POWERING INNOVATION, DRIVING GROWTH

THE HIGH-TECH ECONOMY IN COMMUNITIES ACROSS AMERICA

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The High-Tech Economy in Communities Across America

Prepared for the Information Technology Industry Council
By the Information Technology and Innovation Foundation

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Foreword

These are unprecedented times. The coronavirus pandemic has ravaged communities across the country, forced millions of people out of their jobs and schools, and made social distancing practices the "new normal."

As we engage in a global dialogue for solutions to this economic crisis, the pandemic highlights the simple fact that no industry can continue business as usual. If we want to promote change and help our economy and our society move forward, we must propose concrete solutions. The technology industry can play a positive role in fighting for economic recovery because we enable tens of millions of Americans to work, learn, and connect.

The technology industry is focused on helping America get back to work. Far from being concentrated in a few tech hubs around the nation, the technology industry puts Americans to work in all communities. The data in this report illustrate how important technology is to everyone—not just to the firms that produce it, but to the successes of other companies, to all states, and to local economies. To help policymakers better understand how the technology economy is putting America to work, the Information Technology Industry Council (ITI) commissioned this report from the Information Technology and Innovation Foundation (ITIF). It uses 34 economic indicators to paint a statistical portrait of the technology economy, including high-tech goods and services, technology-driven innovation, and the skilled workers who drive it.

The data make clear that technological innovation is woven through the entire U.S. economy—including every congressional district. For example, more than half of all congressional districts received at least $50 million in federal research funding in the last two fiscal years. High-tech sectors fuel the local economies of most congressional districts, producing 28 percent of all manufacturing exports while employing just 9 percent of manufacturing workers.

The confluence of a global health and economic crisis put us a unique moment. Every state and congressional district in the United States has a stake in continuing to strengthen the foundations of the innovation-driven, high-tech economy. It is the surest way to boost U.S. competitiveness, create good jobs, and raise people's living standards. And strengthening technology in America will also make the economy and society more resilient, creating opportunities for all.

Jason Oxman
President and CEO
Information Technology Industry Council

Introduction

For years, policy discussions about America's innovation-driven, high-tech economy have focused on just a few iconic places, such as the Route 128 tech corridor around Boston; Research Triangle Park in Raleigh, Durham, and Chapel Hill, North Carolina; Austin, Texas; Seattle; and, of course, California's Silicon Valley. This has always been too myopic a view of the distribution of innovation across the country, as many other metropolitan areas and regions—from Phoenix to Salt Lake City to Philadelphia—are also innovation hot spots, and many more areas are developing tech capabilities. An unfortunate result of this limited vision of innovation distribution has been policy debates about how to bolster the country's innovative capacity that are often viewed as the province of only the few members of Congress who represent districts or states that have been traditionally recognized as tech heavy, while many members from other regions focus on other issues. This needs to change, not only because the premise is incorrect, but also because the country's competitive position in the global economy hinges on developing a national, broad-based, bipartisan, bicameral understanding and support for federal policies to spur innovation and high-tech industry competitiveness.

Additionally, as the COVID-19 pandemic sweeps across the world and the U.S., negatively impacting all industries, including the technology industry, with workforce downsizing and decreasing revenue, renewed attention must be given to the high-tech industry in all regions of the country as a source of economic hope with the potential to reignite the American economy through innovation and job creation.

A defining trend of the 21st century is the degree to which technology—especially information technology (IT)—has become a critical driver of productivity and competitiveness for the entire economy. This is true throughout the United States, as revealed in metrics such as the number of high-tech exports and the rate of broadband deployment. Indeed, all regions of the nation have some kind of technology and innovation-driven activity, whether it be traditional industries such as agriculture, mining, manufacturing, and professional services evolving into tech-enabled industries, or newer developments such as cloud computing and increased access to broadband Internet service allowing innovators to create new, IT-enabled enterprises in any small town or rural area they may choose, not just in the traditional innovation hot spots of Silicon Valley or Boston.

The purpose of this report is to shed light on just how widely diffused and integral the country's innovation-driven, high-tech economy is, updating and expanding on indicators first compiled by the Information Technology and Innovation Foundation (ITIF) in its 2016 report *High-Tech Nation*, so members of Congress and other policymakers can find common cause in advancing an agenda that builds up the shared foundations of national strength in a globally integrated marketplace.[1] Among other things, these foundations include:

- A highly educated and skilled workforce for which there must be better science, technology, engineering, and mathematics (STEM) education in high schools and colleges, along with policies that encourage high-skilled immigration and high-quality jobs for workers without a college degree;
- Robust research and development (R&D), which demands expanded federal investments in scientific and engineering research, along with corporate tax reforms that include key incentives such as the R&D tax credit and an "innovation box";
- Digital-age infrastructure, including not just wireline and wireless broadband, but also hybrid digital infrastructure that incorporates sensors and other information technologies to boost productivity by speeding the flow of people, products, services, and information; and
- Globally competitive high-tech industries, which need all of those things, plus the right regulatory and trade policies so companies can grow and access global markets.

The report draws on 24 indicators of the innovation economy to paint statistical portraits of all 50 states and 435 U.S. congressional districts, plus the District of Columbia. The indicators include measures of innovative vitality in three main areas:

- Exports of high-tech goods and services, including manufacturing and IT services;
- Workforce education and skills, including the numbers of workers in high-tech sectors and STEM occupations and the wages they receive; and
- Innovative ideas, including high-tech start-up activity and public funding for R&D projects.

To see interactive, nationwide maps of these indicators—and to download individual congressional district profiles—go to www.itic.org/powering-innovation. Statewide totals are also available.

The remainder of this report provides rankings of the top 50 congressional districts on each indicator, followed by state rankings and a detailed methodology section.

What the Data Reveals About the Innovation-Driven, High-Tech Economy

The data underscores how technological innovation shapes the entire U.S. economy—including every congressional district. For example, more than half of all congressional districts received at least $50 million in federal research funding in the last two fiscal years. And the average congressional district sees high-tech sectors fuel its economy, contributing 29 percent of manufacturing exports despite accounting for less than 10 percent of the workforce.

Digging further into the data, there are several telling relationships between indicators. The first shows little correlation between strength in exporting high-tech manufactured products and IT services (wherein the correlation coefficient is 0.21, which is close to nonexistent on a scale of 0 to 1). In other words, a congressional district can very easily be strong in one area, but not necessarily in the others. This underscores the significance of the trend in which technological innovation—through IT and other means—is transforming every sector of the economy, and must continue to do so for the country to build its competitive edge. In short, the U.S. economy is extremely diverse, and different regions may specialize in different products and services, but all industries have an opportunity to capitalize on technological innovation to increase their productivity and competitiveness, thereby increasing their employees' wages and Americans' standards of living.

A second noteworthy pattern is a very strong correlation between high-tech employment and IT service exports (0.69). On the one hand, this is not surprising, because high-tech employment encompasses the IT services sector. But the correlation is nonetheless significant because it underscores how high-skill, high-wage jobs depend on access to global markets. Likewise, there is a strong correlation at the district level between employment in computer and math occupations and employment in science and engineering occupations (0.67). This highlights the valuable role highly educated and skilled workers play in America's innovation ecosystem, wherein a density of high-skill labor makes a region more attractive for skilled workers in other sectors.

Finally, there is a strong correlation at the district level between the number of workers in STEM occupations and high-tech occupations (0.79)—and there are clear connections between federal R&D funding and each of those indicators (correlations of 0.52 and 0.54, respectively). These connections illustrate the essential, catalytic role public and private investments in R&D play in creating knowledge, sparking innovation, and driving growth economy-wide.

Implications for Policymakers

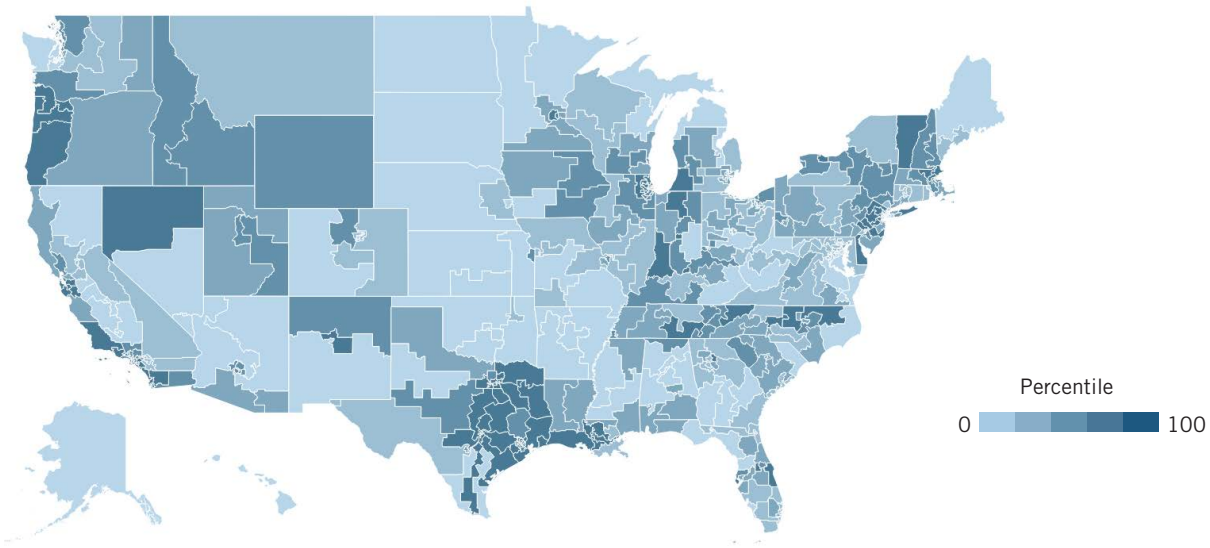
Every state and congressional district in the nation has a stake in continuing to strengthen the underlying foundations of the innovation-driven high-tech economy—as it is the surest way to boost productivity and competitiveness, and thereby raise people's standards of living. But putting innovation, productivity, and competitiveness in the center of the national economic agenda requires policymakers to look beyond the confines of traditional partisan ideology—including the left's "demand-side" focus on getting money into middle-class pockets, and the right's "supply-side" focus on increasing the supply of capital—and instead embrace a strategy that is grounded in several essentials:

- A highly educated and skilled workforce;
- Robust public investment in R&D;
- World-class digital-age infrastructure;
- "Smart government" policies, including how agencies procure and implement technology in their own operations, and how government spurs adoption of emerging information technologies more broadly (e.g., Internet of Things, smart cities, etc.);
- Tax and regulatory policies that encourage firms to invest in technology; and
- Strong connections to the global marketplace, but through a rules-based, carefully enforced trading system.

HIGH-TECH MANUFACTURING EXPORTS

TOP DISTRICTS

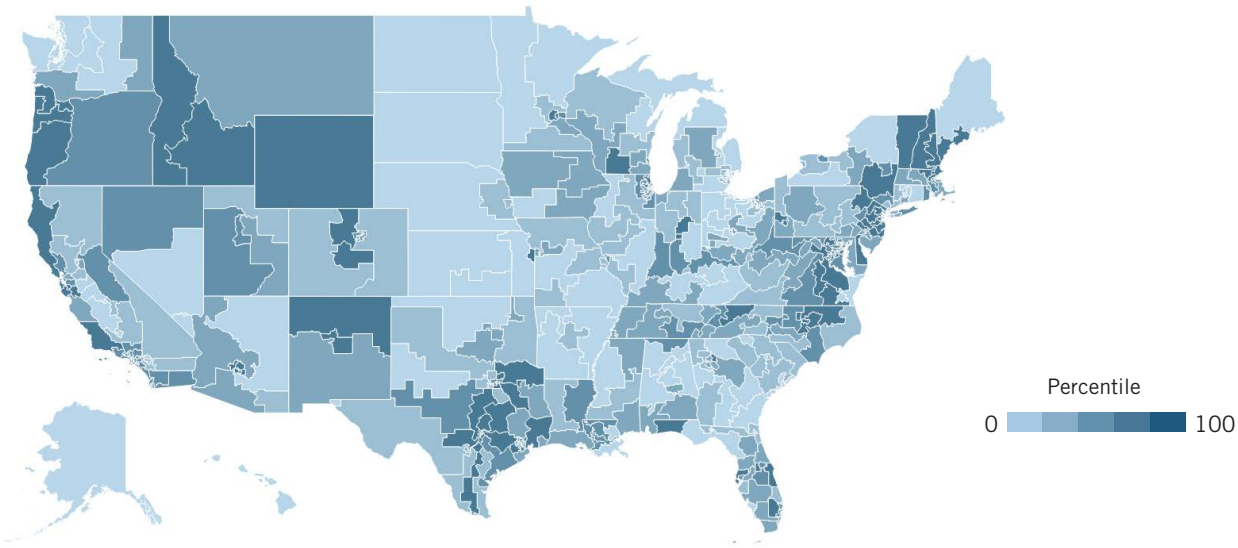
Gross Value From Chemical Manufacturing, and Computer and Electronic Products Exports



Rank	District	Value (Billions)	Rank	District	Value (Billions)
1	Texas 4	$6.90	26	Indiana 7	$2.62
2	Oregon 1	$6.26	27	Texas 24	$2.59
3	Texas 14	$5.89	28	Texas 25	$2.46
4	Texas 3	$5.82	29	Texas 35	$2.42
5	California 19	$4.60	30	Tennessee 4	$2.34
6	Texas 32	$4.37	31	Texas 5	$2.26
7	Texas 30	$4.27	32	Massachusetts 6	$2.18
8	Texas 22	$4.14	33	Florida 13	$2.16
9	California 18	$4.12	34	Delaware At-Large	$2.13
10	California 17	$3.91	35	Louisiana 3	$2.11
11	Texas 36	$3.70	36	New Jersey 6	$2.08
12	Florida 8	$3.67	37	Texas 21	$2.06
13	Texas 10	$3.40	38	New Jersey 7	$1.94
14	Louisiana 6	$3.24	39	California 13	$1.90
15	Texas 17	$3.12	40	New Jersey 12	$1.88
16	Texas 2	$3.09	41	Massachusetts 3	$1.87
17	Texas 7	$3.09	42	Nevada 2	$1.85
18	Texas 18	$3.09	43	California 45	$1.84
19	Texas 29	$3.09	44	California 46	$1.84
20	Texas 27	$3.07	45	California 48	$1.84
21	Louisiana 2	$2.98	46	Illinois 6	$1.80
22	California 14	$2.97	47	Vermont At-Large	$1.78
23	Illinois 10	$2.82	48	California 15	$1.76
24	Texas 33	$2.81	49	Texas 1	$1.71
25	Texas 9	$2.81	50	Massachusetts 5	$1.71
				U.S. Average District	$0.84
				U.S. Median District	$0.55

HIGH-TECH SHARE OF ALL MANUFACTURING EXPORTS

Chemical Manufacturing and Computer and Electronic Products Exports as a Share of All Manufacturing Exports

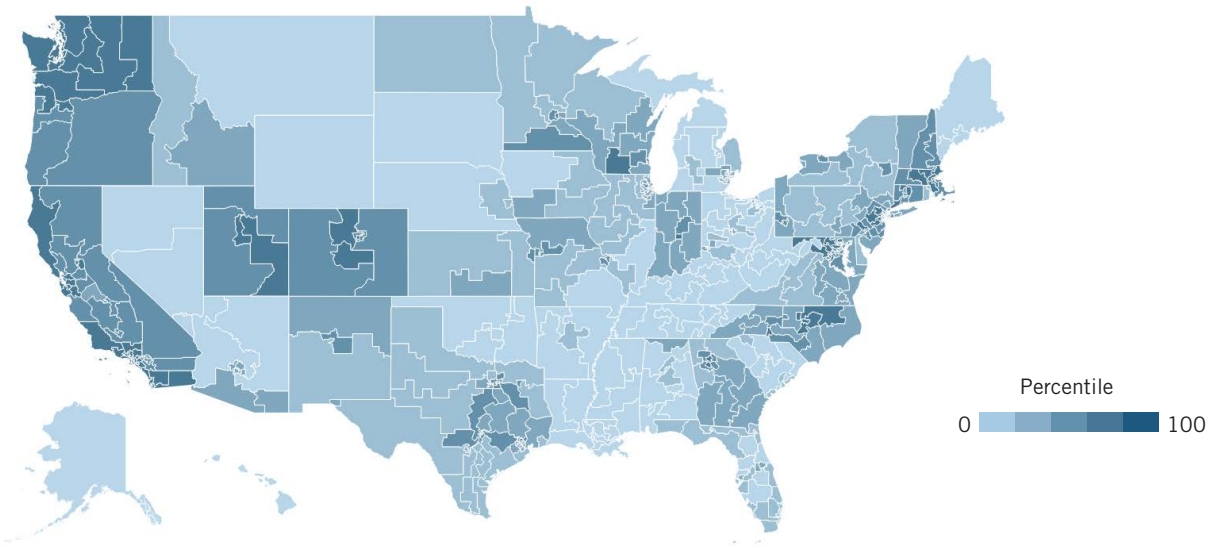


Rank	District	Value	Rank	District	Value
1	Wyoming At-Large	90.4%	26	Texas 32	59.1%
2	California 14	80.5%	27	Texas 30	57.7%
3	Virginia 11	80.3%	28	Massachusetts 7	57.3%
4	Texas 3	78.7%	29	Texas 36	55.9%
5	New Mexico 3	75.6%	30	Virginia 8	55.4%
6	Vermont At-Large	74.7%	31	Colorado 2	55.3%
7	Oregon 1	71.9%	32	New Jersey 7	54.7%
8	Texas 4	70.8%	33	Massachusetts 5	54.3%
9	California 18	70.1%	34	Colorado 5	54.0%
10	California 19	69.9%	35	North Carolina 2	53.7%
11	Indiana 7	65.7%	36	Texas 10	53.6%
12	New Jersey 6	65.4%	37	Texas 22	53.5%
13	Pennsylvania 4	62.5%	38	Texas 15	53.2%
14	California 17	62.4%	39	Delaware At-Large	53.0%
15	New Mexico 1	62.2%	40	Oregon 5	52.6%
16	Idaho 2	62.2%	41	Georgia 7	52.6%
17	Pennsylvania 1	62.0%	42	Florida 10	52.5%
18	North Carolina 4	62.0%	43	Maryland 4	52.3%
19	Idaho 1	60.4%	44	Massachusetts 6	52.1%
20	Florida 8	60.2%	45	Texas 35	52.0%
21	Texas 17	60.2%	46	Massachusetts 3	50.2%
22	Illinois 10	60.1%	47	Florida 13	50.0%
23	New Jersey 12	59.9%	48	New Jersey 11	49.7%
24	North Carolina 1	59.6%	49	New York 19	49.5%
25	Texas 25	59.4%	50	Maine 1	49.5%
				U.S. Average District	29.0%
				U.S. Median District	28.1%

IT SERVICES EXPORTS

TOP DISTRICTS

Gross Value From Telecommunications, Computer, and Information Services Exports

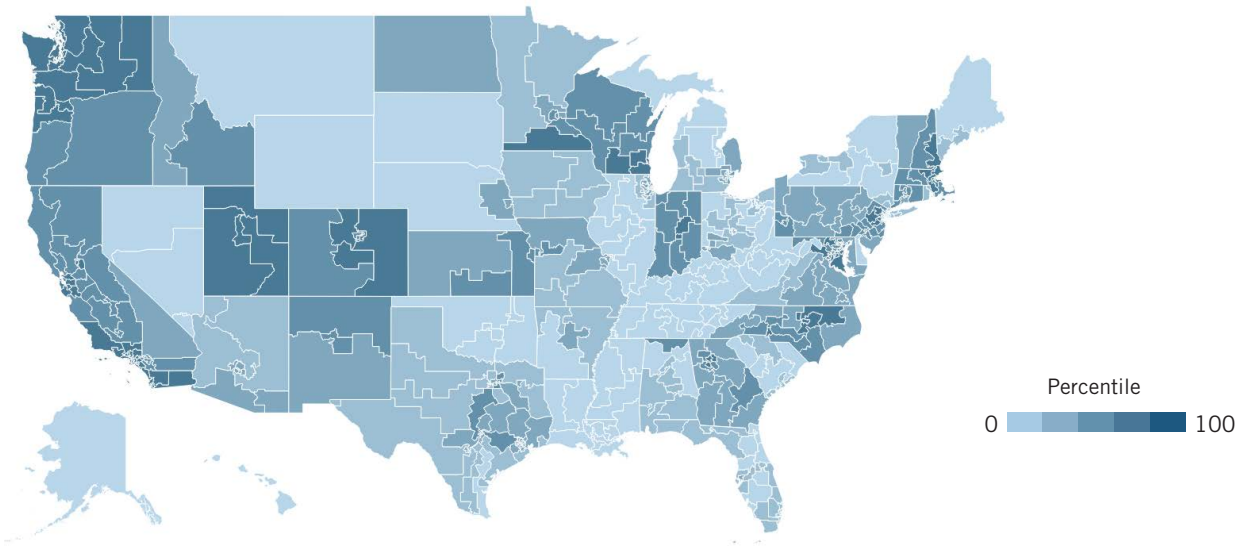


Rank	District	Value (Millions)	Rank	District	Value (Millions)
1	Washington 9	$3,515	26	California 50	$865
2	Washington 7	$3,428	27	Georgia 5	$850
3	California 12	$3,169	28	North Carolina 4	$815
4	Washington 8	$2,301	29	New York 10	$814
5	California 19	$2,033	30	Georgia 6	$797
6	Massachusetts 7	$1,939	31	Massachusetts 6	$790
7	Washington 1	$1,902	32	Virginia 11	$785
8	Massachusetts 5	$1,865	33	California 39	$777
9	California 14	$1,863	34	Colorado 1	$771
10	California 18	$1,848	35	DC At-Large	$766
11	California 17	$1,788	36	North Carolina 12	$755
12	Massachusetts 3	$1,197	37	California 47	$745
13	California 13	$1,074	38	California 51	$745
14	New York 12	$1,025	39	Washington 2	$738
15	California 15	$1,018	40	Washington 5	$727
16	New York 13	$1,006	41	Washington 3	$685
17	Virginia 8	$953	42	Oregon 1	$680
18	California 52	$951	43	Massachusetts 4	$674
19	California 53	$951	44	Washington 4	$636
20	California 45	$948	45	California 7	$628
21	California 46	$948	46	California 6	$615
22	California 48	$948	47	California 38	$614
23	California 49	$948	48	California 28	$610
24	Massachusetts 8	$895	49	California 29	$610
25	Oregon 3	$868	50	California 32	$610
				U.S. Average District	$279
				U.S. Median District	$139

IT SHARE OF ALL SERVICES EXPORTS

TOP DISTRICTS

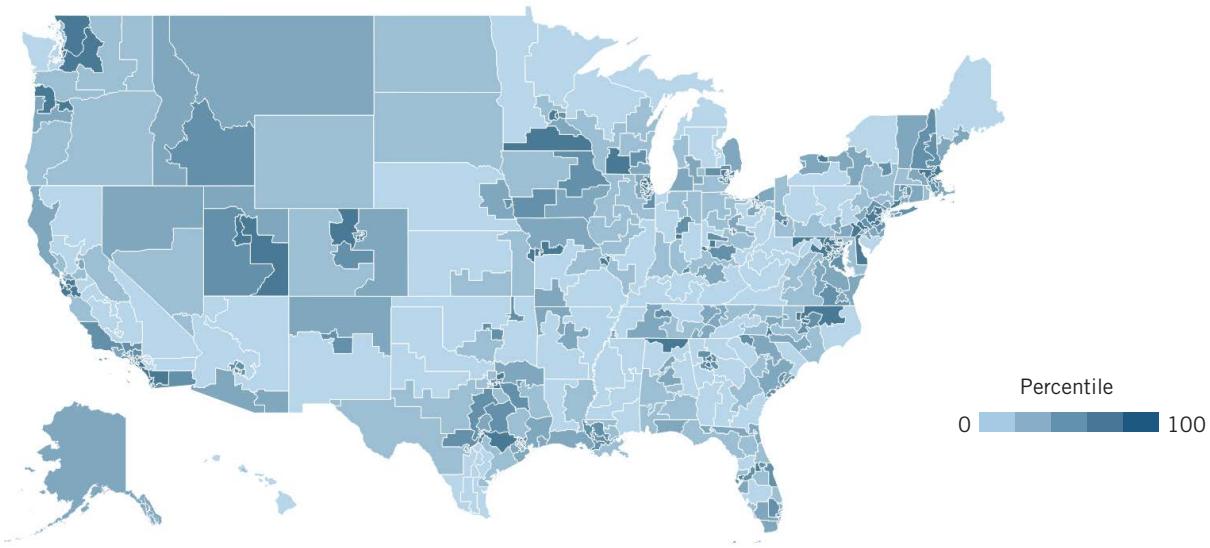
Telecommunications, Computer, and Information Services Exports as a Share of All Services Exports



Rank	District	Value	Rank	District	Value
1	Washington 9	67.3%	26	California 49	33.5%
2	Washington 7	67.3%	27	California 50	33.4%
3	Washington 8	62.2%	28	Oregon 1	33.2%
4	Washington 1	61.8%	29	California 51	32.7%
5	Washington 2	49.2%	30	Utah 3	32.4%
6	Washington 3	46.6%	31	Oregon 3	31.5%
7	Washington 4	46.0%	32	North Carolina 2	30.7%
8	California 19	45.8%	33	Massachusetts 7	30.7%
9	California 18	44.3%	34	California 45	30.5%
10	California 17	44.3%	35	California 46	30.5%
11	California 12	44.2%	36	California 48	30.5%
12	California 14	41.9%	37	Wisconsin 5	30.4%
13	Washington 5	40.9%	38	North Carolina 1	30.3%
14	Wisconsin 2	40.5%	39	California 26	29.9%
15	Massachusetts 5	39.9%	40	Utah 4	29.7%
16	Washington 10	39.5%	41	Virginia 10	29.2%
17	Washington 6	38.8%	42	Colorado 2	28.7%
18	Virginia 11	38.0%	43	Indiana 7	28.7%
19	California 13	37.3%	44	New Jersey 6	28.7%
20	California 15	36.4%	45	Colorado 6	28.6%
21	Virginia 8	35.6%	46	Maryland 8	28.1%
22	North Carolina 4	35.4%	47	Massachusetts 6	28.1%
23	Massachusetts 3	35.0%	48	California 39	28.0%
24	California 52	34.6%	49	California 7	28.0%
25	California 53	34.6%	50	Indiana 5	27.9%
				U.S. Average District	14.1%
				U.S. Median District	10.8%

HIGH-TECH SECTOR WORKERS

Employment Across Seven High-Tech Industry Sectors

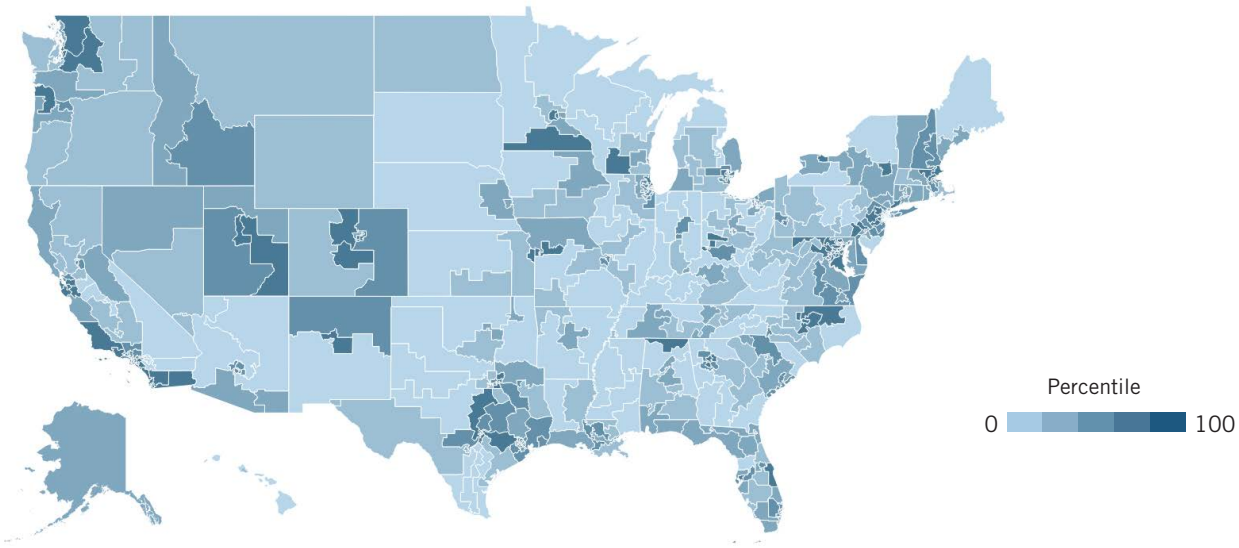


Rank	District	Workers	Rank	District	Workers
1	Virginia 8	154,329	26	Texas 3	61,961
2	California 12	154,244	27	North Carolina 4	61,378
3	New York 12	153,508	28	New Jersey 6	60,857
4	New York 13	150,659	29	Pennsylvania 4	59,530
5	Virginia 11	127,529	30	Maryland 8	58,346
6	New York 10	121,909	31	Maryland 3	58,331
7	California 19	120,590	32	New Jersey 7	57,541
8	DC At-Large	117,465	33	Colorado 2	57,451
9	California 14	112,412	34	Kansas 3	57,163
10	California 18	110,686	35	Missouri 1	56,693
11	California 17	103,639	36	North Carolina 12	56,214
12	Massachusetts 5	99,320	37	Alabama 5	55,424
13	Massachusetts 7	97,973	38	California 13	54,249
14	Virginia 10	88,890	39	New Jersey 11	54,038
15	Georgia 5	80,908	40	Colorado 6	54,017
16	Washington 9	78,667	41	Oregon 1	53,747
17	Washington 7	76,992	42	Utah 4	52,470
18	Georgia 6	76,355	43	Michigan 11	52,126
19	Minnesota 5	72,266	44	Massachusetts 6	51,253
20	Minnesota 3	69,347	45	California 15	51,243
21	Massachusetts 3	68,395	46	Washington 8	51,226
22	Colorado 1	67,346	47	Minnesota 1	51,025
23	Texas 30	63,566	48	Maryland 7	50,747
24	Texas 32	63,489	49	Indiana 7	50,621
25	New Jersey 12	63,433	50	Wisconsin 2	50,209
				U.S. Average District	29,657
				U.S. Median District	24,124

HIGH-TECH SHARE OF TOTAL WORKFORCE

TOP DISTRICTS

Employment Across Seven High-Tech Industry Sectors as a Share of Total Workforce

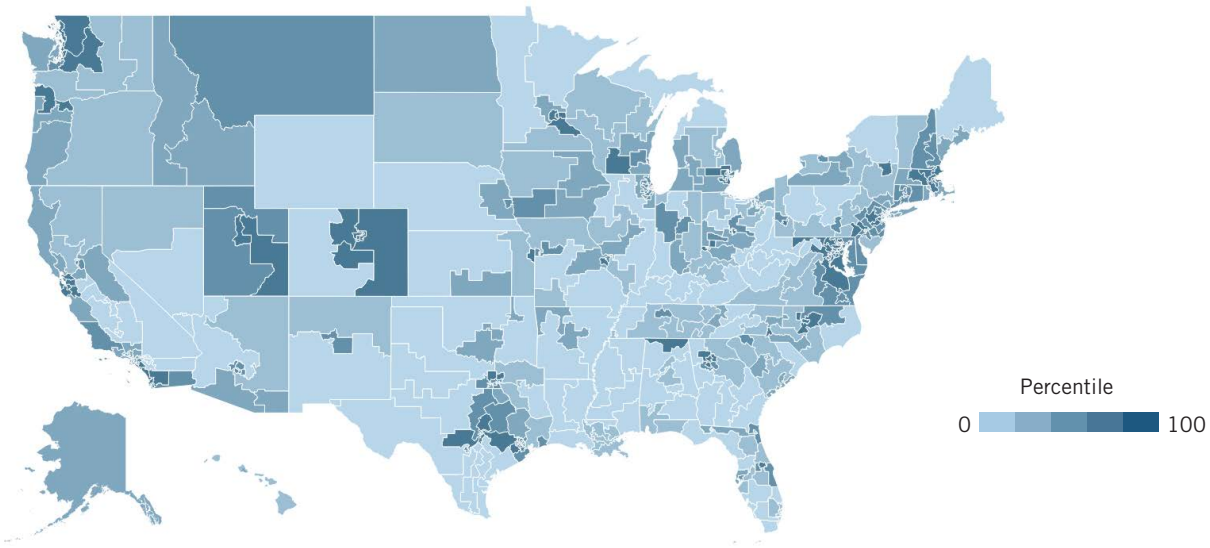


Rank	District	Value	Rank	District	Value
1	Virginia 8	34.9%	26	Minnesota 1	16.8%
2	Virginia 11	34.4%	27	Georgia 6	16.8%
3	California 19	28.9%	28	Texas 3	16.5%
4	California 18	28.0%	29	New Jersey 7	16.5%
5	California 14	27.7%	30	California 15	16.5%
6	California 12	27.0%	31	California 52	16.3%
7	California 17	26.4%	32	California 53	16.3%
8	Virginia 10	25.0%	33	Colorado 2	16.1%
9	DC At-Large	22.3%	34	Maryland 6	15.7%
10	Massachusetts 5	22.1%	35	Colorado 6	15.7%
11	Alabama 5	21.0%	36	Massachusetts 6	15.7%
12	Maryland 8	19.2%	37	New Jersey 11	15.6%
13	New York 13	19.0%	38	Maryland 5	15.6%
14	New York 12	18.9%	39	California 49	15.6%
15	Washington 9	18.9%	40	California 50	15.5%
16	Massachusetts 3	18.8%	41	Maryland 4	15.3%
17	Washington 7	18.7%	42	New Mexico 1	15.2%
18	New Jersey 6	18.2%	43	Washington 8	15.1%
19	New York 10	18.2%	44	Michigan 9	14.9%
20	Georgia 5	17.2%	45	Utah 3	14.9%
21	New Jersey 12	17.2%	46	Illinois 10	14.9%
22	Maryland 3	17.2%	47	Michigan 11	14.8%
23	Massachusetts 7	16.9%	48	Oregon 1	14.7%
24	California 13	16.9%	49	California 51	14.7%
25	North Carolina 4	16.9%	50	Minnesota 3	14.7%
				U.S. Average District	9.7%
				U.S. Median District	8.9%

STEM WORKERS

TOP DISTRICTS

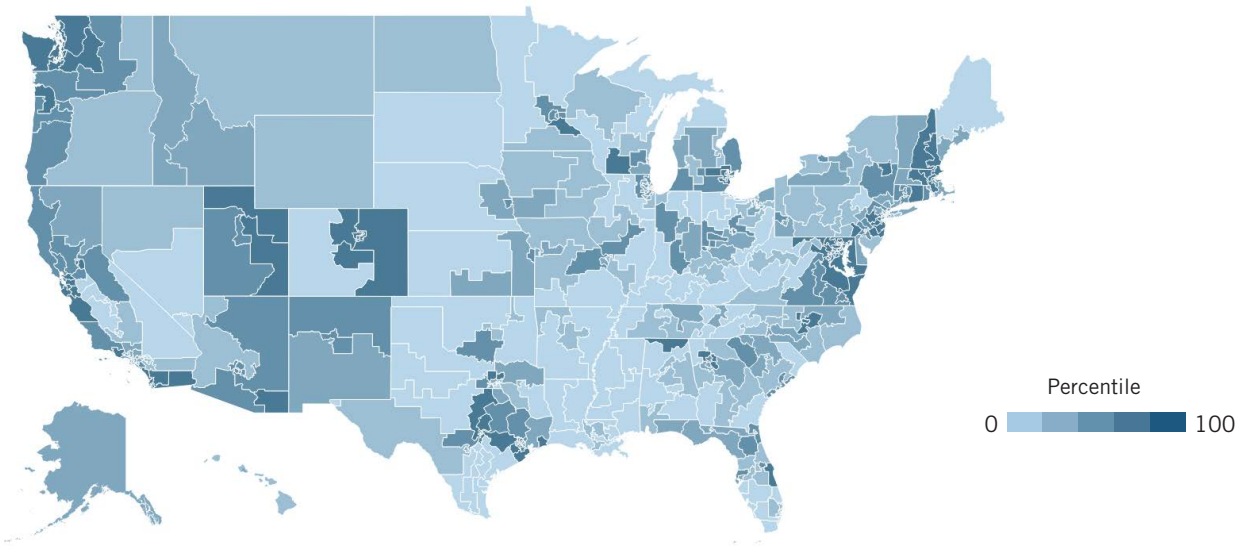
Employment in Science, Technology, Engineering, and Mathematics Occupations



Rank	District	Workers	Rank	District	Workers
1	California 19	75,647	26	Colorado 1	39,535
2	California 17	70,388	27	Maryland 5	39,231
3	California 18	67,973	28	Texas 22	38,868
4	Virginia 8	66,138	29	Washington 1	38,854
5	Virginia 10	59,683	30	New Jersey 6	37,018
6	Texas 3	58,499	31	Colorado 6	36,934
7	Massachusetts 5	56,659	32	North Carolina 2	36,482
8	California 12	56,316	33	Texas 26	36,001
9	North Carolina 4	56,306	34	New Jersey 12	35,963
10	Washington 9	56,008	35	Minnesota 5	35,735
11	Washington 7	55,770	36	Pennsylvania 4	34,774
12	Virginia 11	55,084	37	Massachusetts 6	34,515
13	California 13	55,033	38	Minnesota 3	34,445
14	Maryland 8	52,472	39	Michigan 11	33,719
15	California 15	52,282	40	New Jersey 7	33,640
16	California 14	50,575	41	Maryland 7	33,172
17	Colorado 2	47,536	42	Maryland 4	33,127
18	Oregon 1	46,044	43	Colorado 7	32,694
19	DC At-Large	44,924	44	Massachusetts 8	32,599
20	Massachusetts 3	44,162	45	Massachusetts 4	32,494
21	Massachusetts 7	42,738	46	Alabama 5	32,470
22	Maryland 6	41,068	47	Georgia 6	32,216
23	Wisconsin 2	40,439	48	Michigan 8	32,103
24	Maryland 3	40,127	49	Kansas 3	32,068
25	Washington 8	39,646	50	Oregon 3	31,997
				U.S. Average District	19,910
				U.S. Median District	17,151

STEM SHARE OF TOTAL WORKFORCE

Employment in Science, Technology, Engineering, and Mathematics Occupations as a Share of Total Workforce

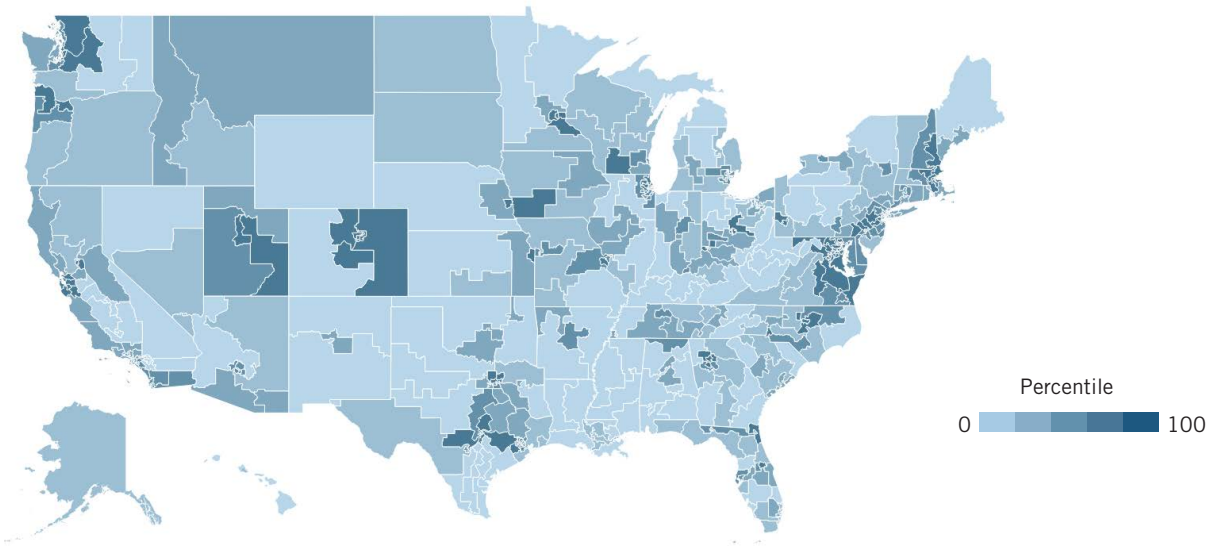


Rank	District	Value	Rank	District	Value
1	Maryland 5	18.7%	26	Colorado 4	12.5%
2	California 19	18.1%	27	California 14	12.5%
3	California 17	17.9%	28	Washington 1	12.4%
4	Texas 22	17.4%	29	Alabama 5	12.3%
5	Maryland 8	17.3%	30	Massachusetts 3	12.1%
6	California 18	17.2%	31	Colorado 7	11.9%
7	California 13	17.1%	32	Maryland 3	11.8%
8	California 15	16.8%	33	Washington 2	11.8%
9	Virginia 10	16.8%	34	Washington 8	11.7%
10	Texas 3	15.6%	35	New Jersey 6	11.1%
11	North Carolina 4	15.5%	36	Colorado 6	10.7%
12	Virginia 8	15.0%	37	Wisconsin 2	10.7%
13	Virginia 11	14.9%	38	California 52	10.6%
14	Texas 26	14.5%	39	California 53	10.6%
15	Maryland 6	13.6%	40	Minnesota 2	10.6%
16	Washington 7	13.6%	41	California 6	10.6%
17	Washington 9	13.4%	42	Massachusetts 6	10.6%
18	Maryland 4	13.4%	43	California 7	10.5%
19	Colorado 2	13.3%	44	Michigan 8	10.5%
20	North Carolina 2	13.2%	45	Georgia 7	10.4%
21	Virginia 1	13.2%	46	California 50	10.2%
22	California 11	12.8%	47	New Jersey 8	10.1%
23	Texas 31	12.7%	48	Washington 10	10.0%
24	Oregon 1	12.6%	49	Maryland 2	10.0%
25	Massachusetts 5	12.6%	50	Virginia 2	10.0%
				U.S. Average District	6.9%
				U.S. Median District	6.2%

COMPUTER AND MATH WORKERS

Employment in Computer and Mathematics Occupations

TOP DISTRICTS

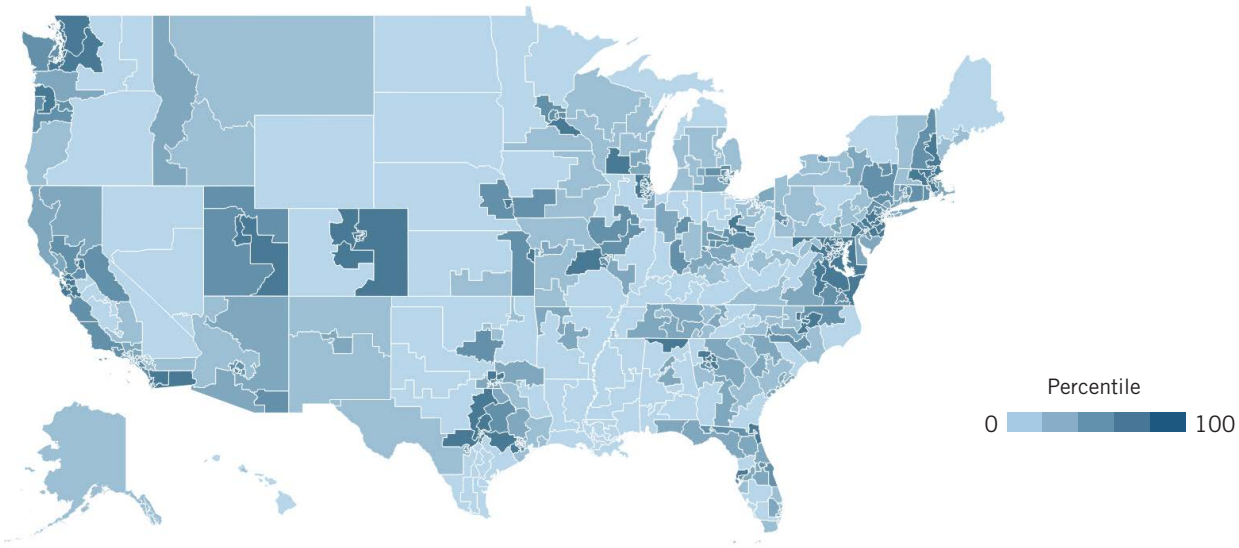


Rank	District	Workers	Rank	District	Workers
1	Virginia 8	46,506	26	Texas 26	23,187
2	California 19	46,417	27	Colorado 1	22,666
3	Virginia 10	42,828	28	Colorado 6	22,423
4	California 17	42,658	29	Oregon 1	22,096
5	California 18	41,298	30	Colorado 2	22,058
6	Texas 3	40,490	31	Massachusetts 3	22,014
7	Virginia 11	39,267	32	North Carolina 2	21,867
8	Washington 9	37,707	33	Maryland 4	21,557
9	Washington 7	37,260	34	Minnesota 5	21,554
10	California 12	36,762	35	Georgia 6	21,526
11	North Carolina 4	32,327	36	North Carolina 12	21,432
12	California 13	31,690	37	Massachusetts 7	20,827
13	California 14	30,801	38	Minnesota 3	20,614
14	California 15	30,085	39	Georgia 7	19,929
15	Maryland 8	29,747	40	New Jersey 7	19,848
16	Massachusetts 5	27,626	41	Texas 31	19,723
17	DC At-Large	25,973	42	Georgia 11	19,649
18	Washington 8	25,655	43	Pennsylvania 4	19,561
19	Maryland 5	24,932	44	Virginia 1	19,482
20	New Jersey 6	24,777	45	Maryland 7	19,366
21	Wisconsin 2	24,479	46	Kansas 3	19,295
22	New Jersey 12	24,054	47	Georgia 5	19,198
23	Maryland 3	23,601	48	Minnesota 2	18,896
24	Washington 1	23,555	49	Utah 3	18,778
25	Maryland 6	23,455	50	Pennsylvania 6	18,758
				U.S. Average District	10,588
				U.S. Median District	8,513

COMPUTER AND MATH SHARE OF WORKFORCE

TOP DISTRICTS

Employment in Computer and Mathematics Occupations as a Share of Total Workforce

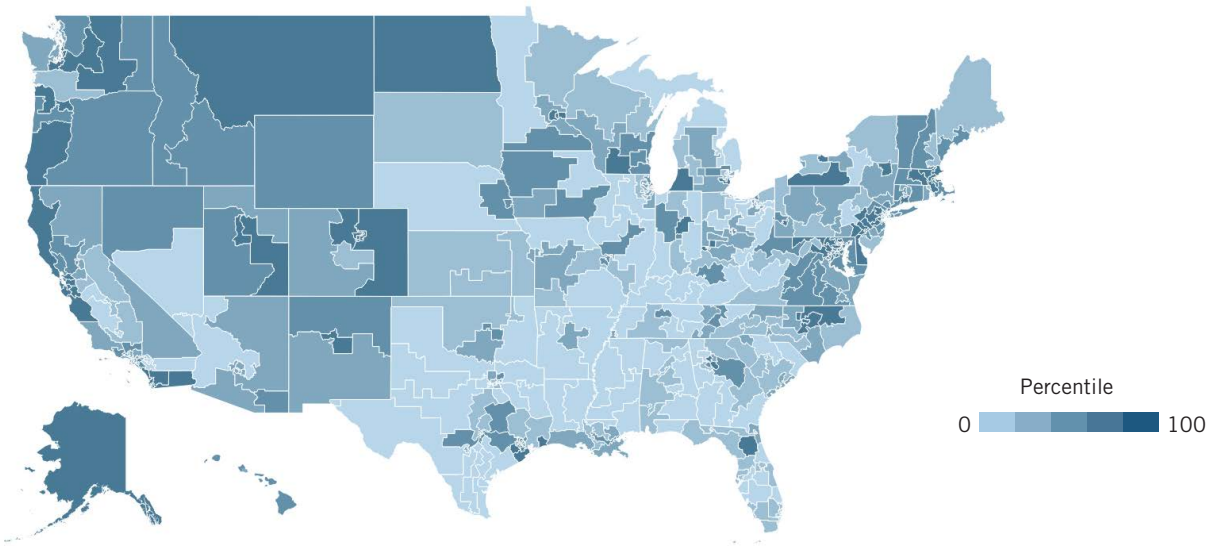


Rank	District	Value	Rank	District	Value
1	Virginia 10	12.0%	26	California 11	7.3%
2	Maryland 5	11.9%	27	Georgia 7	7.0%
3	California 19	11.1%	28	Maryland 3	7.0%
4	California 17	10.9%	29	New Jersey 8	6.8%
5	Texas 3	10.8%	30	Georgia 11	6.8%
6	Virginia 11	10.6%	31	Minnesota 2	6.7%
7	Virginia 8	10.5%	32	Colorado 4	6.6%
8	California 18	10.4%	33	New Jersey 12	6.5%
9	California 13	9.9%	34	Colorado 6	6.5%
10	Maryland 8	9.8%	35	California 7	6.5%
11	California 15	9.7%	36	Wisconsin 2	6.5%
12	Texas 26	9.3%	37	California 12	6.4%
13	Washington 7	9.1%	38	California 6	6.4%
14	Washington 9	9.0%	39	Utah 3	6.2%
15	Virginia 1	9.0%	40	Colorado 2	6.2%
16	North Carolina 4	8.9%	41	Massachusetts 5	6.1%
17	Maryland 4	8.7%	42	New York 9	6.1%
18	Texas 31	8.2%	43	New York 8	6.1%
19	North Carolina 2	7.9%	44	Washington 2	6.1%
20	Maryland 6	7.8%	45	Oregon 1	6.1%
21	California 14	7.6%	46	Massachusetts 3	6.0%
22	Washington 8	7.6%	47	Colorado 7	6.0%
23	Washington 1	7.5%	48	Colorado 5	6.0%
24	New Jersey 6	7.4%	49	Maryland 2	5.8%
25	Texas 22	7.4%	50	New York 11	5.8%
				U.S. Average District	3.6%
				U.S. Median District	3.2%

SCIENCE AND ENGINEERING WORKERS

TOP DISTRICTS

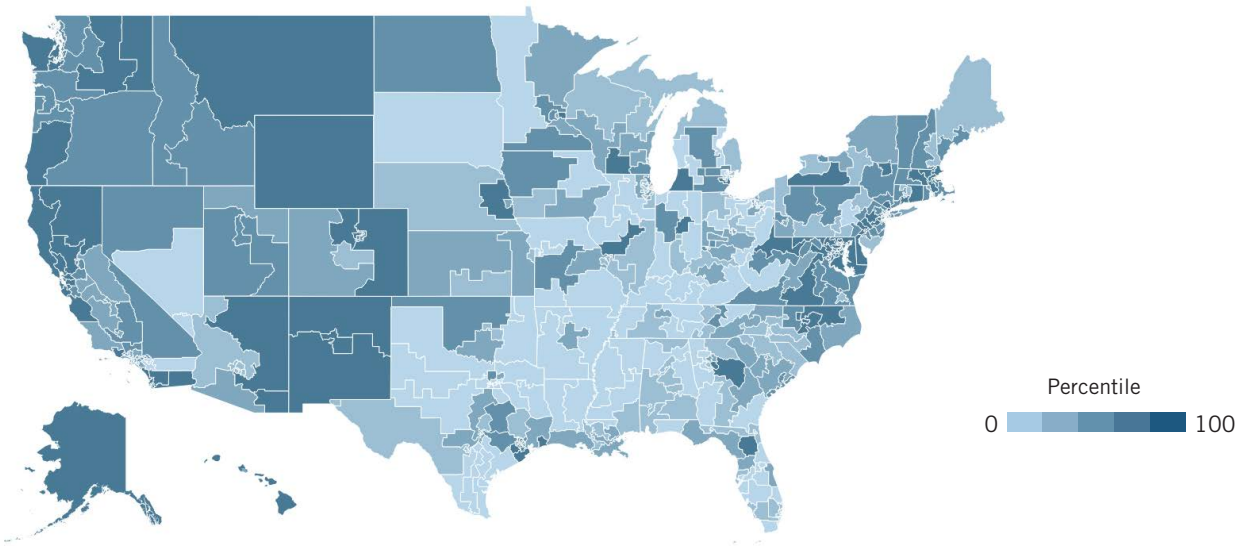
Employment in Science and Engineering Occupations



Rank	District	Workers	Rank	District	Workers
1	Massachusetts 5	15,646	26	California 52	6,026
2	Maryland 8	13,895	27	California 53	6,026
3	DC At-Large	13,282	28	Montana At-Large	5,917
4	Massachusetts 7	12,800	29	Colorado 1	5,891
5	North Carolina 4	11,060	30	Virginia 11	5,818
6	Maryland 6	10,750	31	North Carolina 2	5,808
7	Massachusetts 3	10,552	32	Minnesota 4	5,786
8	Colorado 2	10,510	33	New York 13	5,778
9	California 14	9,408	34	North Carolina 1	5,743
10	Virginia 8	9,345	35	Virginia 10	5,659
11	California 13	8,574	36	Delaware At-Large	5,541
12	California 15	8,149	37	Oregon 3	5,533
13	Massachusetts 8	7,994	38	New York 20	5,461
14	Pennsylvania 4	7,875	39	California 50	5,438
15	Wisconsin 2	7,830	40	New Jersey 12	5,411
16	California 12	7,636	41	California 19	5,401
17	Maryland 3	7,596	42	California 49	5,364
18	Massachusetts 6	7,224	43	New York 10	5,350
19	New Jersey 7	6,963	44	New Mexico 1	5,308
20	Texas 22	6,944	45	Connecticut 3	5,229
21	Massachusetts 4	6,833	46	Maryland 2	5,175
22	Maryland 7	6,282	47	Pennsylvania 1	5,165
23	California 17	6,214	48	California 2	5,139
24	California 18	6,189	49	Colorado 7	5,131
25	New York 12	6,053	50	Michigan 12	5,125
				U.S. Average District	2,999
				U.S. Median District	2,494

SCIENCE AND ENGINEERING SHARE OF TOTAL WORKFORCE

Employment in Science and Engineering Occupations as a Share of Total Workforce

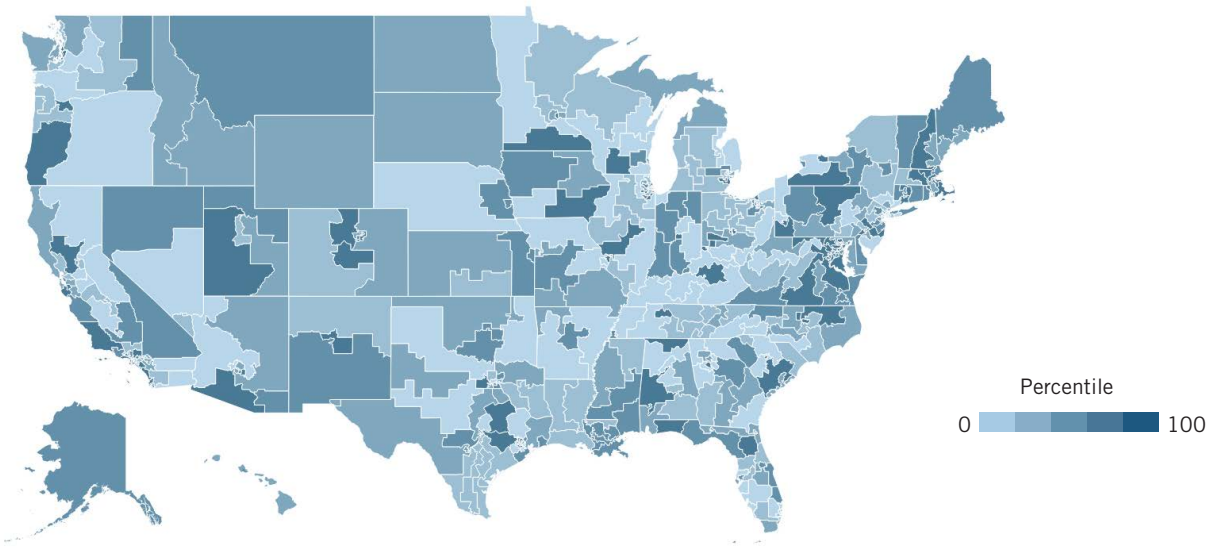


Rank	District	Value	Rank	District	Value
1	Maryland 8	4.6%	26	Wisconsin 2	2.1%
2	Maryland 6	3.6%	27	Massachusetts 8	2.0%
3	Massachusetts 5	3.5%	28	Massachusetts 4	2.0%
4	Texas 22	3.1%	29	Oregon 4	2.0%
5	North Carolina 4	3.0%	30	Washington 10	2.0%
6	Colorado 2	2.9%	31	New Mexico 1	2.0%
7	Massachusetts 3	2.9%	32	California 11	2.0%
8	California 13	2.7%	33	New Jersey 7	2.0%
9	California 15	2.6%	34	California 50	2.0%
10	DC At-Large	2.5%	35	North Carolina 1	1.9%
11	Washington 4	2.4%	36	Michigan 12	1.9%
12	California 14	2.3%	37	Colorado 7	1.9%
13	Maryland 3	2.2%	38	California 51	1.8%
14	California 2	2.2%	39	Connecticut 3	1.8%
15	Massachusetts 6	2.2%	40	Colorado 4	1.8%
16	Massachusetts 7	2.2%	41	Maryland 7	1.8%
17	New York 23	2.2%	42	California 49	1.8%
18	Florida 3	2.1%	43	Pennsylvania 4	1.8%
19	California 3	2.1%	44	Virginia 5	1.8%
20	Virginia 8	2.1%	45	New York 20	1.8%
21	North Carolina 2	2.1%	46	Georgia 4	1.8%
22	California 52	2.1%	47	Michigan 6	1.7%
23	California 53	2.1%	48	Maryland 2	1.7%
24	Texas 14	2.1%	49	Pennsylvania 1	1.7%
25	California 20	2.1%	50	Maryland 4	1.7%
				U.S. Average District	1.0%
				U.S. Median District	0.9%

PUBLIC R&D FUNDING

TOP DISTRICTS

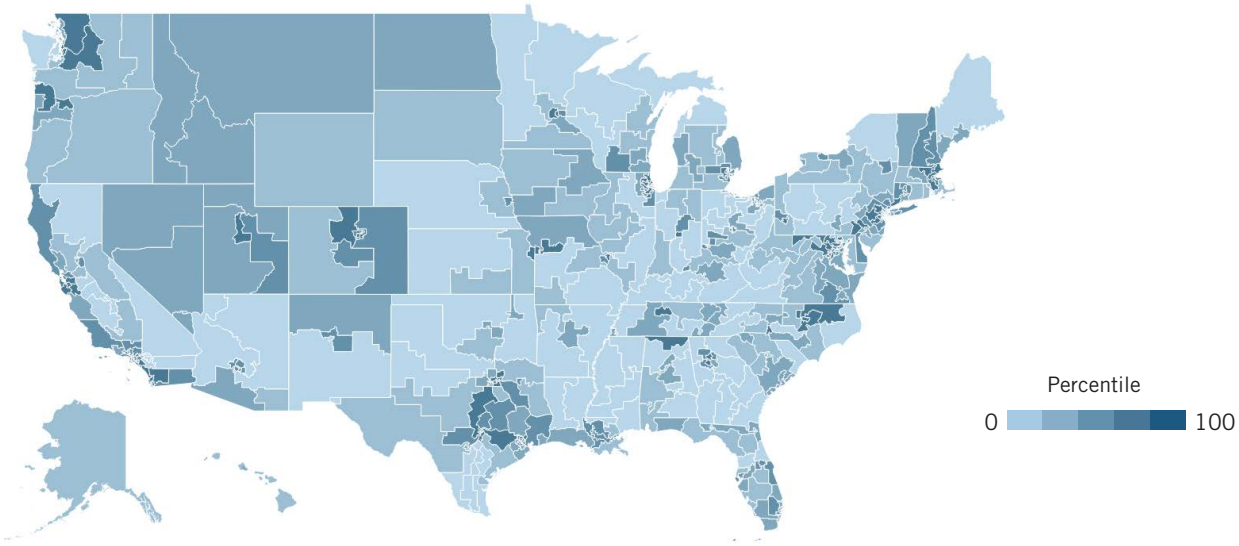
Gross Value of Federal R&D Outlays From the DOA, DOD, DOE, DHHS, NASA, and NSF in FY 2018 and 2019



Rank	District	Value (Billions)	Rank	District	Value (Billions)
1	California 27	$23.17	26	Maryland 6	$1.79
2	Alabama 5	$7.69	27	Washington 9	$1.77
3	Virginia 11	$6.65	28	California 12	$1.72
4	Massachusetts 5	$6.52	29	California 18	$1.67
5	Maryland 3	$6.00	30	Michigan 12	$1.61
6	Massachusetts 7	$5.06	31	Pennsylvania 14	$1.60
7	Colorado 5	$3.44	32	Missouri 1	$1.54
8	Virginia 8	$3.27	33	Ohio 3	$1.53
9	California 52	$3.12	34	North Carolina 1	$1.51
10	Maryland 5	$2.72	35	California 17	$1.47
11	Washington 7	$2.65	36	California 49	$1.40
12	DC At-Large	$2.58	37	Illinois 7	$1.35
13	Georgia 5	$2.40	38	Colorado 2	$1.32
14	Maryland 7	$2.40	39	New Mexico 1	$1.31
15	New York 13	$2.13	40	Virginia 10	$1.28
16	Maryland 8	$2.08	41	Connecticut 3	$1.24
17	Texas 12	$2.08	42	Texas 9	$1.21
18	Pennsylvania 2	$2.08	43	Arizona 3	$1.19
19	North Carolina 4	$2.06	44	Massachusetts 8	$1.17
20	California 33	$2.02	45	Wisconsin 2	$1.07
21	Maryland 2	$1.98	46	Tennessee 5	$1.05
22	New Jersey 3	$1.93	47	Minnesota 5	$1.00
23	New York 12	$1.86	48	Texas 10	$0.97
24	Ohio 10	$1.81	49	Illinois 11	$0.93
25	Virginia 1	$1.79	50	California 13	$0.90
				U.S. Average District	$0.43
				U.S. Median District	$0.08

HIGH-TECH SECTOR WAGES

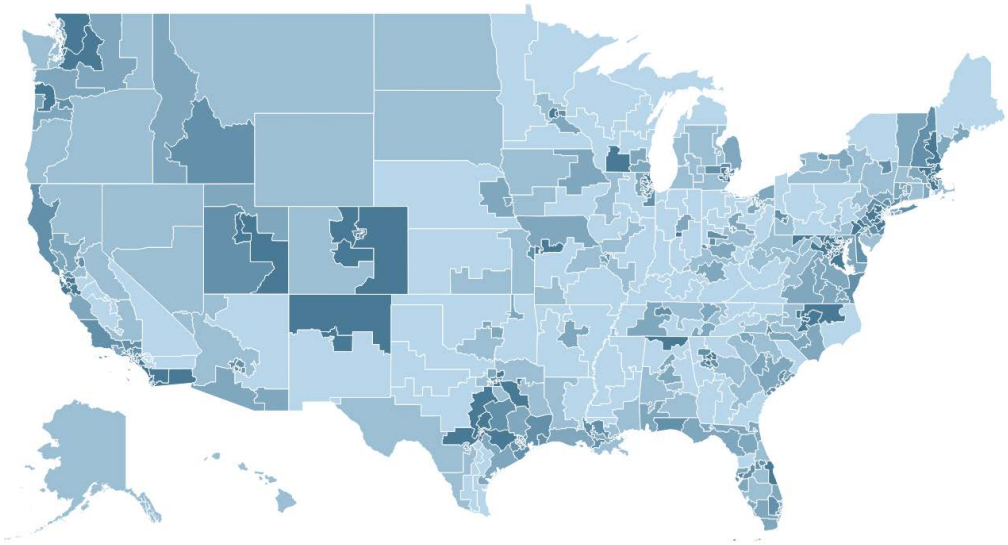
Total Annual Wages Earned by High-Tech Sector Workers



Rank	District	Value (Billions)	Rank	District	Value (Billions)
1	California 19	$35.6	26	Minnesota 5	$7.2
2	California 12	$30.7	27	New Jersey 7	$7.0
3	California 18	$30.3	28	Massachusetts 6	$6.9
4	California 17	$28.2	29	New Jersey 12	$6.8
5	New York 12	$23.7	30	Minnesota 3	$6.8
6	New York 13	$23.4	31	Oregon 1	$6.8
7	California 14	$20.2	32	Texas 3	$6.7
8	New York 10	$18.6	33	California 13	$6.7
9	Virginia 8	$15.9	34	Washington 1	$6.4
10	Massachusetts 5	$15.7	35	California 15	$6.2
11	Massachusetts 7	$14.4	36	New Jersey 11	$6.1
12	Washington 9	$13.5	37	Illinois 10	$5.8
13	Washington 7	$13.1	38	North Carolina 12	$5.8
14	Virginia 11	$11.8	39	Maryland 8	$5.6
15	Massachusetts 3	$10.1	40	Massachusetts 8	$5.5
16	Washington 8	$8.3	41	Colorado 6	$5.5
17	Colorado 1	$8.3	42	Texas 10	$5.5
18	Virginia 10	$8.2	43	Michigan 11	$5.1
19	Georgia 5	$8.2	44	Indiana 7	$5.1
20	Pennsylvania 4	$7.9	45	California 52	$5.0
21	Colorado 2	$7.5	46	California 53	$5.0
22	Texas 30	$7.5	47	New Jersey 6	$4.9
23	Georgia 6	$7.5	48	North Carolina 1	$4.9
24	Texas 32	$7.4	49	California 49	$4.9
25	North Carolina 4	$7.4	50	Oregon 3	$4.9
				U.S. Average District	$2.9
				U.S. Median District	$1.8

HIGH-TECH SECTOR SHARE OF WAGES

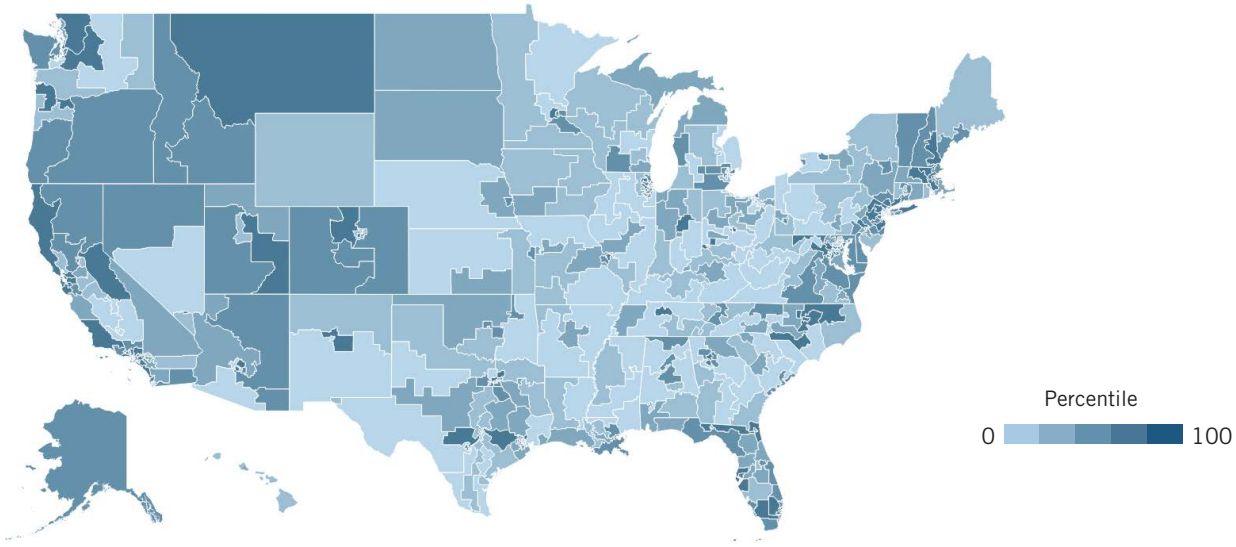
Annual Wages Earned by High-Tech Sector Workers as a Share of Total Wages



Rank	State	Value	Rank	State	Value
1	California 19	64.0%	26	California 13	28.1%
2	California 17	59.4%	27	New Jersey 7	28.0%
3	California 18	59.3%	28	New Jersey 12	27.9%
4	Virginia 8	46.9%	29	Washington 1	27.6%
5	Virginia 11	45.8%	30	California 15	27.4%
6	California 12	45.3%	31	California 49	27.4%
7	Massachusetts 5	41.9%	32	North Carolina 2	27.3%
8	California 14	40.0%	33	California 51	27.1%
9	DC At-Large	39.4%	34	Texas 25	26.9%
10	Massachusetts 3	38.2%	35	Massachusetts 7	26.8%
11	Virginia 10	37.2%	36	Maryland 6	26.5%
12	Colorado 2	36.3%	37	New Jersey 11	26.2%
13	Washington 9	35.8%	38	Colorado 5	25.7%
14	Washington 7	35.4%	39	Illinois 10	25.4%
15	North Carolina 4	34.1%	40	Texas 10	25.2%
16	Alabama 5	33.8%	41	Utah 3	25.1%
17	Maryland 8	32.1%	42	Florida 8	25.1%
18	Massachusetts 6	31.7%	43	New Mexico 1	25.0%
19	Washington 8	31.1%	44	New Jersey 6	24.8%
20	Texas 3	30.0%	45	Georgia 6	24.2%
21	North Carolina 1	29.9%	46	Texas 32	24.2%
22	California 52	29.7%	47	Georgia 5	24.1%
23	California 53	29.7%	48	Colorado 6	24.1%
24	Oregon 1	28.7%	49	Texas 35	24.1%
25	California 50	28.4%	50	New York 13	24.0%
				U.S. Average District	14.8%
				U.S. Median District	13.3%

HIGH-TECH START-UPS

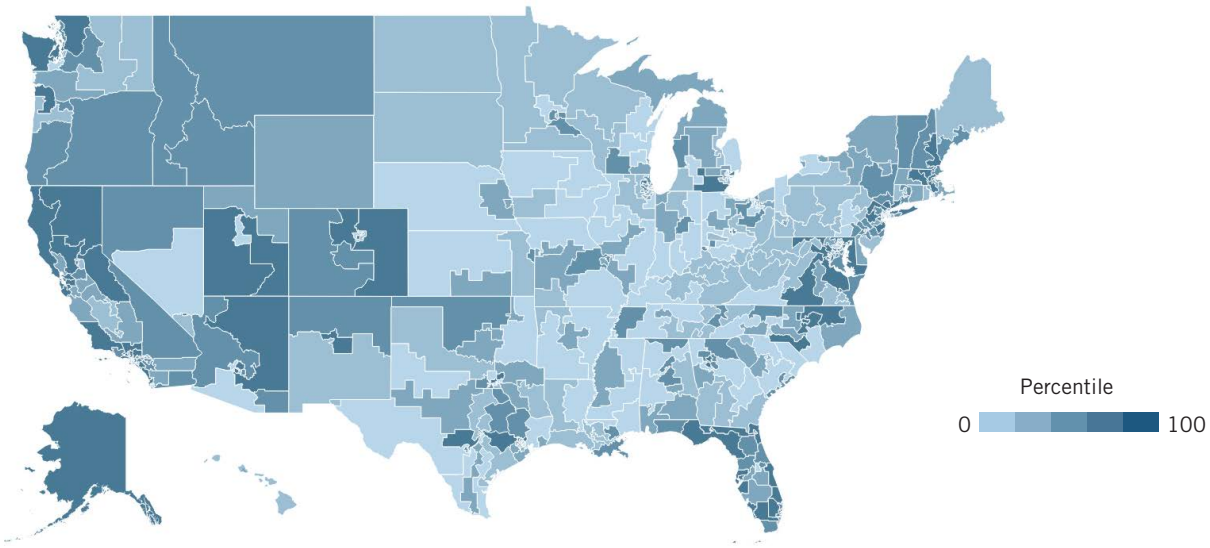
Number of High-Tech Start-Ups



Rank	District	Start-Ups	Rank	District	Start-Ups
1	California 17	2,766	26	Massachusetts 4	949
2	Virginia 10	1,933	27	California 28	947
3	California 12	1,878	28	Georgia 5	906
4	California 45	1,680	29	New Jersey 7	902
5	New York 10	1,554	30	Florida 20	878
6	California 33	1,547	31	Texas 21	874
7	Georgia 6	1,480	32	California 52	870
8	Colorado 1	1,451	33	Minnesota 3	863
9	California 49	1,417	34	California 11	862
10	Texas 2	1,313	35	New Hampshire 1	853
11	Texas 24	1,312	36	Massachusetts 3	838
12	Colorado 2	1,299	37	North Carolina 4	829
13	Massachusetts 5	1,296	38	Maryland 3	829
14	California 14	1,283	39	Florida 23	819
15	Virginia 8	1,274	40	California 15	808
16	Illinois 6	1,272	41	North Carolina 9	803
17	Washington 1	1,266	42	Illinois 7	801
18	California 18	1,259	43	Massachusetts 7	798
19	Washington 7	1,233	44	Nevada 1	747
20	Texas 3	1,141	45	New Jersey 5	739
21	Oregon 1	1,128	46	Utah 3	735
22	New York 12	1,111	47	New Jersey 6	735
23	Arizona 6	1,075	48	New York 7	730
24	Texas 10	1,028	49	California 2	730
25	Maryland 6	949	50	Michigan 9	726
				U.S. Average District	402
				U.S. Median District	295

HIGH-TECH START-UP DENSITY

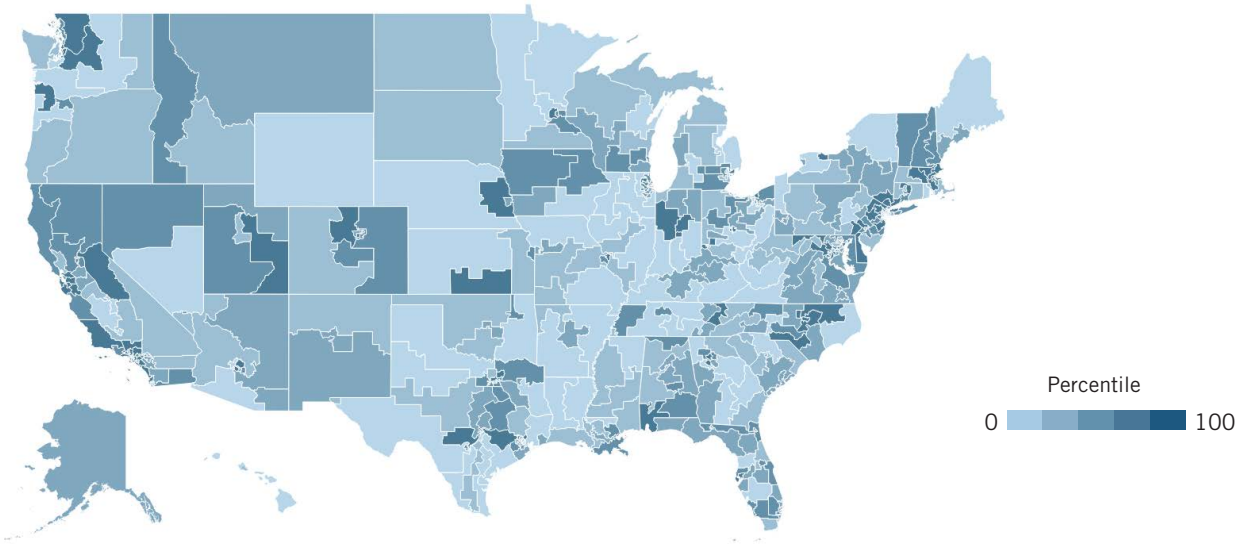
High-Tech Start-Ups Per 10,000 Workers



Rank	District	Start-Ups	Rank	District	Start-Ups
1	California 17	70.5	26	Washington 7	30.0
2	California 33	56.2	27	North Carolina 9	29.9
3	Virginia 10	54.3	28	Colorado 1	29.3
4	California 45	47.8	29	Florida 23	29.2
5	California 49	47.0	30	Virginia 8	28.8
6	Washington 1	40.3	31	Massachusetts 5	28.8
7	California 11	38.2	32	Florida 12	28.4
8	Texas 2	37.6	33	Massachusetts 4	28.3
9	Texas 24	36.7	34	Texas 21	27.6
10	Colorado 2	36.4	35	California 3	27.4
11	Illinois 6	34.9	36	California 27	26.9
12	Arizona 6	34.5	37	North Carolina 2	26.2
13	California 28	34.4	38	Washington 6	26.2
14	California 12	32.9	39	California 24	26.2
15	Georgia 6	32.5	40	California 15	26.0
16	California 18	31.8	41	California 4	25.9
17	California 14	31.6	42	New Jersey 7	25.8
18	Texas 10	31.6	43	Nevada 1	25.2
19	Maryland 6	31.5	44	Michigan 7	24.8
20	California 2	31.5	45	Virginia 1	24.7
21	Florida 20	31.4	46	New York 7	24.7
22	Oregon 1	30.9	47	Florida 18	24.6
23	Texas 3	30.5	48	Maryland 3	24.5
24	New Hampshire 1	30.3	49	Illinois 7	24.3
25	California 52	30.3	50	New Jersey 5	24.3
				U.S. Average District	13.8
				U.S. Median District	11.4

HIGH-TECH START-UP SALES

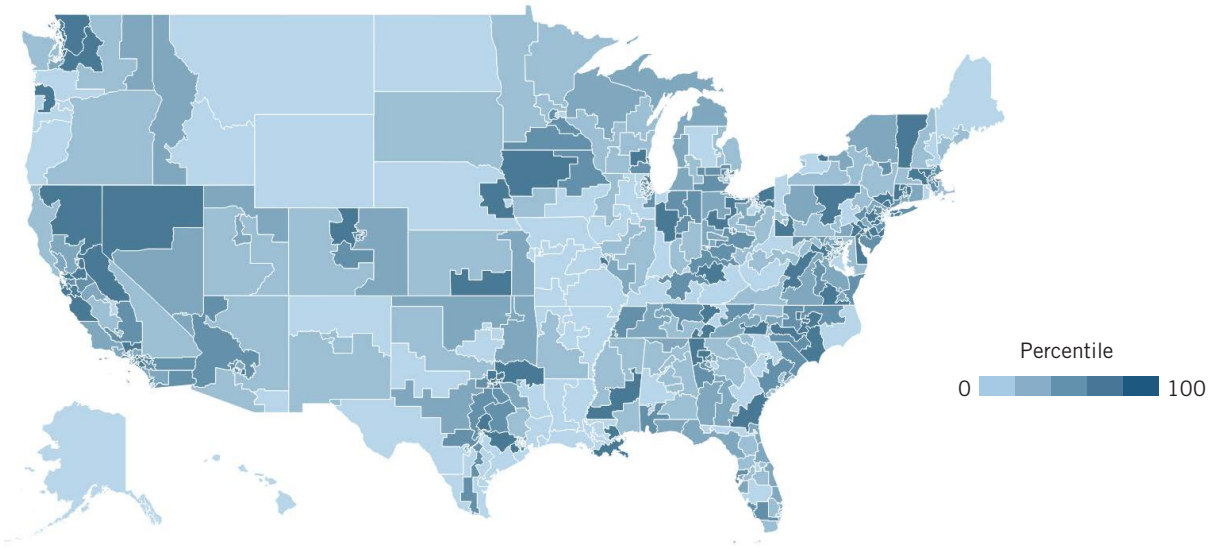
Annual Sales by High-Tech Start-Ups



Rank	District	Value (Millions)	Rank	District	Value (Millions)
1	California 17	$9,450	26	Texas 10	$2,137
2	California 45	$7,289	27	Washington 1	$2,069
3	Colorado 2	$5,600	28	Massachusetts 4	$2,051
4	Massachusetts 5	$4,159	29	Indiana 4	$2,046
5	Virginia 10	$4,005	30	Indiana 7	$2,008
6	Pennsylvania 4	$3,833	31	Maryland 6	$1,930
7	California 14	$3,798	32	New Jersey 7	$1,920
8	California 18	$3,539	33	California 15	$1,858
9	California 12	$3,395	34	Massachusetts 2	$1,820
10	North Carolina 2	$3,340	35	California 19	$1,799
11	California 49	$3,222	36	California 48	$1,788
12	California 33	$3,111	37	Texas 2	$1,783
13	New York 25	$2,985	38	California 11	$1,735
14	Oregon 1	$2,976	39	Minnesota 3	$1,700
15	New York 10	$2,858	40	California 52	$1,636
16	Texas 3	$2,835	41	Tennessee 2	$1,634
17	Georgia 6	$2,667	42	Massachusetts 7	$1,629
18	Massachusetts 3	$2,499	43	California 25	$1,626
19	Colorado 1	$2,359	44	Massachusetts 6	$1,610
20	Texas 24	$2,282	45	Washington 7	$1,607
21	Virginia 8	$2,255	46	North Carolina 9	$1,565
22	Illinois 6	$2,193	47	Texas 21	$1,518
23	North Carolina 4	$2,184	48	Washington 8	$1,481
24	New York 12	$2,166	49	New Jersey 6	$1,464
25	Connecticut 1	$2,156	50	Maryland 3	$1,454
				U.S. Average District	$690
				U.S. Median District	$398

HIGH-TECH START-UP SALES PER WORKER

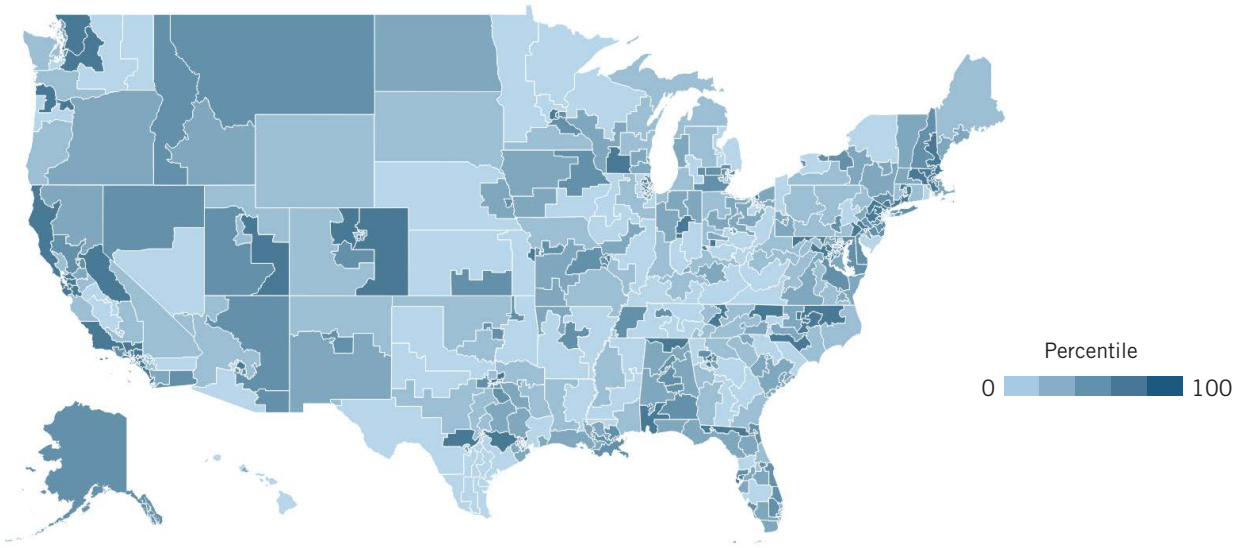
Annual Sales by High-Tech Start-Ups Per Worker Employed by High-Tech Start-Ups



Rank	District	Value	Rank	District	Value
1	New York 25	$905,000	26	Texas 22	$277,000
2	Indiana 4	$870,000	27	New Jersey 9	$273,000
3	North Carolina 2	$419,000	28	California 17	$269,000
4	Connecticut 1	$402,000	29	Delaware District 0	$268,000
5	Pennsylvania 4	$386,000	30	Ohio 4	$268,000
6	Colorado 2	$377,000	31	Massachusetts 2	$267,000
7	California 45	$374,000	32	Vermont 0	$266,000
8	Pennsylvania 12	$358,000	33	Missouri 2	$264,000
9	Oregon 1	$350,000	34	California 18	$263,000
10	Nebraska 1	$342,000	35	Illinois 10	$262,000
11	Texas 33	$337,000	36	Pennsylvania 6	$261,000
12	Texas 4	$304,000	37	Ohio 14	$260,000
13	California 19	$304,000	38	California 32	$259,000
14	Texas 32	$299,000	39	Louisiana 1	$257,000
15	California 47	$298,000	40	California 7	$251,000
16	California 20	$292,000	41	North Carolina 4	$250,000
17	Virginia 6	$291,000	42	California 41	$250,000
18	Washington 9	$287,000	43	Virginia 4	$250,000
19	Mississippi 3	$284,000	44	California 4	$249,000
20	New York 18	$284,000	45	Iowa 4	$248,000
21	Wisconsin 5	$282,000	46	North Carolina 10	$247,000
22	Washington 8	$280,000	47	Washington 2	$245,000
23	North Carolina 8	$279,000	48	Texas 3	$244,000
24	Indiana 7	$279,000	49	Pennsylvania 5	$243,000
25	Texas 31	$277,000	50	California 11	$242,000
				U.S. Average District	$186,000
				U.S. Median District	$176,000

HIGH-TECH START-UP EMPLOYMENT

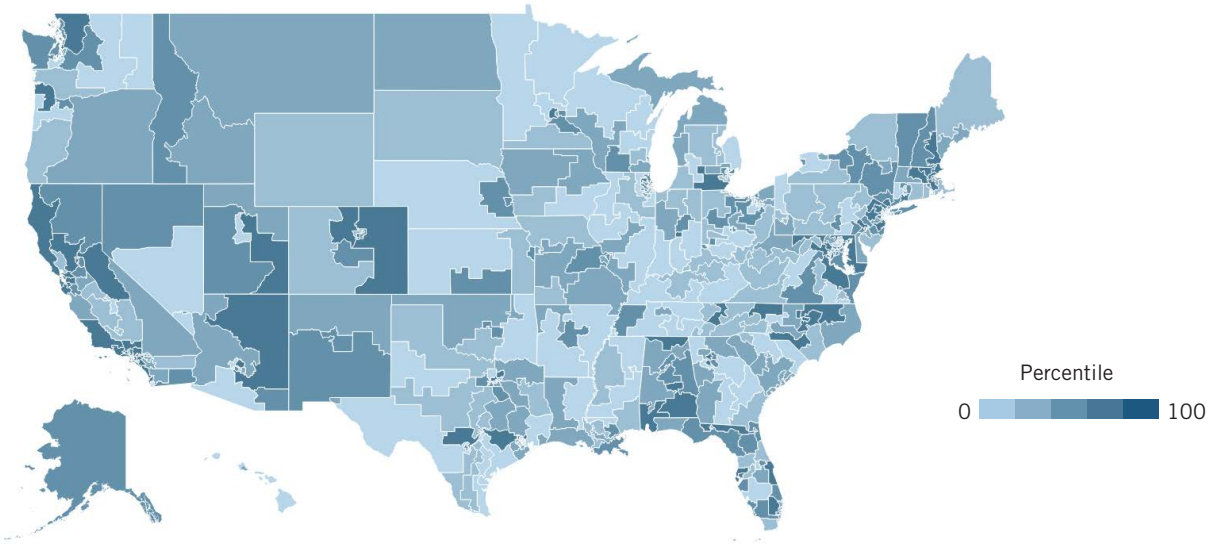
Number of Workers Employed at High-Tech Start-Ups



Rank	District	Workers	Rank	District	Workers
1	California 17	35,105	26	Texas 10	9,308
2	Massachusetts 5	21,126	27	Washington 1	9,276
3	California 45	19,468	28	California 15	8,996
4	California 12	18,789	29	Minnesota 3	8,843
5	Virginia 10	18,340	30	North Carolina 4	8,726
6	California 14	18,096	31	Maryland 3	8,589
7	California 49	17,184	32	Oregon 1	8,512
8	California 33	15,133	33	New Jersey 7	8,308
9	New York 10	15,002	34	Washington 7	8,126
10	Colorado 2	14,851	35	California 52	8,117
11	Georgia 6	13,590	36	North Carolina 2	7,964
12	California 18	13,480	37	Massachusetts 6	7,819
13	Colorado 1	12,458	38	California 28	7,760
14	Virginia 8	11,962	39	Georgia 5	7,599
15	Texas 3	11,606	40	Utah 3	7,585
16	Massachusetts 3	11,606	41	California 48	7,515
17	Tennessee 2	11,482	42	Arizona 6	7,486
18	Illinois 6	10,692	43	North Carolina 9	7,475
19	Texas 24	10,667	44	Texas 21	7,426
20	Massachusetts 7	10,629	45	Indiana 7	7,202
21	New York 12	10,614	46	California 11	7,162
22	Massachusetts 4	9,971	47	California 25	7,103
23	Pennsylvania 4	9,941	48	New Jersey 6	6,834
24	Texas 2	9,796	49	Massachusetts 2	6,816
25	Maryland 6	9,488	50	North Carolina 1	6,783
				U.S. Average District	3,405
				U.S. Median District	2,282

HIGH-TECH START-UP SHARE OF EMPLOYMENT

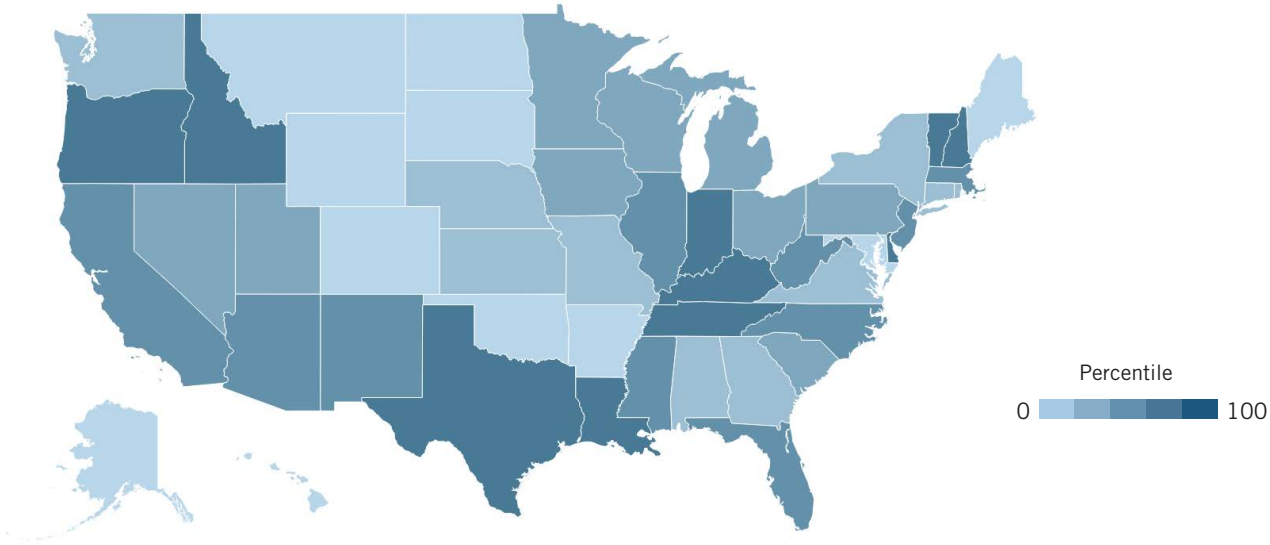
Workers Employed at High-Tech Start-Ups as a Share of Total Employment



Rank	State	Value	Rank	State	Value
1	California 17	8.94%	26	Texas 2	2.81%
2	California 49	5.70%	27	North Carolina 9	2.78%
3	California 45	5.54%	28	Virginia 8	2.71%
4	California 33	5.50%	29	California 25	2.67%
5	Virginia 10	5.15%	30	Massachusetts 2	2.55%
6	Massachusetts 5	4.70%	31	Maryland 3	2.53%
7	California 14	4.46%	32	California 2	2.53%
8	Colorado 2	4.16%	33	Colorado 1	2.51%
9	Tennessee 2	3.89%	34	Utah 3	2.51%
10	California 18	3.40%	35	California 27	2.49%
11	California 12	3.30%	36	Arizona 6	2.40%
12	Massachusetts 3	3.19%	37	North Carolina 4	2.40%
13	California 11	3.18%	38	Massachusetts 6	2.39%
14	Maryland 6	3.15%	39	New Jersey 7	2.38%
15	Texas 3	3.10%	40	Texas 21	2.34%
16	Georgia 6	2.99%	41	Oregon 1	2.33%
17	Texas 24	2.98%	42	California 3	2.27%
18	Massachusetts 4	2.97%	43	Pennsylvania 4	2.24%
19	Washington 1	2.95%	44	New York 10	2.23%
20	Illinois 6	2.93%	45	North Carolina 1	2.23%
21	California 15	2.89%	46	California 4	2.23%
22	North Carolina 2	2.89%	47	Alabama 2	2.19%
23	Texas 10	2.86%	48	Florida 13	2.16%
24	California 52	2.82%	49	California 48	2.14%
25	California 28	2.82%	50	New Hampshire 1	2.13%
				U.S. Average District	1.13%
				U.S. Median District	0.86%

HIGH-TECH MANUFACTURING EXPORTS SHARE OF GSP

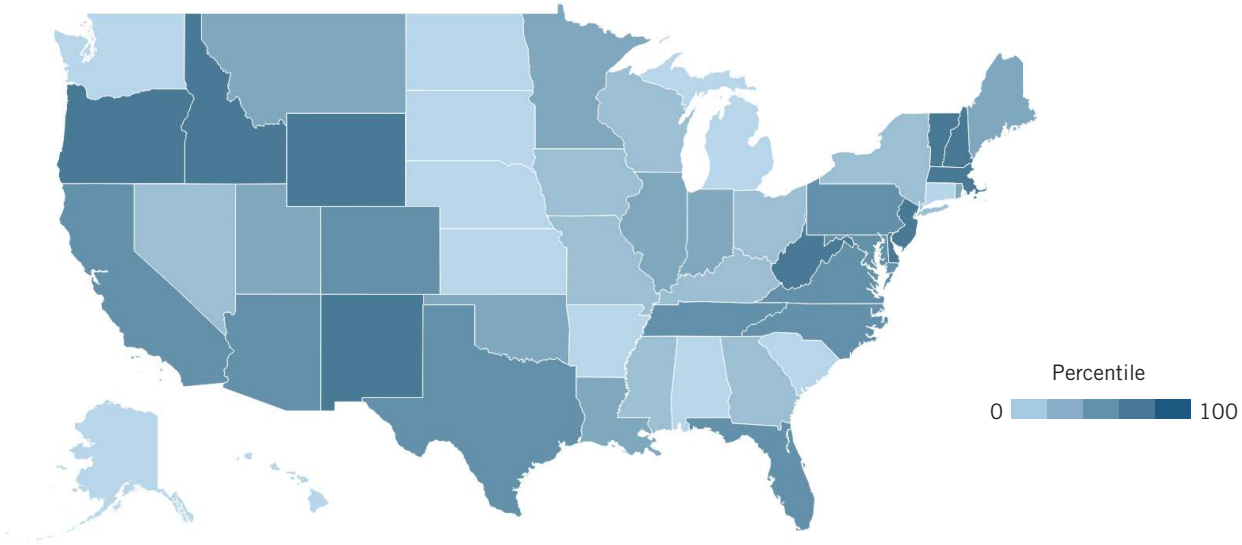
Chemical Manufacturing and Computer and Electronic Product Exports as a Share of Gross State Product (GSP)



Rank	State	Value	Rank	State	Value
1	Vermont	5.5%	26	Wisconsin	1.4%
2	Texas	4.8%	27	Ohio	1.4%
3	Oregon	4.6%	28	Iowa	1.3%
4	Louisiana	3.8%	29	Nevada	1.3%
5	Indiana	3.0%	30	Alabama	1.3%
6	Delaware	2.9%	31	Georgia	1.0%
7	Kentucky	2.8%	32	Missouri	1.0%
8	Tennessee	2.7%	33	Washington	0.9%
9	Idaho	2.6%	34	Kansas	0.9%
10	New Hampshire	2.5%	35	Rhode Island	0.9%
11	New Jersey	2.3%	36	Virginia	0.8%
12	West Virginia	2.2%	37	Connecticut	0.8%
13	Mississippi	2.0%	38	New York	0.7%
14	Illinois	2.0%	39	Nebraska	0.7%
15	New Mexico	2.0%	40	Colorado	0.7%
16	Arizona	2.0%	41	Arkansas	0.7%
17	North Carolina	1.9%	42	Maryland	0.7%
18	California	1.9%	43	North Dakota	0.7%
19	Massachusetts	1.9%	44	Maine	0.7%
20	Florida	1.8%	45	Montana	0.6%
21	Utah	1.7%	46	Oklahoma	0.6%
22	South Carolina	1.6%	47	South Dakota	0.3%
23	Michigan	1.6%	48	Wyoming	0.3%
24	Pennsylvania	1.5%	49	District of Columbia	0.2%
25	Minnesota	1.4%	50	Hawaii	0.1%
			51	Alaska	0.1%
				U.S. Average State	1.6%
				U.S. Median State	1.4%

HIGH-TECH SHARE OF ALL MANUFACTURING EXPORTS

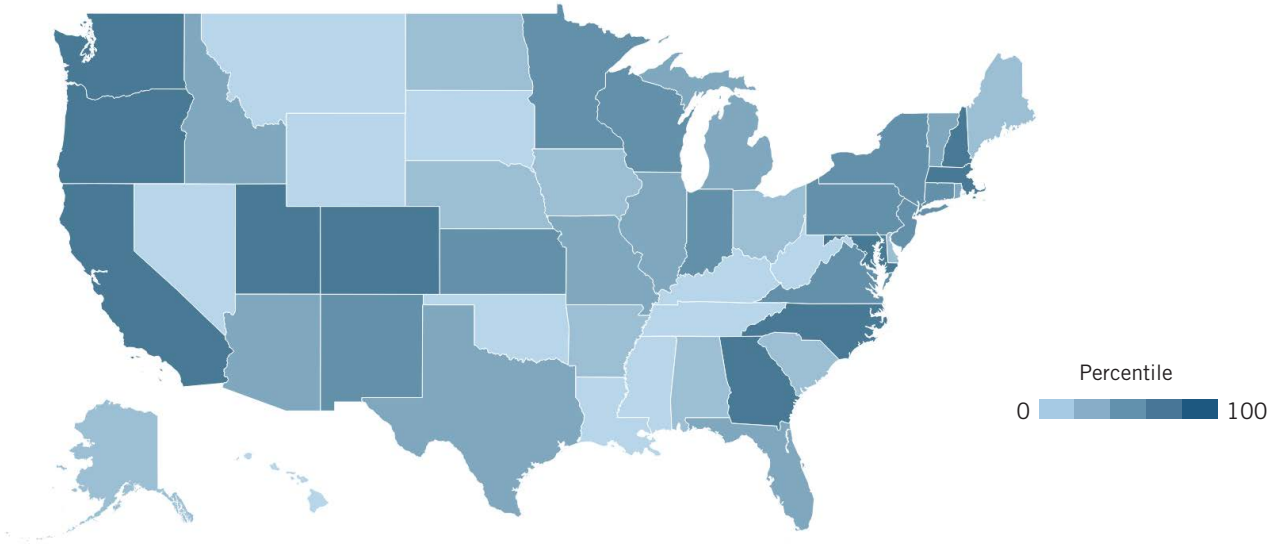
Chemical Manufacturing and Computer and Electronic Product Exports as a Share of All Manufacturing Exports



Rank	State	Value	Rank	State	Value
1	Wyoming	88.3%	26	Minnesota	27.5%
2	Vermont	68.6%	27	Utah	26.9%
3	Idaho	58.5%	28	Maine	26.2%
4	New Mexico	57.4%	29	Oklahoma	24.7%
5	Oregon	56.2%	30	Missouri	24.5%
6	Delaware	49.7%	31	Wisconsin	22.9%
7	New Jersey	46.6%	32	Mississippi	22.6%
8	West Virginia	45.6%	33	Iowa	21.1%
9	New Hampshire	42.1%	34	District of Columbia	21.0%
10	Massachusetts	41.2%	35	New York	20.4%
11	Texas	39.4%	36	Ohio	19.7%
12	California	38.3%	37	Kentucky	19.1%
13	Arizona	37.6%	38	Nevada	18.6%
14	Florida	37.3%	39	Georgia	18.2%
15	Colorado	35.2%	40	Kansas	17.1%
16	North Carolina	34.7%	41	Arkansas	15.8%
17	Maryland	34.2%	42	Connecticut	15.2%
18	Pennsylvania	33.9%	43	Nebraska	15.1%
19	Virginia	31.8%	44	Michigan	14.5%
20	Tennessee	30.9%	45	Alabama	14.2%
21	Indiana	30.3%	46	North Dakota	13.2%
22	Montana	29.8%	47	South Dakota	12.8%
23	Illinois	29.0%	48	South Carolina	12.0%
24	Rhode Island	28.7%	49	Washington	8.5%
25	Louisiana	28.0%	50	Alaska	7.1%
			51	Hawaii	6.7%
				U.S. Average State	29.8%
				U.S. Median State	27.5%

IT SERVICES EXPORTS RELATIVE TO GSP

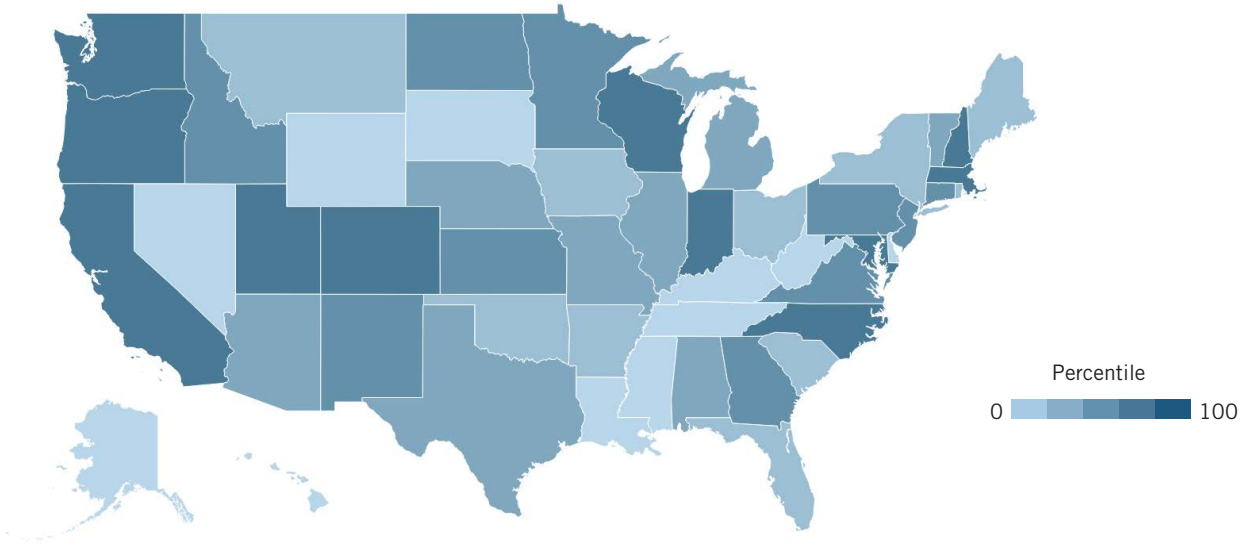
Telecommunications, Computer, and Information Services Exports per Million Dollars of GSP



Rank	State	Value	Rank	State	Value
1	Washington	$26,462	26	Illinois	$2,795
2	Massachusetts	$15,156	27	Idaho	$2,757
3	California	$12,157	28	Florida	$2,126
4	Oregon	$10,359	29	Michigan	$2,107
5	Utah	$9,518	30	Rhode Island	$2,004
6	Colorado	$9,208	31	North Dakota	$1,889
7	New Hampshire	$8,170	32	Nebraska	$1,614
8	North Carolina	$8,120	33	Alabama	$1,472
9	Maryland	$6,623	34	Ohio	$1,348
10	Georgia	$6,617	35	Iowa	$1,318
11	District of Columbia	$6,289	36	Maine	$1,099
12	New Jersey	$6,032	37	South Carolina	$1,027
13	Virginia	$5,673	38	Delaware	$906
14	Connecticut	$5,552	39	Arkansas	$906
15	Wisconsin	$5,075	40	Alaska	$686
16	Indiana	$4,561	41	Tennessee	$609
17	Pennsylvania	$4,302	42	Montana	$513
18	New Mexico	$4,158	43	South Dakota	$512
19	Minnesota	$3,724	44	Oklahoma	$502
20	Kansas	$3,592	45	Kentucky	$496
21	New York	$3,556	46	Nevada	$491
22	Texas	$3,440	47	West Virginia	$396
23	Missouri	$3,402	48	Mississippi	$372
24	Vermont	$3,389	49	Hawaii	$302
25	Arizona	$3,315	50	Louisiana	$136
			51	Wyoming	$92
				U.S. Average State	$4,057
				U.S. Median State	$2,795

IT SHARE OF ALL SERVICES EXPORTS

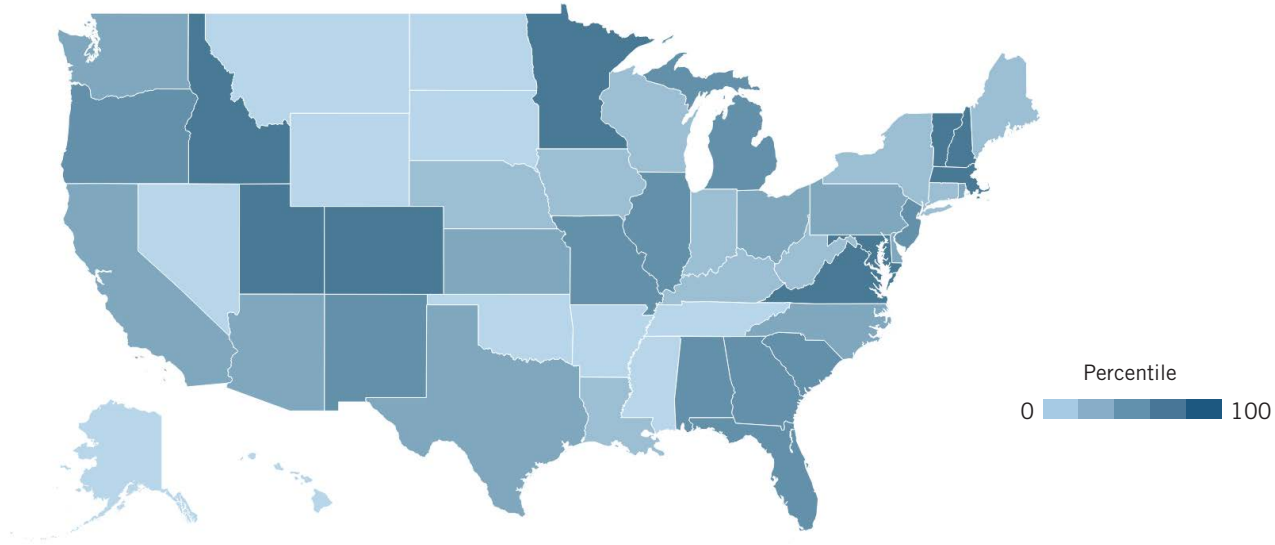
Telecommunications, Computer, and Information Services Exports as a Share of All Services Exports



Rank	State	Value	Rank	State	Value
1	Washington	57.2%	26	Nebraska	8.9%
2	Massachusetts	28.2%	27	Michigan	8.8%
3	Oregon	28.0%	28	District of Columbia	7.7%
4	Utah	27.1%	29	Illinois	7.4%
5	California	26.9%	30	Alabama	7.4%
6	Wisconsin	26.5%	31	New York	7.3%
7	Colorado	24.1%	32	Rhode Island	6.7%
8	New Hampshire	23.6%	33	Iowa	6.5%
9	North Carolina	23.3%	34	Ohio	6.4%
10	Maryland	20.3%	35	Arkansas	6.1%
11	Indiana	18.9%	36	Florida	5.2%
12	Georgia	18.3%	37	Maine	5.0%
13	Virginia	17.8%	38	South Carolina	3.9%
14	New Jersey	17.6%	39	Montana	2.6%
15	New Mexico	17.2%	40	Oklahoma	2.5%
16	Kansas	16.3%	41	Tennessee	2.2%
17	Pennsylvania	15.6%	42	Delaware	2.1%
18	Connecticut	14.4%	43	Alaska	2.1%
19	Idaho	14.2%	44	Kentucky	2.0%
20	Minnesota	13.2%	45	Mississippi	2.0%
21	North Dakota	12.0%	46	South Dakota	2.0%
22	Vermont	11.4%	47	West Virginia	1.9%
23	Missouri	11.3%	48	Nevada	0.8%
24	Texas	10.5%	49	Hawaii	0.6%
25	Arizona	9.3%	50	Wyoming	0.6%
			51	Louisiana	0.4%
				U.S. Average State	12.0%
				U.S. Median State	8.9%

HIGH-TECH SECTOR WORKERS RELATIVE TO GSP

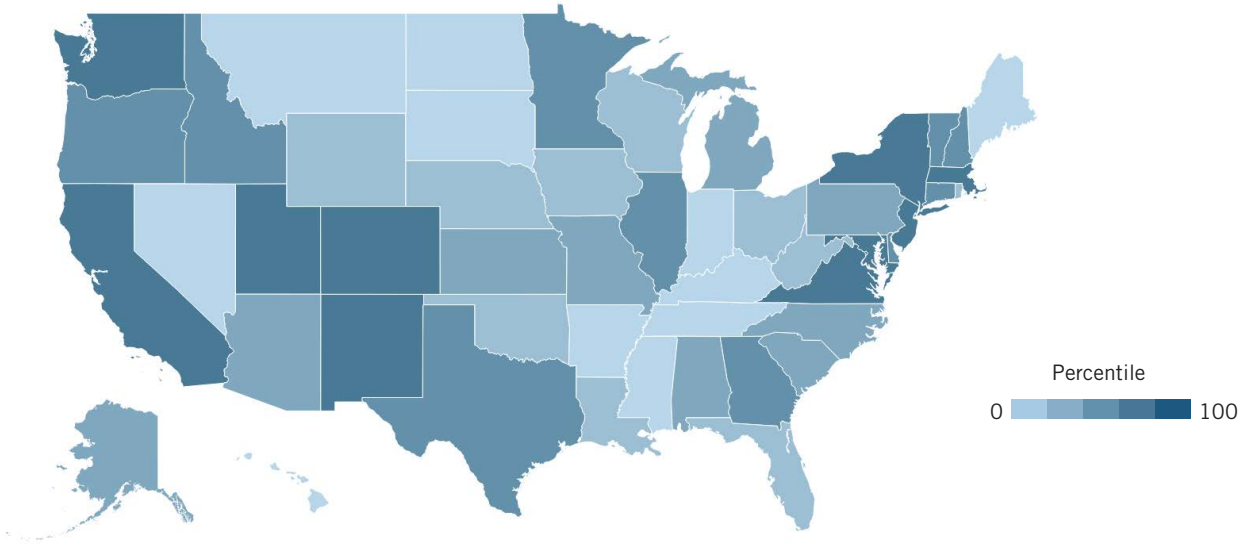
Employment Across Seven High-Tech Industry Sectors per Billion Dollars of GSP



Rank	State	Workers	Rank	State	Workers
1	Virginia	1,081	26	North Carolina	634
2	Utah	882	27	Rhode Island	609
3	Maryland	860	28	Ohio	599
4	District of Columbia	835	29	Texas	593
5	Massachusetts	830	30	Delaware	586
6	Colorado	798	31	Wisconsin	580
7	Minnesota	786	32	Connecticut	570
8	New Hampshire	765	33	Maine	567
9	Vermont	765	34	New York	564
10	Idaho	732	35	Kentucky	551
11	New Jersey	732	36	Indiana	551
12	Missouri	731	37	Iowa	548
13	New Mexico	724	38	West Virginia	539
14	Michigan	714	39	Louisiana	536
15	Georgia	690	40	Nebraska	536
16	South Carolina	684	41	Tennessee	524
17	Florida	677	42	Montana	524
18	Alabama	677	43	Arkansas	520
19	Oregon	664	44	Oklahoma	516
20	Illinois	659	45	Nevada	477
21	California	653	46	Alaska	435
22	Washington	647	47	Mississippi	432
23	Kansas	643	48	South Dakota	416
24	Arizona	638	49	North Dakota	400
25	Pennsylvania	636	50	Wyoming	392
			51	Hawaii	315
				U.S. Average State	628
				U.S. Median State	634

HIGH-TECH SHARE OF TOTAL WORKFORCE

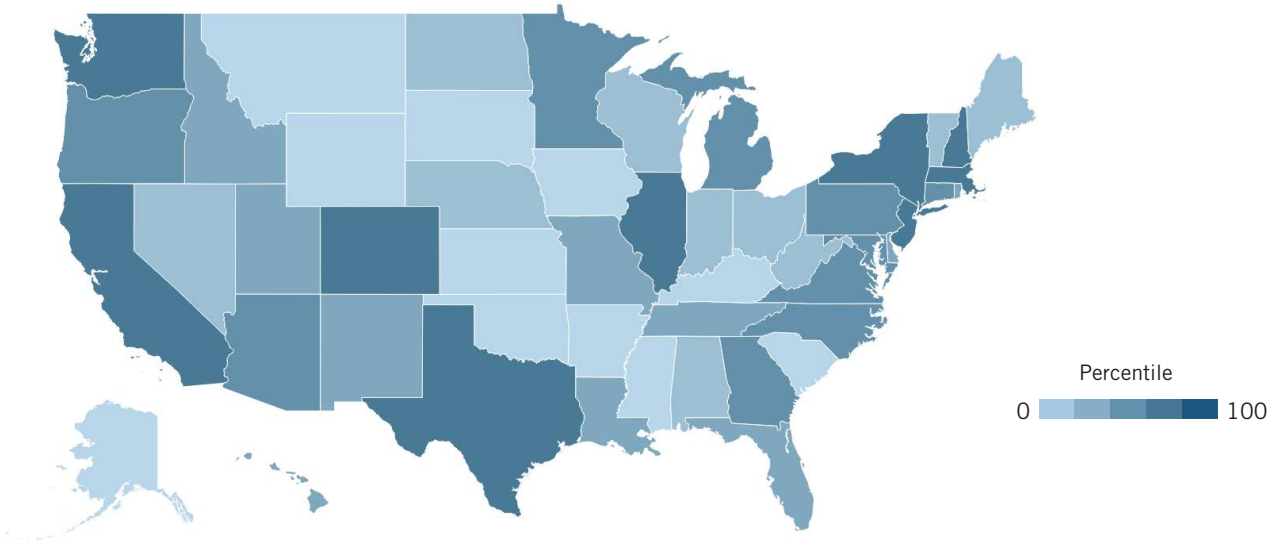
Employment Across Seven High-Tech Industry Sectors as a Share of Total Workforce



Rank	State	Value	Rank	State	Value
1	District of Columbia	22.3%	26	Arizona	9.1%
2	Virginia	17.4%	27	Alaska	9.1%
3	Maryland	15.2%	28	Kansas	9.0%
4	Massachusetts	14.2%	29	Alabama	8.9%
5	Washington	13.2%	30	South Carolina	8.6%
6	California	13.1%	31	Rhode Island	8.5%
7	Colorado	12.5%	32	Ohio	8.4%
8	New Jersey	12.4%	33	Florida	8.4%
9	Utah	12.2%	34	Louisiana	8.2%
10	New Mexico	11.6%	35	Nebraska	8.0%
11	New York	11.4%	36	Iowa	7.7%
12	Minnesota	10.8%	37	Oklahoma	7.7%
13	Delaware	10.7%	38	Wisconsin	7.6%
14	New Hampshire	10.7%	39	West Virginia	7.6%
15	Georgia	10.5%	40	Wyoming	7.6%
16	Illinois	10.4%	41	Indiana	7.3%
17	Connecticut	10.2%	42	Tennessee	7.2%
18	Texas	10.1%	43	Maine	7.2%
19	Oregon	10.0%	44	Kentucky	7.1%
20	Vermont	9.8%	45	Montana	7.0%
21	Idaho	9.8%	46	Nevada	6.8%
22	Michigan	9.7%	47	North Dakota	6.6%
23	North Carolina	9.5%	48	Arkansas	6.5%
24	Missouri	9.3%	49	South Dakota	6.0%
25	Pennsylvania	9.2%	50	Hawaii	5.4%
			51	Mississippi	5.3%
				U.S. Average State	9.7%
				U.S. Median State	9.1%

AVERAGE HIGH-TECH SECTOR WAGES

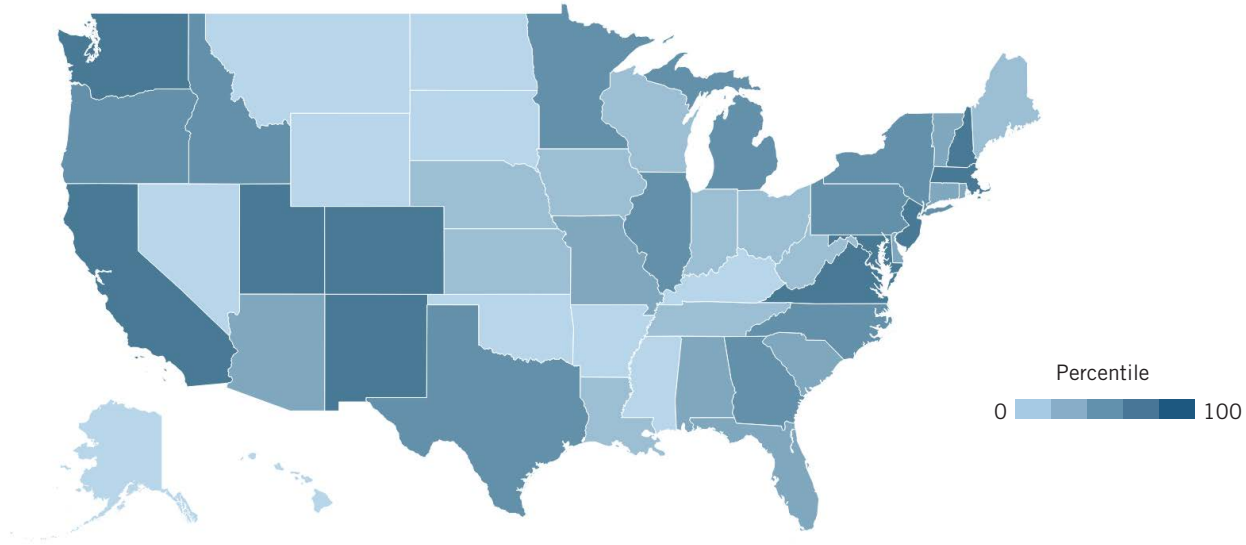
Average Annual Wages Earned by High-Tech Sector Workers



Rank	State	Value	Rank	State	Value
1	District of Columbia	$157,954	26	Rhode Island	$78,941
2	California	$150,937	27	Missouri	$78,578
3	Massachusetts	$134,871	28	Utah	$76,789
4	Washington	$131,830	29	New Mexico	$76,523
5	New York	$118,435	30	Louisiana	$74,650
6	Colorado	$108,062	31	Vermont	$74,635
7	New Jersey	$106,380	32	North Dakota	$74,419
8	Texas	$103,897	33	Wisconsin	$73,955
9	New Hampshire	$101,381	34	Ohio	$73,768
10	Illinois	$101,272	35	Maine	$73,513
11	Oregon	$99,588	36	Alabama	$72,203
12	North Carolina	$98,218	37	Nebraska	$71,724
13	Virginia	$93,325	38	Nevada	$71,518
14	Pennsylvania	$93,323	39	Indiana	$70,656
15	Connecticut	$90,546	40	West Virginia	$70,209
16	Michigan	$90,523	41	Montana	$68,219
17	Maryland	$89,913	42	South Carolina	$67,805
18	Arizona	$87,096	43	Iowa	$66,681
19	Georgia	$86,219	44	Kansas	$65,869
20	Minnesota	$84,636	45	Kentucky	$63,161
21	Florida	$84,431	46	Wyoming	$60,514
22	Idaho	$84,003	47	Oklahoma	$59,898
23	Tennessee	$83,524	48	South Dakota	$57,181
24	Delaware	$81,568	49	Mississippi	$57,117
25	Hawaii	$79,191	50	Arkansas	$55,977
			51	Alaska	$53,051
				U.S. Average State	$84,876
				U.S. Median State	$78,941

HIGH-TECH SECTOR SHARE OF WAGES

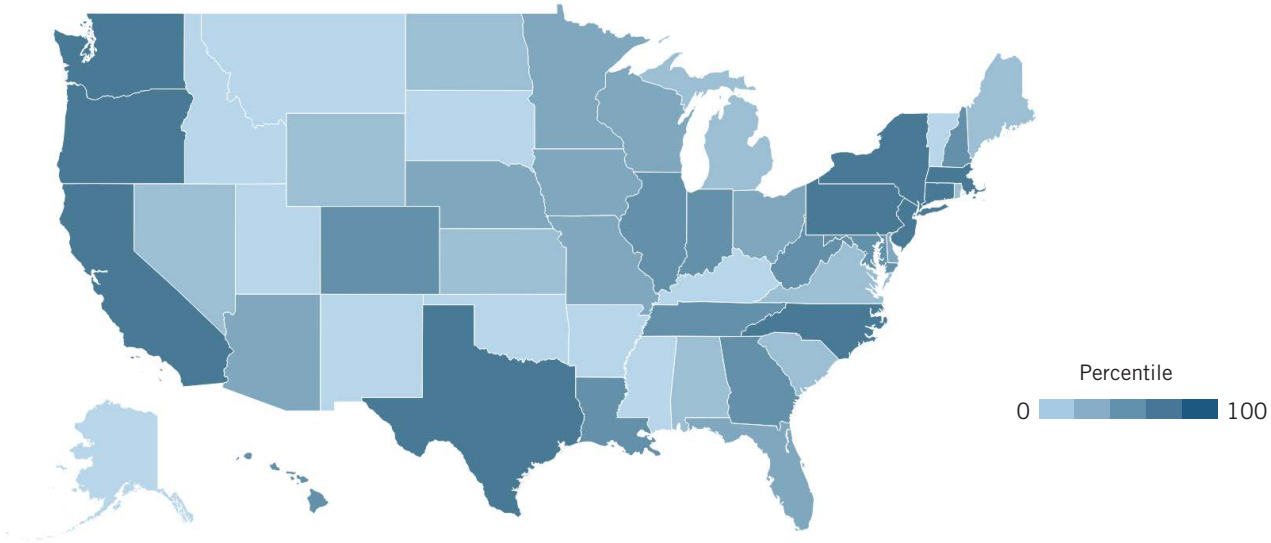
Annual Wages Earned by High-Tech Sector Workers as a Share of Total Wages



Rank	State	Value	Rank	State	Value
1	District of Columbia	39.4%	26	Arizona	15.4%
2	Virginia	29.1%	27	Alabama	14.6%
3	California	29.1%	28	Connecticut	14.4%
4	Massachusetts	27.5%	29	South Carolina	14.1%
5	Washington	25.8%	30	Rhode Island	13.3%
6	Maryland	24.8%	31	Kansas	13.2%
7	Colorado	24.0%	32	Louisiana	13.2%
8	New Jersey	21.3%	33	Ohio	12.7%
9	Utah	19.9%	34	Nebraska	12.7%
10	New Hampshire	19.8%	35	Tennessee	12.3%
11	New Mexico	19.7%	36	Wisconsin	11.8%
12	New York	18.9%	37	Maine	11.6%
13	North Carolina	18.6%	38	West Virginia	11.5%
14	Oregon	18.5%	39	Iowa	11.3%
15	Illinois	18.4%	40	Indiana	11.2%
16	Texas	18.2%	41	Montana	11.1%
17	Idaho	18.1%	42	Oklahoma	10.4%
18	Georgia	17.2%	43	Kentucky	9.8%
19	Minnesota	16.8%	44	Nevada	9.7%
20	Michigan	16.8%	45	Wyoming	9.4%
21	Pennsylvania	16.2%	46	Alaska	9.4%
22	Delaware	16.1%	47	North Dakota	9.1%
23	Vermont	15.8%	48	Hawaii	9.0%
24	Florida	15.7%	49	Arkansas	8.4%
25	Missouri	15.5%	50	Mississippi	8.1%
			51	South Dakota	8.0%
				U.S. Average State	12.0%
				U.S. Median State	8.9%

HIGH-TECH SECTOR OUTPUT PER WORKER

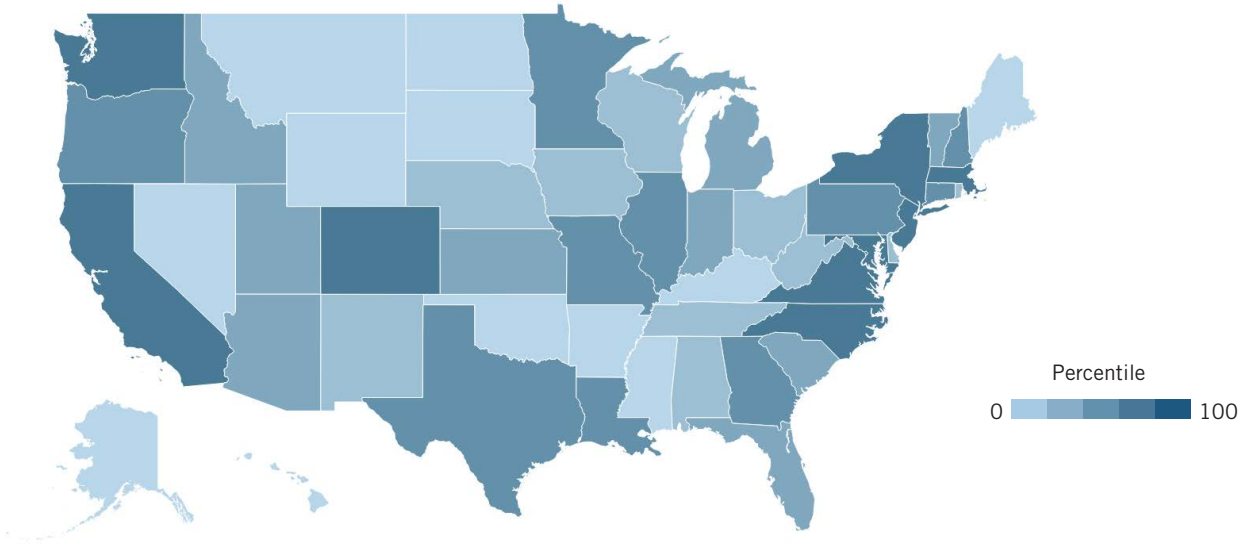
GSP by High-Tech Sector Per High-Tech Sector Worker



Rank	State	Value	Rank	State	Value
1	California	$312,651	26	Arizona	$171,931
2	District of Columbia	$299,619	27	Delaware	$170,714
3	New York	$284,516	28	Nebraska	$169,107
4	Washington	$276,089	29	Iowa	$168,946
5	Massachusetts	$258,696	30	Minnesota	$167,166
6	North Carolina	$248,793	31	Kansas	$165,860
7	Texas	$245,846	32	Rhode Island	$164,956
8	Pennsylvania	$242,574	33	Michigan	$163,751
9	New Jersey	$229,794	34	Nevada	$161,014
10	Connecticut	$228,755	35	South Carolina	$157,753
11	Oregon	$227,761	36	Virginia	$153,705
12	Louisiana	$227,430	37	Wyoming	$152,617
13	Indiana	$224,151	38	Maine	$151,772
14	Georgia	$215,892	39	North Dakota	$151,743
15	Illinois	$213,633	40	Alabama	$149,307
16	Colorado	$201,667	41	South Dakota	$148,273
17	Maryland	$189,168	42	Idaho	$148,226
18	New Hampshire	$187,121	43	Vermont	$144,561
19	West Virginia	$186,322	44	Mississippi	$144,455
20	Hawaii	$179,861	45	Arkansas	$141,339
21	Tennessee	$178,409	46	Kentucky	$141,003
22	Florida	$178,243	47	Utah	$139,583
23	Missouri	$176,355	48	New Mexico	$137,641
24	Wisconsin	$174,137	49	Montana	$136,287
25	Ohio	$172,222	50	Alaska	$135,363
			51	Oklahoma	$131,870
				U.S. Average State	$187,000
				U.S. Median State	$172,000

HIGH-TECH SECTOR SHARE OF OUTPUT

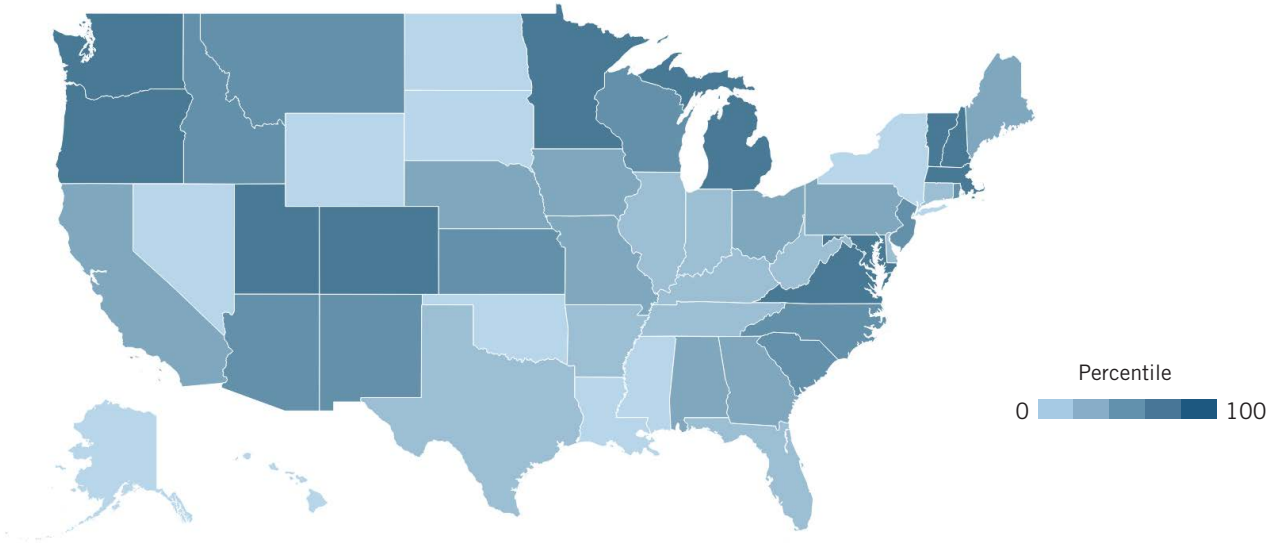
GSP by High-Tech Sector as a Share of Total Economy



Rank	State	Value	Rank	State	Value
1	District of Columbia	26.3%	26	Idaho	11.5%
2	Massachusetts	22.6%	27	Vermont	11.4%
3	California	21.7%	28	South Carolina	11.3%
4	Washington	19.3%	29	Kansas	11.1%
5	New Jersey	17.6%	30	Ohio	10.8%
6	Virginia	17.4%	31	Alabama	10.7%
7	Colorado	17.1%	32	West Virginia	10.6%
8	Maryland	17.0%	33	New Mexico	10.6%
9	New York	16.7%	34	Wisconsin	10.6%
10	North Carolina	16.5%	35	Rhode Island	10.4%
11	Pennsylvania	16.2%	36	Delaware	10.4%
12	Oregon	16.0%	37	Tennessee	9.8%
13	Texas	15.8%	38	Iowa	9.7%
14	Georgia	15.6%	39	Nebraska	9.3%
15	New Hampshire	15.0%	40	Maine	9.0%
16	Illinois	14.7%	41	Nevada	8.2%
17	Minnesota	13.8%	42	Kentucky	8.1%
18	Missouri	13.5%	43	Arkansas	7.7%
19	Connecticut	13.4%	44	Montana	7.6%
20	Louisiana	13.1%	45	Oklahoma	7.3%
21	Utah	13.1%	46	Mississippi	6.5%
22	Indiana	12.9%	47	North Dakota	6.5%
23	Florida	12.7%	48	South Dakota	6.5%
24	Michigan	12.2%	49	Wyoming	6.3%
25	Arizona	11.7%	50	Alaska	6.2%
			51	Hawaii	5.9%
				U.S. Average State	12.5%
				U.S. Median State	11.5%

STEM WORKERS RELATIVE TO GSP

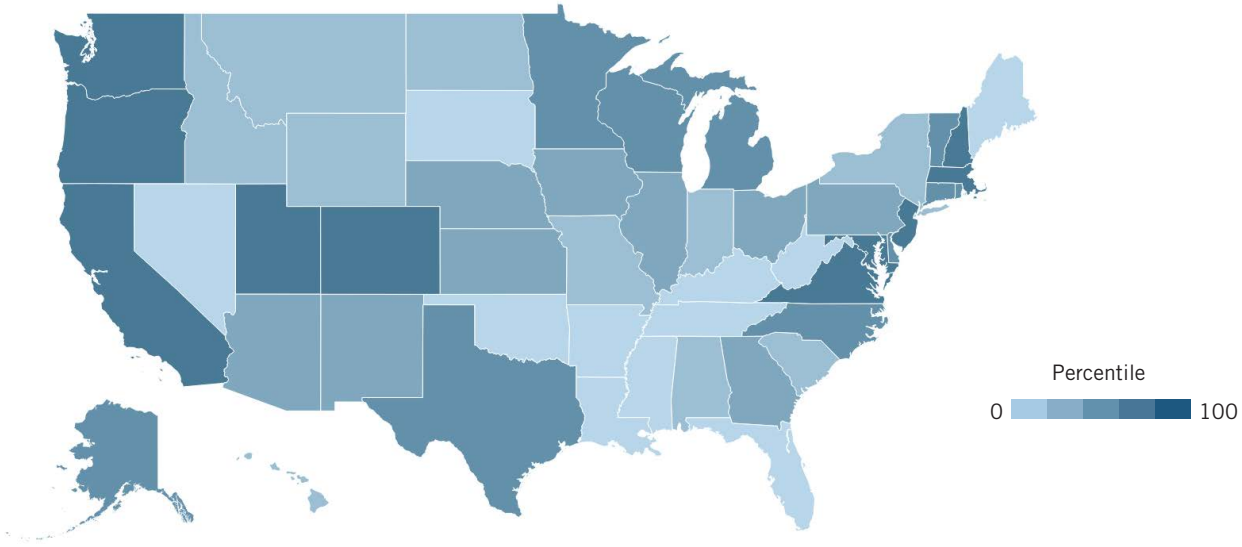
Employment in Science, Technology, Engineering, and Mathematics Occupations per Billion Dollars of GSP



Rank	State	Workers	Rank	State	Workers
1	Maryland	707	26	Ohio	431
2	Virginia	677	27	Georgia	426
3	Colorado	613	28	Iowa	419
4	New Hampshire	608	29	Nebraska	417
5	Utah	566	30	California	415
6	Michigan	553	31	Texas	414
7	Vermont	552	32	Connecticut	403
8	Oregon	543	33	Indiana	402
9	Washington	531	34	Illinois	388
10	Massachusetts	531	35	Florida	384
11	Minnesota	514	36	Tennessee	384
12	Wisconsin	511	37	West Virginia	373
13	Rhode Island	496	38	Arkansas	361
14	Idaho	491	39	Kentucky	357
15	New Jersey	484	40	Delaware	355
16	North Carolina	483	41	Alaska	354
17	Arizona	480	42	Oklahoma	351
18	Kansas	475	43	North Dakota	336
19	New Mexico	473	44	Hawaii	333
20	Montana	461	45	Wyoming	331
21	South Carolina	452	46	Mississippi	331
22	Missouri	447	47	District of Columbia	319
23	Alabama	447	48	South Dakota	296
24	Maine	445	49	Nevada	290
25	Pennsylvania	438	50	New York	279
			51	Louisiana	272
				U.S. Average State	439
				U.S. Median State	431

STEM SHARE OF TOTAL WORKFORCE

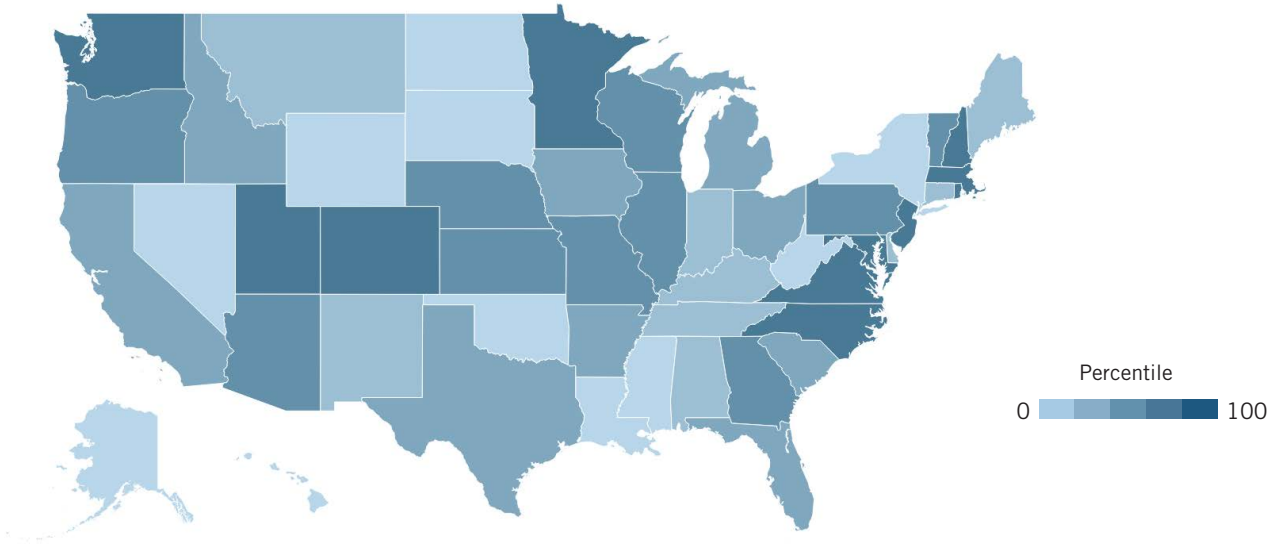
Employment in Science, Technology, Engineering, and Mathematics Occupations as a Share of Total Workforce



Rank	State	Value	Rank	State	Value
1	District of Columbia	11.9%	26	Arizona	5.4%
2	Maryland	9.4%	27	Ohio	5.2%
3	Virginia	8.7%	28	Georgia	5.2%
4	Massachusetts	8.4%	29	Nebraska	5.1%
5	Washington	8.4%	30	Iowa	4.9%
6	Colorado	7.9%	31	Missouri	4.9%
7	New Hampshire	7.1%	32	New York	4.8%
8	New Jersey	6.7%	33	Idaho	4.8%
9	Utah	6.7%	34	Alabama	4.8%
10	California	6.6%	35	South Carolina	4.7%
11	Oregon	6.5%	36	North Dakota	4.6%
12	Minnesota	6.4%	37	Indiana	4.6%
13	Michigan	6.3%	38	Wyoming	4.6%
14	Connecticut	6.2%	39	Hawaii	4.6%
15	Delaware	6.0%	40	Montana	4.5%
16	Wisconsin	5.8%	41	Tennessee	4.5%
17	North Carolina	5.7%	42	Maine	4.3%
18	Texas	5.6%	43	Florida	4.2%
19	Vermont	5.6%	44	Oklahoma	4.0%
20	Alaska	5.6%	45	West Virginia	4.0%
21	Rhode Island	5.6%	46	Kentucky	3.8%
22	Kansas	5.6%	47	Arkansas	3.6%
23	Pennsylvania	5.6%	48	South Dakota	3.5%
24	New Mexico	5.5%	49	Louisiana	3.5%
25	Illinois	5.4%	50	Nevada	3.5%
			51	Mississippi	3.1%
				U.S. Average State	5.6%
				U.S. Median State	5.4%

COMPUTER AND MATH WORKERS RELATIVE TO GSP

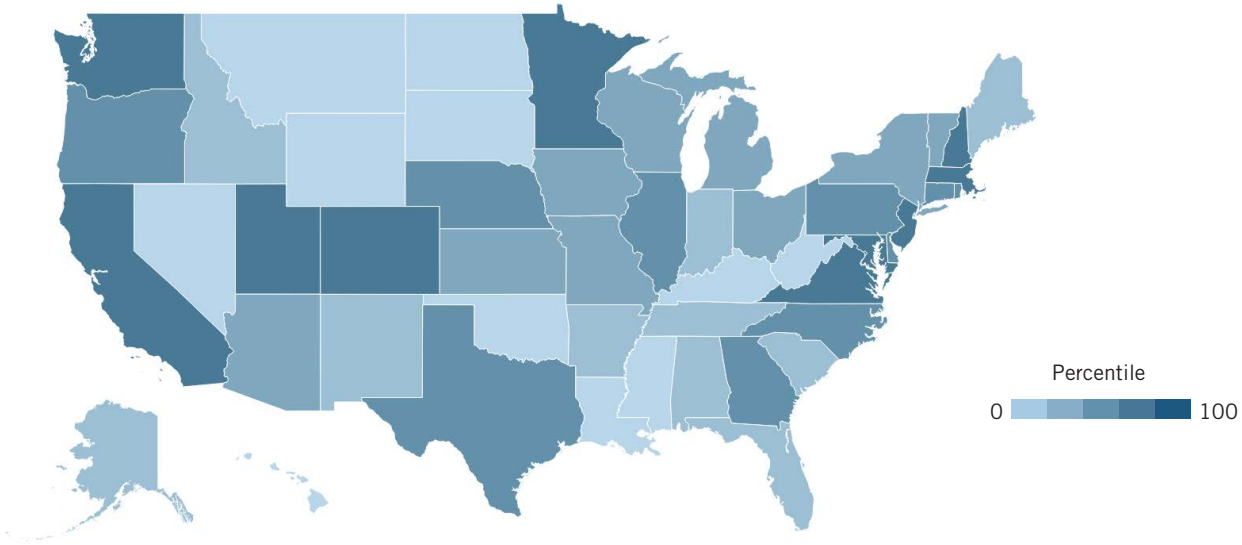
Employment in Computer and Mathematics Occupations per Billion Dollars of GSP



Rank	State	Workers	Rank	State	Workers
1	Virginia	429	26	Texas	214
2	Maryland	417	27	Florida	212
3	Utah	337	28	Idaho	209
4	New Hampshire	330	29	Arkansas	207
5	Colorado	326	30	South Carolina	200
6	Washington	307	31	New Mexico	197
7	New Jersey	292	32	Maine	197
8	Minnesota	285	33	Tennessee	195
9	North Carolina	264	34	Connecticut	193
10	Massachusetts	262	35	Alabama	193
11	Rhode Island	258	36	Delaware	186
12	Oregon	258	37	District of Columbia	185
13	Georgia	254	38	Indiana	180
14	Wisconsin	253	39	Kentucky	178
15	Missouri	253	40	Montana	174
16	Nebraska	248	41	Oklahoma	163
17	Arizona	242	42	West Virginia	157
18	Kansas	237	43	New York	149
19	Vermont	232	44	South Dakota	144
20	Pennsylvania	229	45	Mississippi	144
21	Illinois	225	46	Nevada	139
22	Michigan	222	47	North Dakota	130
23	California	221	48	Hawaii	130
24	Ohio	217	49	Alaska	127
25	Iowa	215	50	Wyoming	122
			51	Louisiana	103
				U.S. Average State	220
				U.S. Median State	214

COMPUTER AND MATH SHARE OF WORKFORCE

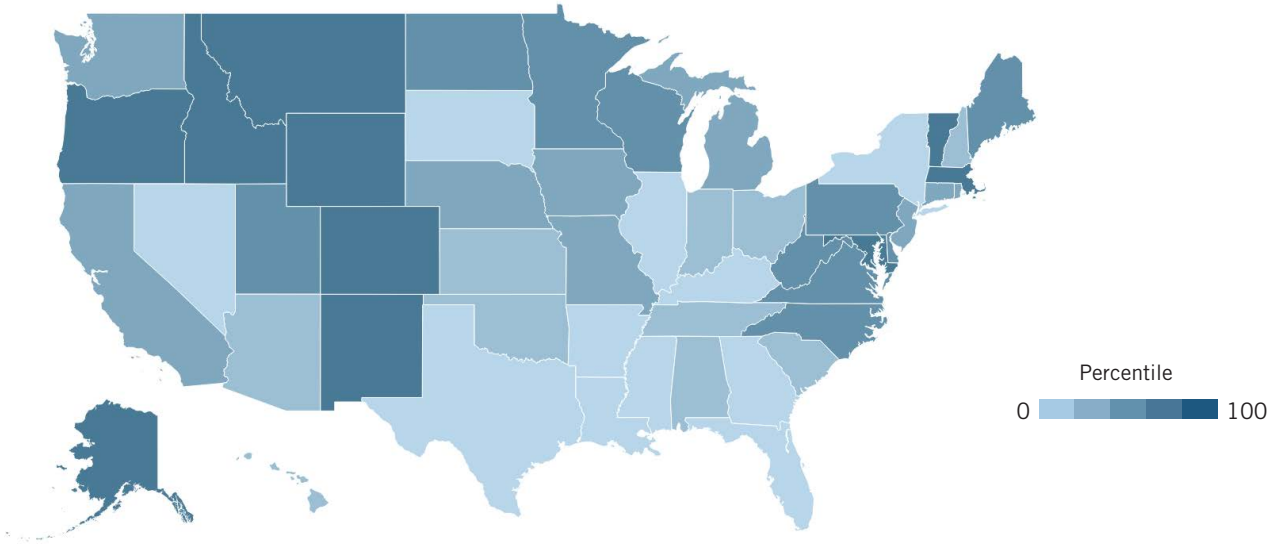
Employment in Computer and Mathematics Occupations as a Share of Total Workforce



Rank	State	Value	Rank	State	Value
1	Montana	135	26	Connecticut	68
2	Maryland	133	27	Michigan	67
3	Massachusetts	126	28	Iowa	63
4	Vermont	114	29	California	63
5	New Mexico	113	30	Missouri	62
6	Idaho	100	31	South Carolina	62
7	Colorado	96	32	Hawaii	61
8	District of Columbia	94	33	New Hampshire	60
9	Wyoming	94	34	Indiana	59
10	Oregon	90	35	Arizona	59
11	Alaska	90	36	Kansas	58
12	North Dakota	90	37	Tennessee	57
13	Virginia	88	38	Ohio	56
14	West Virginia	86	39	Alabama	55
15	Maine	84	40	Oklahoma	55
16	North Carolina	83	41	Georgia	55
17	Wisconsin	83	42	Louisiana	52
18	Utah	81	43	Illinois	50
19	Minnesota	79	44	New York	50
20	Pennsylvania	79	45	Arkansas	49
21	Delaware	75	46	Texas	48
22	New Jersey	75	47	Florida	47
23	Rhode Island	71	48	Mississippi	47
24	Nebraska	70	49	Kentucky	46
25	Washington	69	50	South Dakota	46
			51	Nevada	44
				U.S. Average State	73
				U.S. Median State	64

SCIENCE AND ENGINEERING WORKERS RELATIVE TO GSP

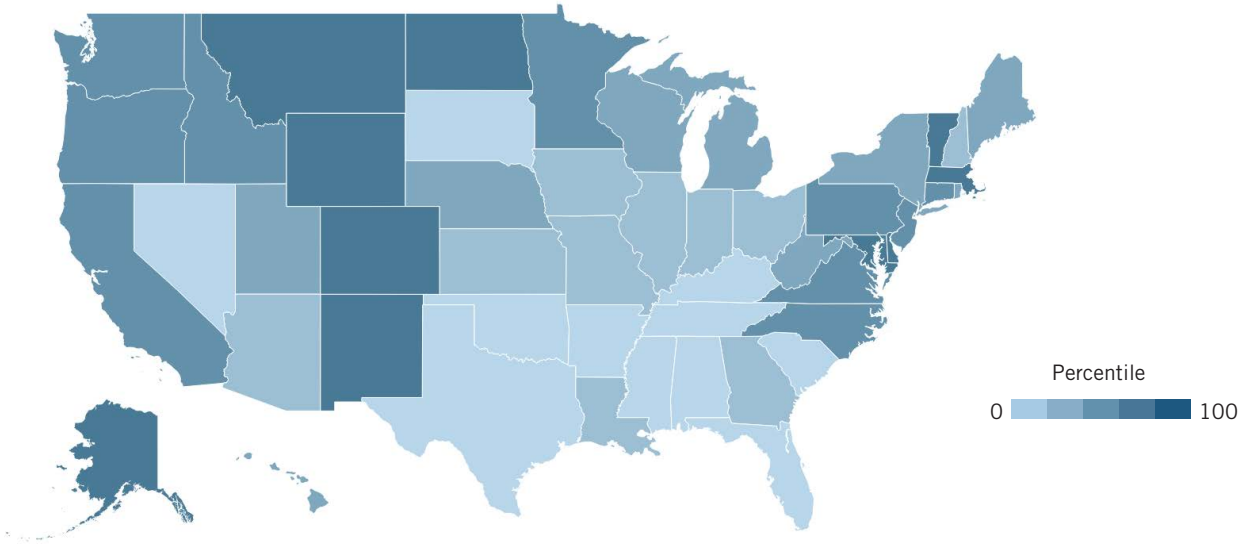
Employment in Science and Engineering Occupations per Billion Dollars of GSP



Rank	State	Workers	Rank	State	Workers
1	Montana	135	26	Connecticut	68
2	Maryland	133	27	Michigan	67
3	Massachusetts	126	28	Iowa	63
4	Vermont	114	29	California	63
5	New Mexico	113	30	Missouri	62
6	Idaho	100	31	South Carolina	62
7	Colorado	96	32	Hawaii	61
8	District of Columbia	94	33	New Hampshire	60
9	Wyoming	94	34	Indiana	59
10	Oregon	90	35	Arizona	59
11	Alaska	90	36	Kansas	58
12	North Dakota	90	37	Tennessee	57
13	Virginia	88	38	Ohio	56
14	West Virginia	86	39	Alabama	55
15	Maine	84	40	Oklahoma	55
16	North Carolina	83	41	Georgia	55
17	Wisconsin	83	42	Louisiana	52
18	Utah	81	43	Illinois	50
19	Minnesota	79	44	New York	50
20	Pennsylvania	79	45	Arkansas	49
21	Delaware	75	46	Texas	48
22	New Jersey	75	47	Florida	47
23	Rhode Island	71	48	Mississippi	47
24	Nebraska	70	49	Kentucky	46
25	Washington	69	50	South Dakota	46
			51	Nevada	44
				U.S. Average State	73
				U.S. Median State	64

SCIENCE AND ENGINEERING SHARE OF TOTAL WORKFORCE

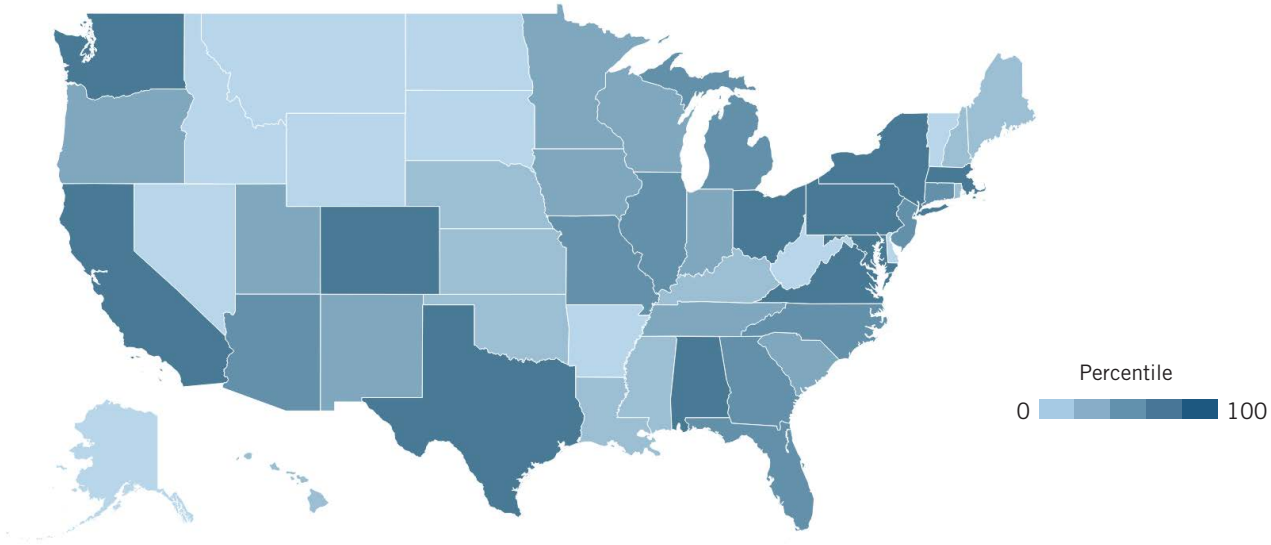
Employment in Science and Engineering Occupations as a Share of Total Workforce



Rank	State	Value	Rank	State	Value
1	District of Columbia	3.5%	26	New York	0.9%
2	Massachusetts	2.0%	27	Hawaii	0.8%
3	Maryland	1.8%	28	Maine	0.8%
4	Alaska	1.4%	29	Rhode Island	0.8%
5	Montana	1.3%	30	Michigan	0.8%
6	New Mexico	1.3%	31	Iowa	0.7%
7	Wyoming	1.3%	32	New Hampshire	0.7%
8	Delaware	1.3%	33	Illinois	0.7%
9	North Dakota	1.2%	34	Indiana	0.7%
10	Colorado	1.2%	35	Ohio	0.7%
11	Vermont	1.2%	36	Kansas	0.7%
12	Virginia	1.1%	37	Missouri	0.7%
13	Washington	1.1%	38	Georgia	0.7%
14	Oregon	1.1%	39	Louisiana	0.7%
15	Connecticut	1.0%	40	Arizona	0.7%
16	New Jersey	1.0%	41	Tennessee	0.7%
17	California	1.0%	42	Texas	0.7%
18	Pennsylvania	1.0%	43	South Carolina	0.6%
19	Minnesota	1.0%	44	Oklahoma	0.6%
20	Idaho	1.0%	45	Alabama	0.6%
21	North Carolina	1.0%	46	South Dakota	0.5%
22	Utah	1.0%	47	Nevada	0.5%
23	Wisconsin	0.9%	48	Florida	0.5%
24	West Virginia	0.9%	49	Arkansas	0.5%
25	Nebraska	0.9%	50	Kentucky	0.5%
			51	Mississippi	0.4%
				U.S. Average State	1.0%
				U.S. Median State	0.9%

PUBLIC R&D FUNDING

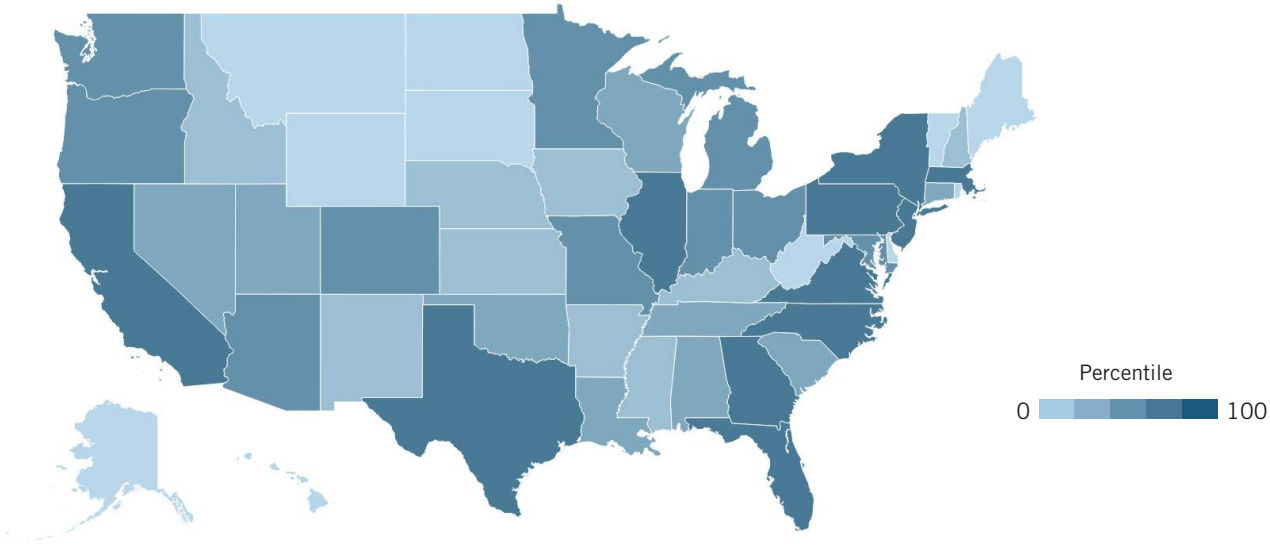
Gross Value of Federal R&D Outlays From DOA, DOD, DOE, HHS, NASA, and NSF in FY 2018 and 2019



Rank	State	Value (Billions)	Rank	State	Value (Billions)
1	California	$42.04	26	Wisconsin	$1.42
2	Maryland	$17.31	27	Oregon	$1.20
3	Massachusetts	$14.96	28	Utah	$1.18
4	Virginia	$14.69	29	South Carolina	$0.98
5	Alabama	$8.63	30	Iowa	$0.79
6	New York	$8.46	31	Kentucky	$0.71
7	Texas	$8.00	32	Rhode Island	$0.69
8	Pennsylvania	$7.07	33	New Hampshire	$0.68
9	Colorado	$5.76	34	Oklahoma	$0.67
10	Ohio	$5.75	35	Louisiana	$0.58
11	Washington	$4.80	36	Nebraska	$0.55
12	Illinois	$4.51	37	Mississippi	$0.51
13	North Carolina	$4.21	38	Hawaii	$0.49
14	Florida	$3.97	39	Kansas	$0.42
15	New Jersey	$3.71	40	Maine	$0.38
16	Georgia	$3.08	41	Nevada	$0.37
17	Arizona	$2.70	42	Delaware	$0.30
18	Michigan	$2.60	43	Alaska	$0.29
19	District of Columbia	$2.58	44	Arkansas	$0.25
20	Connecticut	$2.44	45	Montana	$0.25
21	Missouri	$1.94	46	Vermont	$0.19
22	Indiana	$1.84	47	West Virginia	$0.17
23	Minnesota	$1.75	48	Idaho	$0.16
24	New Mexico	$1.56	49	South Dakota	$0.14
25	Tennessee	$1.55	50	North Dakota	$0.11
			51	Wyoming	$0.11
				U.S. Average State	$3.72
				U.S. Median State	$1.42

HIGH-TECH START-UPS

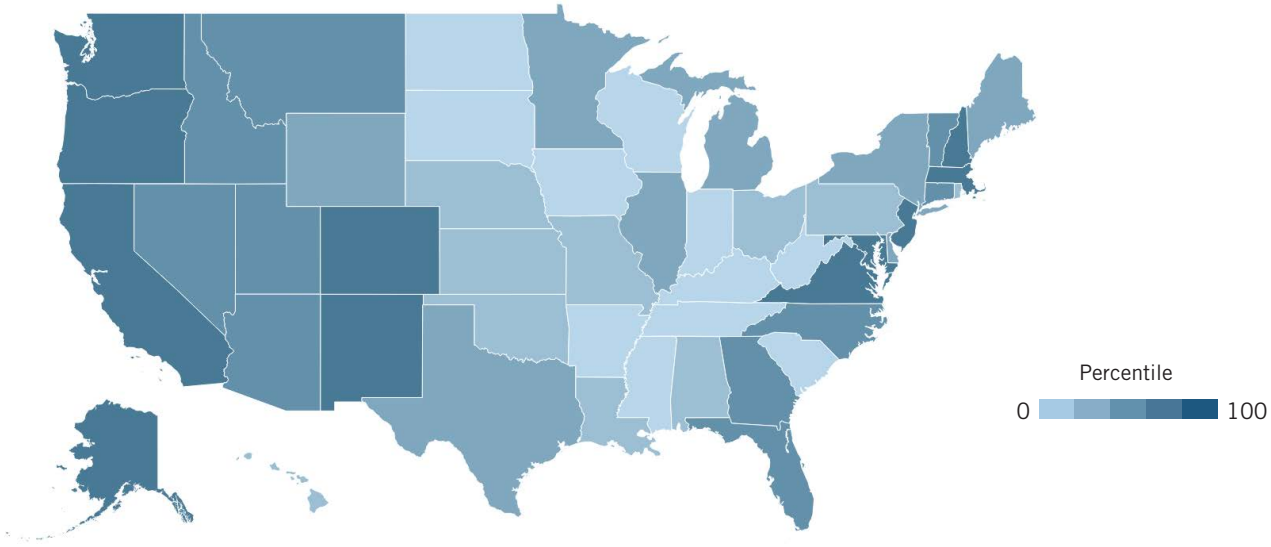
Number of High-Tech Start-Ups



Rank	State	Start-Ups	Rank	State	Start-Ups
1	California	30,165	26	Alabama	1,757
2	Texas	13,432	27	South Carolina	1,655
3	Florida	13,065	28	Louisiana	1,604
4	New York	10,067	29	Nevada	1,573
5	Illinois	6,543	30	Oklahoma	1,442
6	Massachusetts	6,109	31	New Hampshire	1,397
7	Virginia	5,993	32	Kentucky	1,320
8	New Jersey	5,917	33	Kansas	1,222
9	Pennsylvania	5,445	34	New Mexico	977
10	Georgia	5,232	35	Iowa	907
11	North Carolina	5,049	36	Arkansas	835
12	Washington	5,044	37	Idaho	805
13	Colorado	4,648	38	Nebraska	771
14	Ohio	4,569	39	Mississippi	691
15	Michigan	4,219	40	District of Columbia	683
16	Maryland	4,054	41	Maine	648
17	Arizona	3,725	42	Montana	573
18	Minnesota	3,012	43	Alaska	519
19	Oregon	2,885	44	Delaware	511
20	Missouri	2,535	45	Hawaii	504
21	Indiana	2,448	46	West Virginia	486
22	Tennessee	2,367	47	Rhode Island	447
23	Wisconsin	2,254	48	Vermont	401
24	Connecticut	2,203	49	South Dakota	301
25	Utah	1,777	50	North Dakota	291
			51	Wyoming	250
				U.S. Average State	3,438
				U.S. Median State	1,757

HIGH-TECH START-UP DENSITY

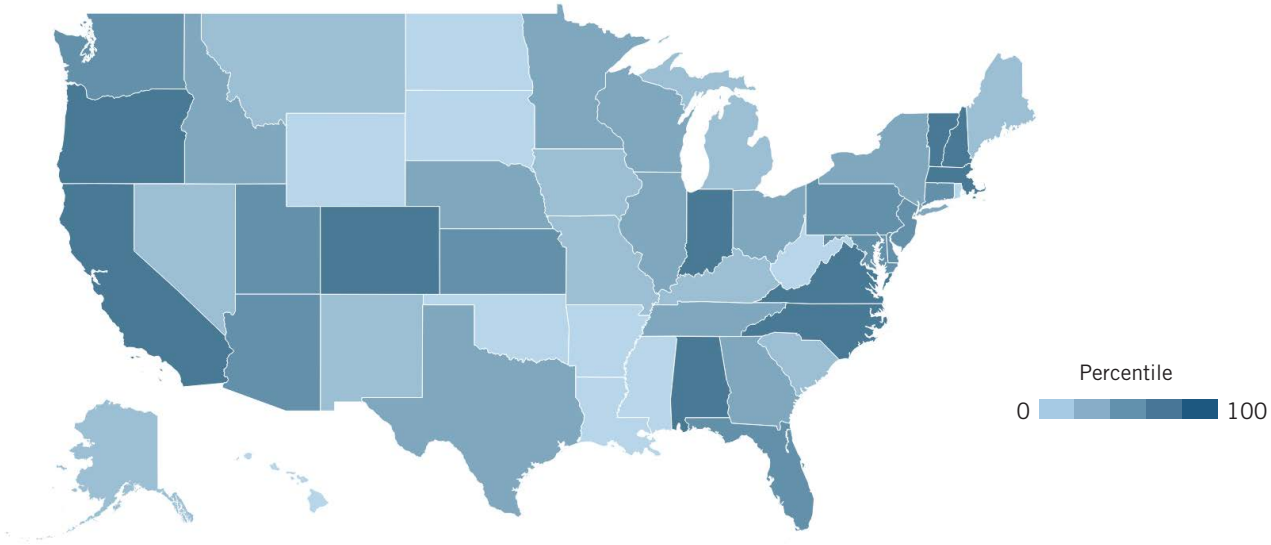
High-Tech Start-Ups Per 10,000 Workers



Rank	State	Start-Ups	Rank	State	Start-Ups
1	New Hampshire	23.1	26	Wyoming	12.4
2	California	20.2	27	New York	12.2
3	Alaska	19.8	28	Illinois	11.9
4	Colorado	19.6	29	Minnesota	11.2
5	Massachusetts	18.4	30	Michigan	10.9
6	Washington	18.2	31	Oklahoma	10.6
7	Virginia	18.1	32	Alabama	10.4
8	Oregon	18.1	33	Rhode Island	10.3
9	Maryland	17.4	34	Kansas	10.2
10	New Jersey	16.1	35	Missouri	10.1
11	New Mexico	15.6	36	Pennsylvania	10.0
12	Florida	15.6	37	Louisiana	9.5
13	Vermont	15.5	38	Ohio	9.5
14	Montana	15.2	39	Hawaii	9.3
15	Arizona	15.2	40	Nebraska	9.3
16	Connecticut	14.3	41	Tennessee	8.9
17	Idaho	13.9	42	South Carolina	8.9
18	Utah	13.9	43	West Virginia	8.8
19	Georgia	13.5	44	Indiana	8.8
20	North Carolina	13.4	45	Wisconsin	8.8
21	Nevada	13.2	46	North Dakota	8.5
22	District of Columbia	13.0	47	South Dakota	8.4
23	Delaware	12.8	48	Kentucky	8.1
24	Texas	12.7	49	Arkansas	8.1
25	Maine	12.6	50	Mississippi	7.4
			51	Iowa	6.7
				U.S. Average State	12.7
				U.S. Median State	12.4

HIGH-TECH START-UP SALES SHARE OF GSP

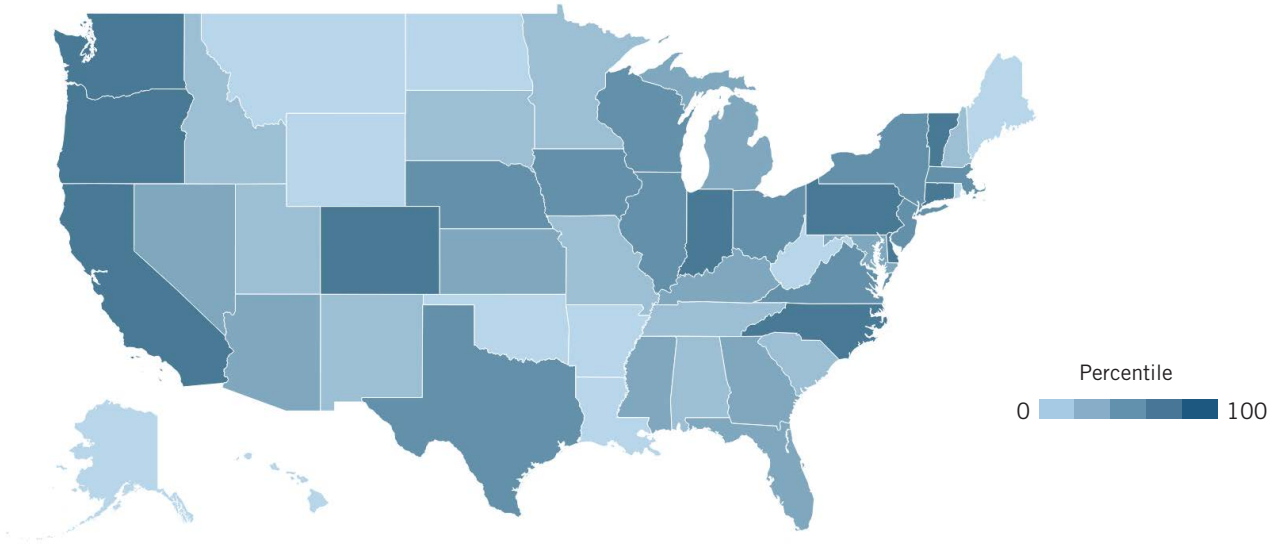
Annual Sales by High-Tech Start-Ups as a Share of GSP



Rank	State	Value	Rank	State	Value
1	Colorado	2.93%	26	Missouri	1.03%
2	Massachusetts	2.66%	27	Montana	0.73%
3	California	2.26%	28	Nebraska	1.22%
4	Vermont	2.18%	29	Nevada	1.04%
5	North Carolina	2.09%	30	New Hampshire	1.81%
6	Virginia	1.86%	31	New Jersey	1.67%
7	Alabama	1.84%	32	New Mexico	0.95%
8	New Hampshire	1.81%	33	New York	1.08%
9	Indiana	1.78%	34	North Carolina	2.09%
10	Oregon	1.75%	35	North Dakota	0.56%
11	Connecticut	1.70%	36	Ohio	1.07%
12	New Jersey	1.67%	37	Oklahoma	0.73%
13	Maryland	1.57%	38	Oregon	1.75%
14	Pennsylvania	1.43%	39	Pennsylvania	1.43%
15	Florida	1.38%	40	Rhode Island	0.70%
16	Arizona	1.38%	41	South Carolina	0.81%
17	Utah	1.36%	42	South Dakota	0.52%
18	Washington	1.35%	43	Tennessee	1.22%
19	Delaware	1.33%	44	Texas	1.17%
20	Kansas	1.26%	45	Utah	1.36%
21	Georgia	1.25%	46	Vermont	2.18%
22	Nebraska	1.22%	47	Virginia	1.86%
23	Tennessee	1.22%	48	Washington	1.35%
24	Minnesota	1.18%	49	West Virginia	0.68%
25	Texas	1.17%	50	Wisconsin	1.05%
			51	Wyoming	0.43%
				U.S. Average State	1.23%
				U.S. Median State	1.11%

HIGH-TECH START-UP SALES PER WORKER

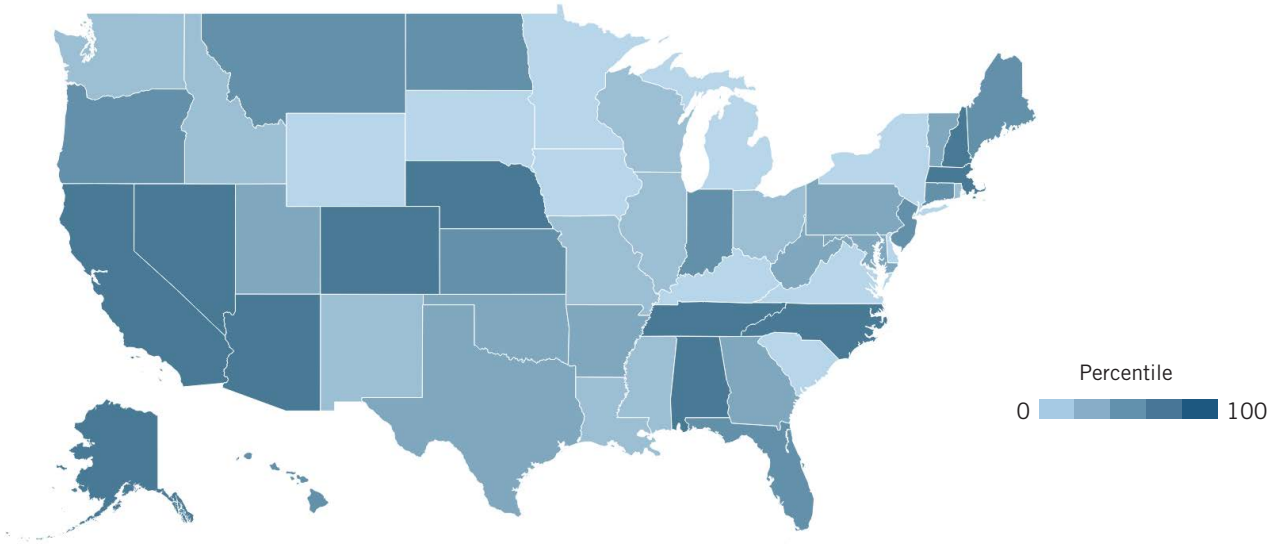
Annual Sales by High-Tech Start-Ups Per Worker Employed by High-Tech Start-Ups



Rank	State	Value	Rank	State	Value
1	Indiana	$281,260	26	Michigan	$180,524
2	Delaware	$268,132	27	Maryland	$176,109
3	Vermont	$266,188	28	Kansas	$174,725
4	Connecticut	$256,739	29	Mississippi	$174,572
5	Colorado	$253,548	30	Florida	$173,078
6	North Carolina	$243,008	31	Minnesota	$171,004
7	Oregon	$232,880	32	Tennessee	$169,084
8	California	$224,897	33	Alabama	$167,981
9	Pennsylvania	$223,754	34	Idaho	$164,236
10	Washington	$222,581	35	South Carolina	$162,319
11	New York	$218,992	36	Utah	$156,637
12	New Jersey	$210,578	37	South Dakota	$151,601
13	Texas	$202,666	38	New Hampshire	$150,876
14	Virginia	$202,358	39	New Mexico	$148,130
15	Massachusetts	$200,596	40	Missouri	$146,374
16	Iowa	$196,898	41	Maine	$144,963
17	Ohio	$196,027	42	Louisiana	$138,310
18	Nebraska	$188,654	43	Oklahoma	$131,956
19	Wisconsin	$188,195	44	West Virginia	$131,577
20	Illinois	$186,061	45	Montana	$130,522
21	District of Columbia	$185,361	46	Rhode Island	$128,782
22	Georgia	$185,014	47	Alaska	$126,860
23	Nevada	$182,227	48	Wyoming	$124,948
24	Arizona	$181,624	49	North Dakota	$124,636
25	Kentucky	$181,141	50	Arkansas	$116,709
			51	Hawaii	$105,292
				U.S. Average State	$181,000
				U.S. Median State	$181,000

START-UP SHARE OF HIGH-TECH EMPLOYMENT

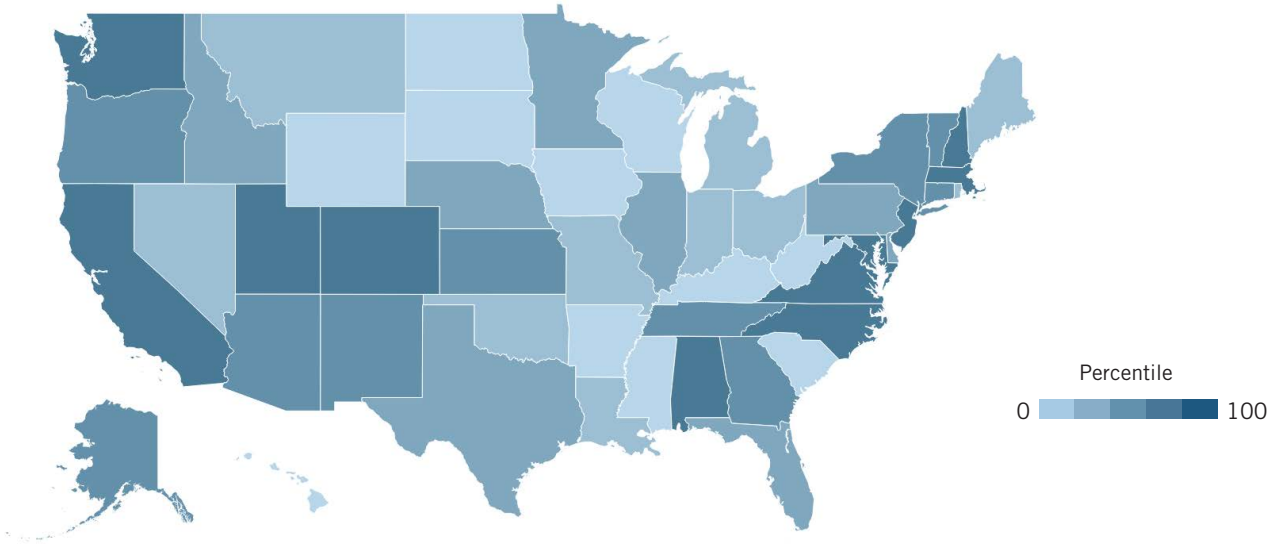
Workers Employed at High-Tech Start-Ups as a Share of Total High-Tech Employment



Rank	State	Value	Rank	State	Value
1	Alabama	16.2%	26	Pennsylvania	10.0%
2	Massachusetts	16.0%	27	Utah	9.8%
3	New Hampshire	15.6%	28	Georgia	9.8%
4	California	15.4%	29	Texas	9.7%
5	Colorado	14.5%	30	West Virginia	9.6%
6	Tennessee	13.8%	31	Missouri	9.6%
7	North Carolina	13.6%	32	Wisconsin	9.6%
8	Alaska	13.3%	33	Louisiana	9.5%
9	Nebraska	12.1%	34	Washington	9.4%
10	Nevada	12.0%	35	Mississippi	9.3%
11	Arizona	11.9%	36	Idaho	9.2%
12	Florida	11.8%	37	Ohio	9.1%
13	Hawaii	11.7%	38	Rhode Island	8.9%
14	Connecticut	11.6%	39	New Mexico	8.8%
15	Indiana	11.5%	40	Illinois	8.8%
16	Maine	11.3%	41	Minnesota	8.8%
17	North Dakota	11.3%	42	Iowa	8.8%
18	Oregon	11.3%	43	New York	8.8%
19	Kansas	11.2%	44	Wyoming	8.7%
20	New Jersey	10.8%	45	Virginia	8.5%
21	Montana	10.7%	46	Delaware	8.5%
22	Vermont	10.7%	47	South Dakota	8.3%
23	Oklahoma	10.7%	48	Kentucky	8.1%
24	Arkansas	10.5%	49	Michigan	8.1%
25	Maryland	10.4%	50	South Carolina	7.3%
			51	District of Columbia	4.2%
				U.S. Average State	10.6%
				U.S. Median State	10.0%

HIGH-TECH START-UP SHARE OF EMPLOYMENT

Workers Employed at High-Tech Start-Ups as a Share of Total Employment



Rank	State	Value	Rank	State	Value
1	Massachusetts	2.28%	26	District of Columbia	0.94%
2	California	2.02%	27	Pennsylvania	0.92%
3	Colorado	1.81%	28	Illinois	0.91%
4	New Hampshire	1.68%	29	Delaware	0.91%
5	Maryland	1.57%	30	Idaho	0.90%
6	Virginia	1.48%	31	Missouri	0.89%
7	Alabama	1.44%	32	Indiana	0.84%
8	New Jersey	1.34%	33	Oklahoma	0.82%
9	North Carolina	1.28%	34	Nevada	0.81%
10	Washington	1.24%	35	Maine	0.81%
11	Utah	1.21%	36	Michigan	0.79%
12	Alaska	1.20%	37	Louisiana	0.78%
13	Connecticut	1.19%	38	Ohio	0.76%
14	Oregon	1.13%	39	Rhode Island	0.75%
15	Arizona	1.08%	40	Montana	0.75%
16	Vermont	1.05%	41	North Dakota	0.74%
17	Georgia	1.03%	42	West Virginia	0.73%
18	New Mexico	1.02%	43	Wisconsin	0.73%
19	Kansas	1.01%	44	Arkansas	0.68%
20	New York	1.00%	45	Iowa	0.67%
21	Tennessee	0.99%	46	Wyoming	0.66%
22	Florida	0.99%	47	Hawaii	0.64%
23	Texas	0.98%	48	South Carolina	0.62%
24	Nebraska	0.97%	49	Kentucky	0.57%
25	Minnesota	0.95%	50	South Dakota	0.50%
			51	Mississippi	0.49%
				U.S. Average State	1.01%
				U.S. Median State	0.94%

Data and Methodology

Measuring the innovation economy is difficult under most circumstances due to limited national data—and measuring the innovation capabilities and performance at the congressional district level is considerably more difficult due to an even greater scarcity of data. Nonetheless, this report draws on public and private data sources to highlight 24 key indicators of strength in the high-tech economy, for all 435 U.S. congressional districts of the 116th Congress. These data sets are from 2017, unless otherwise specified, and are typically segmented to the ZIP code or county level. To re-segment (or "crosswalk") the data into congressional districts, we used reference tables available from the U.S. Department of Housing and Urban Development (for ZIP code-level data) and the Missouri Census Data Center (for county-level data).[2] This process involved some modeling, as a number of counties and ZIP codes extend across congressional district lines rather than fall neatly within them.

Details follow on the sources and methodologies behind each individual indicator.

High-Tech Manufacturing Exports

Description: Exports from chemical manufacturing and computer and electronic-product manufacturing, as designated by the North American Industry Classification System (NAICS) under industry sectors 325 and 334.[3]

Sources: U.S. Census Bureau, USA Trade Online (state export data, by NAICS); U.S. Census Bureau, *County Business Patterns 2017* (complete county file).

Methodology: State-level manufacturing exports (at the NAICS three-digit level) were apportioned to each congressional district by calculating each industry's share of total employment. Each manufacturing sector's employment is estimated at the county level and then crosswalked into congressional districts.[4] Next, state manufacturing exports were allocated to their respective congressional districts using each district's proportion of state-level employment in each manufacturing subsector.[5]

IT Services Exports

Description: Telecommunications, computer, and information services exports include hardware- and software-related services and electronic content.

Sources: State-level data on service exports from The Trade Partnership, a consultancy, via the Coalition of Services Industries.

Methodology: State-level service exports (at the NAICS three-digit level) were apportioned to each congressional district by calculating each industry's share of total employment. Each service sector's employment was estimated at the county level and then crosswalked into congressional districts. Next, state service exports were allocated to their respective congressional districts using each districts' proportion of state-level employment in each manufacturing subsector.

High-Tech Sector Workers

Description: Includes employment in seven industry sectors: NAICS 325 (chemical manufacturing), 334 (computer and electronics manufacturing), 511 (publishing industries), 517 (telecommunications), 518 (data processing, hosting, and related services), 519 (other information services), and 541 (professional, scientific, and technical services).

Source: U.S. Census Bureau, *County Business Patterns 2017* (complete county file); U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Annual 2018 data.[6]

Methodology: Employment and wages in these seven industry sectors were estimated from county-level data and then crosswalked into congressional districts.[7] District employment data was then adjusted using state-level employment and wage estimates for each industry sector.[8]

STEM, Computer and Math, and Science and Engineering Workers

Description: The definition of STEM (science, technology, engineering, and mathematics) comes from the U.S. Bureau of Labor Statistics. The majority of STEM occupations fall under Standard Occupational Classification (SOC) 15-0000, which includes computer and math occupations; SOC 17-0000, which covers architecture and engineering occupations; and SOC 19-0000, which covers life-science, physical-sciences, and social-science occupations.[9]

Source: U.S. Census Bureau, American Fact Finder (series C24010: "Sex by Occupation for the Civilian Employed Population 16 Years and Over—1 Year Estimates").

Methodology: The Census Bureau provided estimates of "computer, engineering, and science occupations" by congressional districts, with the counts of "computer and math workers" and "science and engineering workers" subcategories within this dataset. No additional computation was necessary.

Public R&D Funding

Description: This indicator includes federal R&D inflows from DOA, DOE, and HHS, plus NSF and NASA for fiscal years 2018 and 2019.

Sources: USAspending.gov; Research.gov; HHS, Federal RePORTER.[10]

Methodology: DOA, DOD, DOE, and NASA R&D data was extracted from USAspending.gov. Individual R&D contracts and manually identified R&D grants were then summed by the place of performance.[11] NSF R&D projects were summed from individual project data extracted from research.gov. HHS R&D projects were summed from individual project data extracted from the RePORTER platform for 2017 and 2018. R&D inflows, aggregated across congressional districts, were equivalent to 70 percent of federal R&D outlays for fiscal years 2018 and 2019.[12]

High-Tech Start-Ups

Description: "High-Tech Start-Ups" are firms less than 10 years old as of 2017 in one of the following industries: NAICS 3254 (pharmaceuticals and medicines), 333295 (semiconductor machinery), 334 (computer and electronic products), 3364 (aerospace products and parts), 3391 (medical equipment and supplies), 5112 (software publishers), 518 (data processing, hosting, and related services), 5415 (computer systems design and related services), and 54171 (R&D in the physical, engineering, and life sciences).

Sources: ZIP code-level firm data from "How Technology-Based Start-Ups Support U.S. Economic Growth," ITIF.[13]

Methodology: Firms were crosswalked from ZIP codes to congressional districts using the first crosswalking data to take current district lines for each state into account.

"Similar Districts" Definition

In addition to comparing each district to the U.S. median, this report has also compared each district to a group of districts that are economically similar.

For each indicator in a congressional district profile, the value listed in the "Similar District" column is the mean value of 51 districts—the district and the 25 districts ranked above and below it. When districts are ranked in the top 25 or bottom 25 of all districts nationally, the "Similar District" figure averages the country's top 51 districts or bottom 51 districts, respectively.

Economic output for each congressional district was estimated by multiplying the mean household income by the total number of households in the district and then adjusting by gross state product.[14] Data on gross state product came from the U.S. Bureau of Economic Analysis, while data on household incomes came from the U.S. Census Bureau's American Community Survey.[15]

Endnotes

1. John Wu, Adams Nager, and Joseph Chuzhin, "High-Tech Nation: How Technological Innovation Shapes America's 435 Congressional Districts" (ITIF, November 2016), https://itif.org/publications/2016/11/28/technation.

2. U.S. Department of Housing and Urban Development, HUD USPS ZIP Code Crosswalk Files (portal, datasets, USPS ZIP code crosswalk files; accessed January 8, 2020), https://www.huduser.gov/portal/datasets/usps_crosswalk.html; Missouri Census Data Center (MABLE/Geocorr 14: Geographic Correspondence Engine; accessed January 8, 2020), http://mcdc.missouri.edu/applications/geocorr2018.html.

3. For a full breakdown of NAICS industry sectors, see: "Introduction to NAICS," U.S. Census Bureau, http://www.census.gov/eos/www/naics/.

4. The U.S. Census Bureau suppresses certain employment data at the county level in order to maintain business confidentiality. In those cases, it provides a county-level employment range for the industry sectors in question. For counties with suppressed data, ITIF selected the middle value of the published range. County-level data was then summed and adjusted according to state employment in each NAICS three-digit manufacturing sector (which does not run into data-suppression issues). To illustrate, if a state exported $100 worth of high-tech products and contained two congressional districts that employed 60 workers and 40 workers respectively, the first district would have been allocated $60 in high-tech exports and the second allocated $40.

5. This indicator assumes firms' productivity and propensity to export are homogenous across the state. Because the data-crosswalk process derives congressional district allocation factors for counties based on their populations (because one county may belong to multiple congressional districts), districts that are initially estimated to have the same values of exports (due to identical population-allocation weights) are adjusted according to their respective shares of total employment compared to other districts with the same export value.

6. Note that state-level employment data comes from the "American Fact Finder" aggregations of the Census Bureau's County Business Patterns 2017; state-level industry data from the Bureau of Labor Statistics' Occupational Employment Statistics was substituted wherever Census data was suppressed.

7. Missouri Census Data Center.

8. Similar to the previous indicator, the Census Bureau suppresses certain employment data at the county level to maintain business confidentiality. In these cases, it provides a county-level employment range for the industry sectors in question. For counties with suppressed data, ITIF has selected the middle value of this range.

9. U.S. Bureau of Labor Statistics, "STEM 101: Intro to Tomorrow's Jobs," Occupational Outlook Quarterly (Spring 2014), http://www.bls.gov/careeroutlook/2014/spring/art01.pdf.

10. USAspending.gov (data query for prime awards, contracts, and grants, in fiscal years 2018 and 2019; accessed January 14, 2019), https://www.usaspending.gov/Pages/Default.aspx; Research.gov, Research Spending & Results (fiscal years 2018 and 2019; accessed January 14, 2019), http://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_eventName=viewQuickSearchFormEvent_so_rsr; U.S. Department of Health and Human Services, Federal RePORTER: Federal ExPORTER (FY 2017 Federal RePORTER Project Data and FY 2018 Federal RePORTER Project Data), https://federalreporter.nih.gov/FileDownload.

11. R&D contracts were identified according to federal acquisition product service codes (AA–AZ). For further information, see https://www.acquisition.gov. Individual grant awards were curated manually to identify R&D-related projects. ITIF allocated an R&D project to a particular district based on where the R&D was performed because this fairly represents an R&D inflow to a congressional district. Specific to the Department of Defense, data was not provided at the district level, but at the ZIP code-level. Sums of R&D projects were made at the ZIP code-level before being crosswalked to the districts.

12. Because this indicator combines three separate data sets, it provides a reasonably complete picture of R&D funding at the congressional district level—but this comes with a number of caveats. First, the indicator captured R&D inflows only; it ignored R&D outflows over this two-year period, which could include such things as contract or grant adjustments. Second, these six federal agencies together funded approximately 95 percent of all federal R&D and, therefore, provided a clear idea of how federal funds are allocated across the various districts. Third, certain R&D projects cannot be allocated to a specific district due to confidentiality, or because projects were conducted across multiple geographic locations, among other factors. Fourth, NSF and HHS datasets accounted for close to the entirety of their respective agencies' R&D outlays when compared to aggregated federal R&D outlays as reported by NSF (see https://ncsesdata.nsf.gov/fedfunds/2018/). Fifth, DOA, DOE, DOD, and NASA R&D funding that is captured by USAspending.gov likely only covers extramural R&D funding by those agencies, not R&D conducted within the agencies themselves.

13. John Wu and Robert D. Atkinson, "How Technology-Based Start-Ups Support U.S. Economic Growth" (ITIF, November 2017), https://itif.org/publications/2017/11/28/how-technology-based-start-ups-support-us-economic-growth.

14. Allocating GSP according to household incomes captures a simple understanding of the economic output in the congressional district because we assume households would spend the majority of their income within that district. It provides a more "closed-loop" estimation versus using industry value added or industry employment as an allocation factor. Value added might more accurately capture economic output, but it does not translate entirely to the dollars that flow within that district because we would expect firms to export out of their district. Employment, on the other hand, faces the confounding factor of workers employed in other congressional districts where they commute to work. ITIF also considered including other income transfers, such as Social Security, retirement incomes, and welfare, but due to the heterogeneous nature of such transfers, we determined the simpler method is better. In summary, GSP was apportioned to its congressional districts according to the income share of each district. To illustrate, if a state had a GSP of $100 and contained two congressional districts, District A and District B, in which households earned an average of $30 and $20 respectively, then District A was allocated a GSP of $60 while District B was allocated $40. In this manner, the model captures each district's relative affluence.

15. U.S. Bureau of Economic Analysis, Annual Gross Domestic Product (GDP) by State, 2018 (interactive data, regional data, GDP and personal income; accessed January 21, 2020), http://www.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1Annual; U.S. Census Bureau (series DP03, selected economic characteristics 2018 American community survey five-year estimates; accessed February 21, 2020), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

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