynamic firms, including strong, high-growth start-ups, industries, and individuals embracing digital technologies; and strong capabilities in technological innovation. With the rise of China and its continuing efforts to dominate a wide array of advanced technology industries, the imperative for stronger state and federal action has never been greater.

APPENDIX: INDEX METHODOLOGY

As with previous editions, the *2020 State New Economy Index* controls for a state's industry-sector mix when considering variables that measure company behavior: R&D, exports, patents, and manufacturing value added. Holding the industry mix constant is important because some industries inherently invest more in R&D, export more, produce more patents, or are more productive than other industries. For example, without controlling for industry mix, the state of Washington would score very high in manufacturing exports because its aviation sector is so large relative to the rest of its economy, and exports are a large share of an aviation 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. 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. Industry mix is controlled for on the following indicators: manufacturing value added, export focus of manufacturing and services, patents, and industry investment in R&D.

Because each *State New Economy Index* since 1999 has used slightly different indicators and methodologies, the total scores are not directly comparable year over year. Therefore, a state's movement to a higher or lower overall rank between editions may not positively reflect actual changes in its economic structure. 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. Where applicable and appropriate, raw data is normalized to control for factors such as state population, GDP size, etc.

To measure the magnitude of the differences between the states instead of just their rank from 1 to 50, raw scores for each indicator are standardized. Weights for each indicator are determined according to their relative importance. To produce the section scores, the standardized indicators' scores under each section are multiplied by their respective weights, summed, and then each increased by a score of 10. The overall score is calculated by first summing the maximum score of each section to determine a "maximum potential overall score." The overall score for each state is then the sum of the state's score on each section, which is expressed as a percentage of the maximum potential overall score.

INDICATOR WEIGHTS

Indicator	Weight
Knowledge Jobs	5.00
Information Technology Jobs	0.75
Managerial, Professional, and Technical Jobs	0.75
Workforce Education	1.00
Immigration of Knowledge Workers	0.50
Internal Migration of U.S. Knowledge Workers	0.50
Manufacturing Value Added	0.75
High-Wage Traded Services	0.75
Information Technology Jobs	0.75
Managerial, Professional, and Technical Jobs	0.75
Workforce Education	1.00
Immigration of Knowledge Workers	0.50
Internal Migration of U.S. Knowledge Workers	0.50
Manufacturing Value Added	0.75
High-Wage Traded Services	0.75
Globalization	2.25
Foreign Direct Investment	0.75
Export Focus of Manufacturing and Services	0.75
High-Tech Exports	0.75
Economic Dynamism	3.00
Business Churning	0.75
Fast-Growing Firms	1.00
Initial Public Offerings	0.75
Inventor Patents	0.50
The Digital Economy	2.50
Online Agriculture	0.50
E-government	0.50
Broadband Telecommunications	1.00
Health IT	0.50
Innovation Capacity	5.00
High-Tech Jobs	0.75
Scientists and Engineers	0.75
Patents	0.75
Industry Investment in R&D	1.00
Non-industry Investment in R&D	0.50
Movement Toward a Clean Energy Economy	0.50
Venture Capital	0.75

INDICATOR METHODOLOGIES AND DATA SOURCES

This section uses the following abbreviations:

SOC: Bureau of Labor Statistics (BLS) 2018 Standard Occupational Classification. BLS classifies workers based on their job descriptions into four nested occupation categories, with 867 occupational categories at the most detailed level and 23 occupational at the broadest level. For more information, see: https://www.bls.gov/soc/.

NAICS: 2017 North American Industry Classification System. This system classifies a business based on how it generates the majority of its revenue into five nested industry categories, with 1,057 industries at the most detailed level and 20 industries at the broadest level. For more information, see: https://www.census.gov/eos/www/naics/.

INFORMATION TECHNOLOGY JOBS

Description: Percentage of IT jobs in non-IT industries as a share private-non-IT-sector employment.

Methodology: IT jobs (SOC 15-000 (computer and math occupations) and 11-3021 (computer and information systems managers)) in private non-IT sectors (All NAICS industries less 334 (computer and electronic manufacturing), 5112 (software publishers), 5415 (computer systems design and related services), and 92 (federal, state, and local government) is expressed as a share of total private-sector employment.

Data Sources:

Bureau of Labor Statistics, Occupational Employment Statistics (May 2019 data estimates, by state and industry; accessed March 1, 2020),
https://www.bls.gov/oes/2019/may/oes_research_estimates.htm.

Bureau of Labor Statistics, Occupational Employment Statistics (May 2016 data, research estimates by state and industry, Sector 99: federal, state, and local government, excluding state and local schools and hospitals, and the U.S. Postal Service (OES Designation); accessed March 1, 2020), https://www.bls.gov/oes/special.requests/oes_research_2019_sec_99.xlsx.

MANAGERIAL, PROFESSIONAL AND TECHNICAL JOBS

Description: Percentage of managerial, professional, and technical jobs as a share of private-sector employment.

Methodology: Managerial, professional, and technical jobs (SOC 11-0000, 13-0000, 15-0000, 17-0000, 19-0000, 21-0000, 23-0000, 25-0000 (excluding 25-2011, 25-9031, 25-9041), 27-0000 (excluding 27-1023, 27-1025, 27-1026, 27-2022, 27-2023, 27-2031, 27-2032, 27-2041, 27-2042, 27-3011, 27-3012, 27-3091, 27-4021), 29-0000, 41-3031, 41-4011, 49-1011, 49-2011, 49-2022, 49-2091, 49-2094, 49-2095, 49-3011, 49-3041, 49-3052, 49-9041, 49-9052, 51-4012, 53-2021) is expressed as a share of total private-sector employment.

*Note: In previous editions, this variable was expressed as a share of total employment instead of private-sector employment.

Data Sources:

Bureau of Labor Statistics, Occupational Employment Statistics (May 2019 data estimates, by state and industry; accessed March 1, 2020), https://www.bls.gov/oes/2019/may/oes_research_estimates.htm.

Bureau of Labor Statistics, Occupational Employment Statistics (May 2016 data, research estimates by state and industry, Sector 99: federal, state, and local government, excluding state and local schools and hospitals, and the U.S. Postal Service (OES Designation); accessed March 1, 2020), https://www.bls.gov/oes/special.requests/oes_research_2019_sec_99.xlsx.

WORKFORCE EDUCATION

Description: A weighted score of the adult population's educational attainment.

Methodology: A state's population aged 25 years and over is divided into seven education-attainment categories: no high school diploma, high school diploma, some college (one or more years, no degree), associate's degree, bachelor's degree, master's or professional school degree, and doctorate degree are calculated. The population in each of these categories is expressed as a share of total population across these six categories and multiplied by their respective weights: -0.05 for no high school diploma, 0.00 for high school diploma, 0.25 for some college, 0.50 for associates degree, 1.00 for bachelor's degree, 1.50 for master's or professional degree, and 2.00 for doctorate degree. The six weighted values are summed for a final score.

Data Sources:

Census Bureau, 2018 American Community Survey 1-year Estimates (B15003: educational attainment for the population 25 years and over; accessed March 17, 2020), https://data.census.gov/cedsci/.

IMMIGRATION OF KNOWLEDGE WORKERS

Description: A weighted score of the foreign-born population's educational attainment.

Methodology: A state's population of immigrants from abroad aged 25 and over is divided into five education-attainment categories: less than high school graduate, high school graduate (includes equivalency), some college or associate's degree, bachelor's degree, or graduate or professional degree. The population in each of these categories is expressed as a share of total population across these five categories and multiplied by their respective weights: -0.50 for less than high school graduation, 0.00 for high school graduate (includes equivalency), 0.40 for some college or associate's degree, 1.00 for bachelor's degree, and 1.65 for graduate or professional degree. The five weighted values are summed for a final score.

Data Sources:

Census Bureau, 2018 American Community Survey 1-year Estimates (B07009: geographical mobility in the past year by educational attainment for current residence in the United States; accessed March 17, 2020), https://data.census.gov/cedsci/.

INTERNAL MIGRATION OF U.S. KNOWLEDGE WORKERS

Description: A weighted score of educational attainment of migrant population from other U.S. states.

Methodology: A state's population of immigrants from other states aged 25 and over is divided into five education attainment categories: less than high school graduate, high school graduate (includes equivalency), some college or associate's degree, bachelor's degree, or graduate or professional degree. The population in each of these categories is expressed as a share of total population across these five categories and multiplied by their respective weights: -0.50 for less than high school graduation, 0.00 for high school graduate (includes equivalency), 0.40 for some college or associate's degree, 1.00 for bachelor's degree, and 1.65 for graduate or professional degree. The five weighted values are summed for a final score.

Data Sources:

Census Bureau, 2018 American Community Survey 1-year Estimates (B07009: geographical mobility in the past year by educational attainment for current residence in the United States; accessed March 17, 2020), https://data.census.gov/cedsci/.

MANUFACTURING VALUE ADDED

Description: Manufacturing value added per production hour worked, adjusted for industry mix.

Methodology: Value added per production hour is calculated for each four-digit NAICS industry within the manufacturing sector (NAICS 31-33) for each state. Where current-year data is unavailable, previous-year data is used as a proxy. Where neither current-year nor previous-year data is available, unavailable data is calculated as an aggregate "remainder" by subtracting available data from the total of the parent industry (one digit up—for example, the parent industry of NAICS 3329 is NAICS 332). Value added per hour for each four-digit industry with available data in each state is then expressed as a ratio to value added per hour for the same industry on the national level. Each ratio is then multiplied by employment (either current year or previous year, depending on the ratio's year) in its respective four-digit industry for each state, which is then summed across industries in each state to determine the level of manufacturing employment the state would be expected to have in order to produce the same level of value added but with manufacturing labor productivity (value added per hour) equal to the national baseline ("expected available employment").

The aggregate "remainders" for each state are used to determine equivalent remainders on the national level where the United States is missing the same industry data as each state. Value added per hour for each state remainder is then expressed as a ratio to value added per hour for the equivalent remainder on the national level. Each ratio is then multiplied by employment in the remainder for each state, which is then summed across the remainders for each state ("expected remainder employment"). The share of each state's manufacturing employment contained within its remainders is calculated ("remainder share"). Because the accuracy of the remainder estimates decrease as the size of the remainders increase, both expected remainder employment and actual remainder employment are multiplied by unity minus the remainder share, such that the influence of the remainders on each state's final score decreases as uncertainty about remainder precision increases ("adjusted expected remainder employment" and "adjusted actual remainder employment"). Adjusted expected remainder employment is summed with expected available employment for each state. Adjusted actual remainder employment is likewise summed with actual available employment.

For each state, the summed expected employment is divided by summed actual employment and multiplied by the national value for manufacturing value added per production hour worked for the final value.

Data Sources:

U.S. Census Bureau, 2016 Annual Survey of Manufactures (AM1531AS101: geographic area statistics, statistics for all manufacturing by state, 2016; AM1531GS101: general statistics, statistics for industry groups and industries, 2016; accessed February 27, 2020), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

HIGH-WAGE TRADED SERVICES

Description: Employment in traded service sectors that pay above the national median service-sector wage as a share of service sector employment.

Methodology: The median of the average weekly wages of 73 traded service industries is calculated at the national level (This value is $1,378 for 2018 data). These 73 industries, as classified by NAICS, are: **4251**, **4811**, **4812**, 482111, **4831**, 48412, 4842 (excluding 48422), 4852, 4855, **4861**, **4862**, **4869**, 4871, 4872, 4879, 4881, 4882, **4883**, 4884, 4885, 4889, 4931, **51112**, **51113**, 51114, 51119, **5121 (excluding 51213)**, **5122**, **5152**, **5191 (excluding 51912)**, **5221**, **5222**, **5223**, **5231**, **5232**, **5239**, **5241**, **5251**, **5259**, 5321, **5331**, **5411**, 5412, **54131**, 54132, 54134, **54136**, 54137, 5414 (excluding 54141), **5416**, **5418**, **54199**, **54191**, **5511**, 5614, 6113, 61143, 6117, 7111, 7113, **7114**, **7115**, 7121, 71311, 7132, 7211, 7212, 8132, 8133, **81391**, **81392**, 81393, and 81394 (bolded industries have an average weekly wage higher than the median).

Total employment in the 36 **bolded** industries is expressed as a share of total service sector employment (NAICS 42, 44-45, 48-49, 51, 52, 53, 54, 55, 56, 61, 62, 71, 72, and 81). Unavailable data is estimated using prior years' data.

Data Sources:

Bureau of Labor Statistics, Quarterly Census of Employment and Wages (various series IDs, 2018; accessed March 17, 2020), http://www.bls.gov/cew/.

FOREIGN DIRECT INVESTMENT

Description: Employment in majority-owned foreign companies as a share of private-sector employment.

Methodology: Employment in majority-owned U.S. affiliates of foreign multinational corporations is expressed as a share of total private-sector employment.

*This edition updates the methodology to use total private-sector employment instead of total employment.

Data Sources:

Bureau of Economic Analysis, International Data (FDI in the United States, data on activities of multinational enterprises, majority-owned bank and nonbank U.S. affiliates, employment, by state, 2018; accessed March 1, 2020), https://www.bea.gov/iTable/iTable.cfm?ReqID=2&step=1#reqid=2&step=1&isuri=1.

Bureau of Labor Statistics, Quarterly Census of Employment and Wages (various series IDs, private-sector employment, by state; accessed March 1, 2020), http://www.bls.gov/cew/.

EXPORT FOCUS OF MANUFACTURING AND SERVICES

Description: Value of manufacturing and services exports per manufacturing and service worker, adjusted for industry mix.

Methodology: At both the national level and state level, gross export value per employee is calculated for 29 industries (NAICS 311, 312, 313, 314, 315, 316, 321, 322, 323, 324, 325, 326, 327, 331, 332, 333, 334, 335, 336, 337, 339, 511, 518, 519, 5411, 5413, 5415, 5416, 5417). State-level data for services exports, where latest data is from 2012, is adjusted by the average national increase in service exports to derive an estimated 2015 services export value. Gross exports per employee for each industry at the state level is expressed as a ratio to gross exports per employee for each industry at the national level. Each ratio is multiplied by employment in its respective industry at the state level to obtain each state's expected employment adjusted for industrial mix. Expected employment and actual employment are summed across industries for each state. The summed expected employment is then divided by the summed actual employment and multiplied by the national value of gross manufacturing and services exports per manufacturing and service worker for the final value.

Data Sources:

U.S. Census Bureau, USA Trade (NAICS district-level data, by state, 2018; accessed March 2, 2020), https://usatrade.census.gov/.

U.S. Census Bureau, American Fact Finder (Economic Census 2012: Series: EC1251SXSB1, EC1254SXSB1, EC1256SXSB1, EC1271SXSB1; accessed March 2, 2020), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

Bureau of Labor Statistics, Quarterly Census of Employment and Wages (various series IDs, private sector; accessed March 2, 2020), http://www.bls.gov/cew/.

HIGH-TECH EXPORTS

Description: The value of high-tech goods and services exports as a share of GSP.

Methodology: See ITIF report: *High-Tech Nation: How Technological Innovation Shapes America's 435 Congressional Districts*, https://itif.org/publications/2016/11/28/technation.

BUSINESS CHURNING

Description: The number of business establishment start-ups and failures as a share of total private establishments, averaged over two years.

Methodology: Private-establishment births and deaths are summed across all quarters for both the current year (2018) and the prior year (2017). This value is divided by the total number of private establishments in both these years.

*Note: Previous editions used openings and closings; births and deaths more accurately measure new businesses starting up and shutting down.

Data Sources:

Bureau of Labor Statistics, Business Employment Dynamics (establishment births, establishment deaths, establishments, total private, 2018, 2017; accessed March 27, 2020), http://www.bls.gov/bdm/.

Bureau of Labor Statistics, Quarterly Census of Employment and Wages (number of establishments, private, 2018, 2017; accessed March 27, 2020), http://www.bls.gov/cew/.

FAST-GROWING FIRMS

Description: The average number of firms on the "Inc. 5000" list over the past two years as a share of total firms.

Methodology: The number of firms found on "Inc. 5000" list for the two most recent years (2019 and 2018) are summed and averaged. This average is divided by the total number of firms (2017).

Data Sources:

"2019 Inc. 5000," *Inc.*, 2019, accessed March 20, 2020, https://www.inc.com/inc5000/list/2019/.

"2018 Inc. 5000," *Inc.*, 2018, accessed March 20, 2020, https://www.inc.com/inc5000/list/2018/.

U.S. Census Bureau, Statistics of U.S. Businesses (2017 SUSB Annual Data Tables, U.S. & states, totals; accessed February 20, 2017), https://www.census.gov/data/tables/2017/econ/susb/2017-susb-annual.html.

INITIAL PUBLIC OFFERINGS

Description: A composite score of the value and number of IPOs as a percentage of workers' income.

Methodology: This indicator comprises two variables using data from 2014 to 2016. The first variable sums up the total value of IPOs (in millions) over the most recent three years and divides that value by total personal income (in millions) over the same period. The second variable counts the number of IPOs over the most recent three years and expresses that value as a ratio to total personal income over the same period. Both variables are standardized separately, then the first weighted at 0.7 and the second 0.3. The two weighted scores are summed to obtain a final score for each state.

Data Sources:

IPO Monitor, Recent IPO Filings (IPOs filed in 2014, 2015, 2016; accessed February 20, 2017), https://www.ipomonitor.com/pages/ipo-filings.html?start=1&max=1000.

Bureau of Economic Analysis, Regional Data (annual state personal income and employment, 2014, 2015, 2016; accessed April 28, 2017), http://www.bea.gov/regional/index.htm.

INVENTOR PATENTS

Description: The number of independent inventor patents as a share of the adult population.

Methodology: Patent counts from independent inventors for the current year (2015) and prior year (2014) are averaged and expressed as a ratio to the state population (2014) aged 18 years and above (in thousands).

Data Sources:

U.S. Patent and Trademark Office, Patent Technology Monitoring Team (independent inventors by state by year: utility patents report, 2015, 2014; accessed April 27, 2017), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/inv_utl.htm.

Census Bureau, State Population by Characteristics Datasets: 2010-2016, population 18+, 2015; accessed April 27, 2017), https://www2.census.gov/programs-surveys/popest/datasets/2010-2014/state/asrh/scprc-est2014-18+pop-res.csv.

ONLINE AGRICULTURE

Description: A composite score of the percentage of farms with Internet access that use computers for business.

Note: Due to data-collection methodology, these state groupings are assumed to have the same values: Arizona and Nevada; Delaware and Maryland; Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Alaska and Hawaii, being excluded from this survey, are assumed to have the average U.S. value.

Methodology: The percentage of farms that use computers for business and the percentage of farms with Internet access for each state are standardized, weighted by 0.5 each, and then summed for the final score.

Data Sources:

U.S. Department of Agriculture, Economics, Statistics, and Market Information System (national agricultural statistics service, farm computer usage and ownership, 2019; accessed April 7, 2020), http://usda.mannlib.cornell.edu/usda/current/FarmComp/.

E-GOVERNMENT

Description: An index that scores a state government’s use of digital technologies.

Methodology: Alphabetical grades are extracted from the Digital States 2018 Survey. Alphabetical grades for each state are converted to numerical scores (A = 100.0, A- = 96.7, B+ = 93.3, B = 90.0, B- = 86.7, C+ = 83.3, C = 80.0, C- = 76.7).

Data Sources:

Janet Grenslitt, “Digital States Survey 2018 Results” (Center for Digital Government, 2018), http://www.govtech.com/cdg/digital-states/Digital-States-Survey-2018-Results.html.

BROADBAND TELECOMMUNICATIONS

Description: A composite score of home broadband adoption and average Internet connection speeds.

Methodology: The percentage of individuals with wired high-speed Internet service used at home and the average connection speed (kbps) for each state are standardized separately, weighted at 0.5 each, and then summed for the final score.

Data Sources:

National Telecommunications and Information Administration, Digital Nation Data Explorer (wired high-speed Internet service used at home, by state proportion; accessed March 27, 2020), https://www.ntia.doc.gov/files/ntia/publications/ntia-analyze-table.csv.

Akamai, State of the Internet Connectivity Visualizations (average connection speed (kbps), by state, Q1 2017; accessed March 27, 2020), https://www.stateoftheinternet.com/trends-visualizations-connectivity-global-heat-map-internet-speeds-broadband-adoption.html.

HEALTH IT

Description: A composite score of pharmacies that can prescribe drugs electronically, hospitals that have basic EHRs, and hospitals that have electronic patient engagement.

Methodology: This composite variable composes three indicators: percent of pharmacies and prescribers enabled for electronic prescribing of controlled substances (EPCS), the percent of non-federal acute care hospitals enabled with basic EHRs, and the percent of non-federal acute-care hospitals where patients can electronically view, download, and transmit their health information.

Each indicator is standardized across all states with the standardized EPCS score weighted at 0.3, the standardized EHR score weighted at 0.4, and the standardized electronic engagement score weighted at 0.3, before being summed to get the composite Health IT score.

Data sources:

EPCS indicator: Surescripts, *The National Progress Report on E-Prescribing and Interoperable Health Care: Year 2018* (Surescripts, August 2019), http://surescripts.com/news-center/national-progress-report-2018.

EHR indicator: JaWanna Henry et al., “Adoption of Electronic Health Record Systems among U.S. Non-federal Acute Care Hospitals: 2008-2017” (Office of the National Coordinator for Health Information Technology, May 2018), https://dashboard.healthit.gov/evaluations/data-briefs/ .

HIGH-TECH JOBS

Description: Employment in high-tech industries as a share of private-sector employment.

Methodology: Employment in 14 high-tech industries (NAICS 3254, 333314, 334, 335, 33911, 517, 5112, 5182, 51913, 54133, 54138, 5417, 61142, 6215) is expressed as a share of total private-sector employment. Undisclosed data is estimated using prior years’ data and national averages.

Data Sources:

Bureau of Labor Statistics, Quarterly Census of Employment and Wages (various series IDs, 2015; accessed November 17, 2016), http://www.bls.gov/cew/.

SCIENTISTS AND ENGINEERS

Description: Scientists and engineers as a share of private-sector employment.

Methodology: The total employment of scientists and engineers (SOC 15-1111, 15-1121, 15-1122, 15-1131, 15-1132, 15-1133, 15-1142, 15-2021, 15-2031, 15-2041, 15-2091, 15-2099, 17-2011, 17-2021, 17-2031, 17-2041, 17-2051, 17-2061, 17-2071, 17-2072, 17-2081, 17-2111, 17-2112, 17-2121, 17-2131, 17-2141, 17-2151, 17-2161, 17-2171, 17-2199, 19-1011, 19-1012, 19-1013, 19-1021, 19-1022, 19-1023, 19-1029, 19-1031, 19-1041, 19-1042, 19-1099, 19-2011, 19-2012, 19-2021, 19-2031, 19-2032, 19-2041, 19-2042, 19-2043, and 19-2099) is expressed as a percentage of private-sector employment.

Data Sources: Bureau of Labor Statistics, Occupational Employment Statistics (May 2016 data, by state; accessed April 27, 2017), https://www.bls.gov/oes/special.requests/oesm16st.zip.

Bureau of Labor Statistics, Occupational Employment Statistics (May 2016 data, research estimates by state and industry, Sector 99: federal, state, and local government, excluding state and local schools and hospitals, and the U.S. Postal Service (OES Designation); accessed April 27, 2017), https://www.bls.gov/oes/special.requests/oes_research_2016_sec_99.xlsx.

PATENTS

Description: Patents granted per 1,000 private-sector workers, adjusted for industry mix.

Methodology: At both the national level and state level, patents per employee is calculated for 16 industry groupings (NAICS 311, 312, 313-316, 321, 322-323, 325, 326, 327, 331, 332, 333, 334, 335, 336, 337, 339).[74] Patents per employee for each industry at the state level is expressed as a ratio to patents per employee for each industry at the national level. Each ratio is multiplied by employment in its respective industry at the state level to obtain each state's expected employment, adjusted for industrial mix. Expected employment and actual employment are summed across industries for each state. The summed expected employed is then divided by the summed actual employment and multiplied by the national value of patents granted per 1,000 private-sector workers for the final value.

Data Sources:

United States Patent and Trademark Office, Calendar Year Patent Statistics (fractional patent count tables, patent distribution by year of patent grant, patenting by NAICS industry classification, breakout by geographic origin (state and country), 2012; accessed May 3, 2017), https://www.uspto.gov/web/offices/ac/ido/oeip/taf/naics/naics_toc.htm.

Bureau of Labor Statistics, Quarterly Census of Employment and Wages (various series IDs, private sector; accessed May 3, 2017), http://www.bls.gov/cew/.

INDUSTRY INVESTMENT IN R&D

Description: The amount of R&D paid for by industry as a share of GSP, adjusted for industry mix.

Methodology: At the national level, industry R&D investment per employee is calculated for 15 industry groupings (3254, 325 (excluding 3254), 333, 334, 335, 3364, 336 (excluding 3364), 31-33 (excluding 325, 333, 334, 335, and 336), 5112, 51 (excluding 5112), 52, 5415, 5417, 54 (excluding 5415, and 5417), and 21-23 plus 42-81 (excluding 51, 52, and 54)). Then R&D investment per employee for each industry is expressed as a ratio (aggregated across these 15 industry groupings). At the state level, each R&D ratio is multiplied by the state's respective employment in order to obtain its expected employment, assuming its industrial mix is the same as that on the national level. Actual employment in these industries is then divided by the expected employment to obtain the industrial mix adjustor. Total state industry R&D is then multiplied by the industrial mix adjustor to obtain adjusted state industry R&D. Adjusted state industry R&D is expressed as a share of total employee compensation for the final score.

Data Sources:

National Science Foundation, Business and Industrial R&D (table 2, funds spent for business R&D performed in the United States, by source of funds and selected industry, 2013; table 4, funds spent for business R&D performed in the United States, by source of funds and state, 2013; accessed April 28, 2017), https://www.nsf.gov/statistics/2016/nsf16313/#chp2.

Bureau of Economic Analysis, Regional Data (annual GDP by state, 2013; accessed April 28, 2017), http://www.bea.gov/regional/index.htm.

NON-INDUSTRY INVESTMENT IN R&D

Description: The amount of R&D performed outside of industry as a share of GSP.

Methodology: Non-industry R&D performance (total R&D performed minus business R&D performed) expressed as a share of GSP.

Data Sources:

National Science Foundation, Science and Engineering State Profiles (March 2017; accessed April 27, 2017), https://www.nsf.gov/statistics/states/download/state-profiles-2017.xlsx.

Bureau of Economic Analysis, Regional Data (annual GDP by state, 2015; accessed April 28, 2017), http://www.bea.gov/regional/index.htm.

MOVEMENT TOWARD A CLEAN ENERGY ECONOMY

Description: A composite score of the change in energy consumption per capita, renewable energy as a share of total energy consumed, and change in renewable energy's share of total energy consumed.

Methodology: This composite variable comprises five indicators: change in residential energy consumption per capita, change in commercial energy consumption per capita, change in industrial energy consumption per capita, change in renewable energy consumed as a share of total energy consumed, and renewable energy consumed as a share of total energy. For the first four indicators, change is calculated with 2011 and 2014 as the reference years. For the first three indicators, the percentage change is multiplied by -1. The five indicators are each standardized and then multiplied by the following weights: residential change 0.1, commercial change 0.1, industrial change 0.3, renewable change 0.2, renewable energy share 0.3. The five weighted values are summed for the final score.

Data sources:

Energy Information Administration, State Energy Data System (variable codes RETCB, TETCB, TECPB, TEIPB, TERPB, 2011, 2014; accessed March 2, 2020), https://www.eia.gov/state/seds/seds-data-fuel.php?sid=US#DataFiles.

VENTURE CAPITAL

Description: The amount of VC invested as a share of GSP.

Methodology: Total VC investment for the most recent year (2016) is expressed as a share of GSP.

Data sources:

PricewaterhouseCoopers, MoneyTree (regional aggregate data, 2019; accessed March 28, 2020), http://www.pwc.com/us/en/moneytree-report/assets/RegnlAggrData_Q1_2017_Final.xlsx.

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