

**NEWLY
RELEASED**

2022 INDICATORS OF INNOVATION

NJBIA
New Jersey Business
& Industry Association

Table of Contents

Reclaiming New Jersey’s Stature as the Innovation State3

New in 20224

Indicators of Innovation.....5

> CAPITAL

Venture Capital Investment – Assets Under Management.....6

SBIR/STTR Award Obligation.....7

State R&D Expenditures8

National Science Foundation Award Totals – All Groups.....9

> TALENT

Number of Institutions Ranked in the Top 100 10

Net Migration of First-Time, Full-Time College Students.....11

Percentage of Population with a Graduate or Professional Degree12

Rate of New Entrepreneurs..... 13

> BUSINESS

Number of Patents Granted..... 14

Rate of New Employer Business Actualization 15

Net Business Growth..... 16

Business Tax Climate 17

Regional Innovation Scores 18

Breaking Down State Innovation Scores..... 19

 Capital.....20

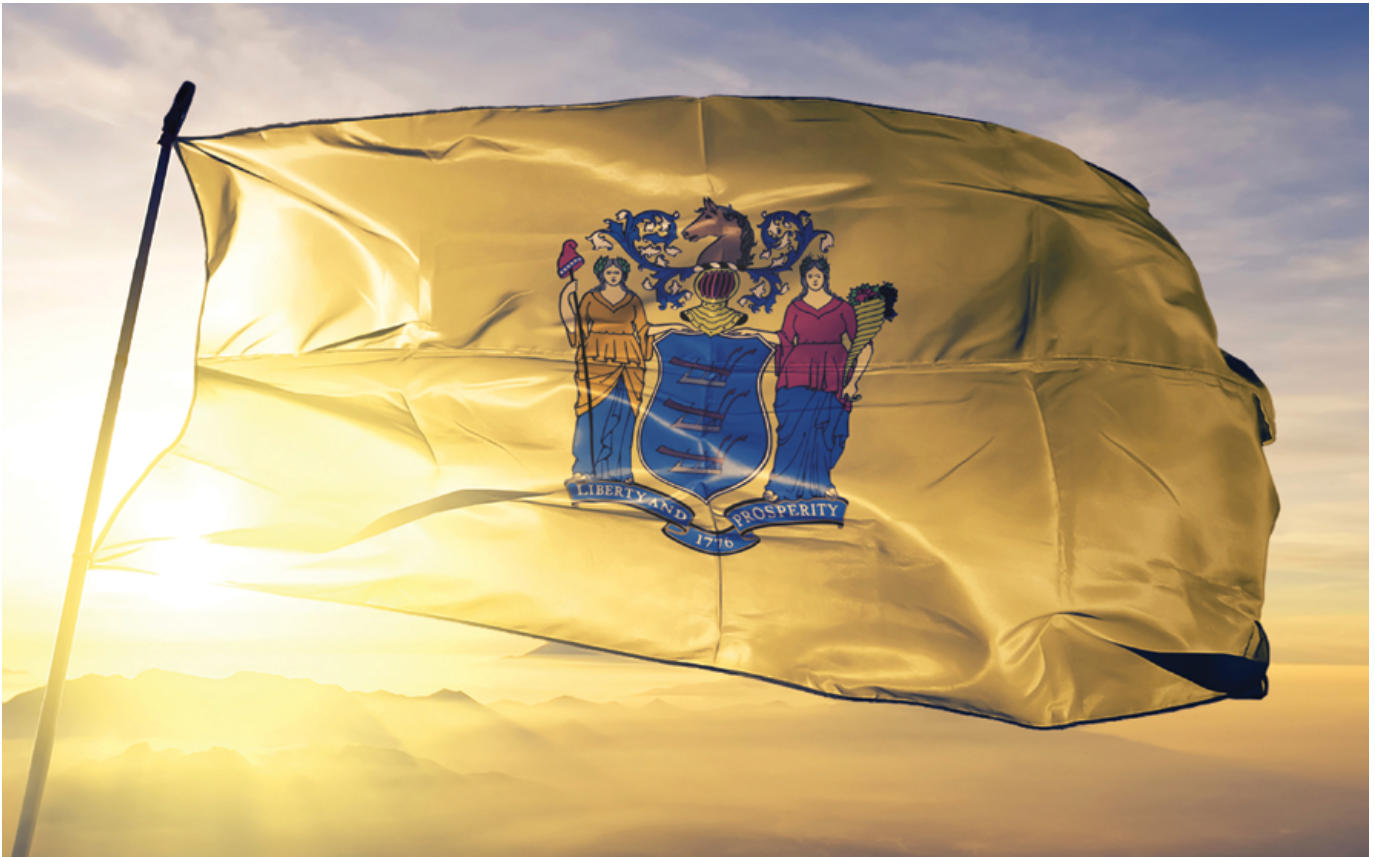
 Talent22

 Business24

Conclusion: Tying it all Together27

Sources28

Appendices.....29



Reclaiming New Jersey's Stature as the Innovation State

BY KYLE SULLENDER | KSULLENDER@NJBIA.ORG | DIRECTOR OF ECONOMIC POLICY RESEARCH

Author's Note regarding the Release of Data: *All statistics, figures, and facts have been updated as of June 2022. As a result of disparate release schedules from the various institutions, organizations, and agencies that NJBIA relies upon to report the information contained within this report, some measures will represent more recent data than others. All figures included in this report are the most recent available as of June 2022.*

Economists have long acknowledged the critical role that innovation plays in economic growth. Innovation leads to higher productivity, driving the production of more goods and services, and thus growing economic output and reshaping the economy. Productivity increases also lead to higher wages for workers, make businesses more profitable, and enable future investments in talent and capital.

Nationally, the United States spends more on research and development than any other country in the world – more than \$657 billion in 2019, according to the Congressional Research Service. While the entire country benefits from that investment, states and localities have much to gain from developing an innovation ecosystem within their boundaries. These benefits aren't exclusive to innovative industries either. In his 2012 book, "The New Geography of Jobs," economist Enrico Moretti suggested that high-tech job growth has a regional "multiplier effect" and leads to even greater job growth outside of the tech sector.

Given the entirety of evidence-based research that points to the importance of innovation and high-growth companies to a state's economic growth and future output, NJBIA has consistently put forth its vision that New Jersey return to its status as a hub for invention and innovation.

The Garden State already possesses the assets and qualities necessary to achieve this future: a strategically advantageous, central location in the Northeast, a nation-leading K-12 education system, several highly-ranked institutions of higher education, and a highly-skilled workforce. The state must now continue to find ways to harness these advantages.

New for 2022

NJBIA IS COMMITTED to conducting and providing high-quality, factual research and analysis. Although this report intends to provide updated information to an existing series of publications, our team is always seeking ways to improve and enhance our analysis.

Due to changes made to the measured indicators, comparing the 2019 and 2020 Indicators of Innovation reports is an imperfect measure of improvement. This 2022 update to NJBIA's Indicators of Innovation report utilizes the same 12 indicators as the 2020 report with minor modifications and can thus be compared to the previous iteration much more readily.

NOTE: Indicator 11 measures net business growth in each of the seven states studied. These statistics are derived from the Bureau of Labor Statistics' Business Employment Dynamics Survey – a quarterly

report which measures the opening and closing of business establishments in the United States. Quarterly statistics are considered in aggregate for the year in which they occur.

New figures released measuring business births and deaths in 2020 contain an outlier believed to have been caused by the reclassification of certain NAICS codes, and has therefore been omitted from this report. The prior year (2019) is used to more accurately compare the region's performance in this indicator.

This 2022 update to NJBIA's Indicators of Innovation report utilizes the same 12 indicators as the 2020 report with minor modifications and can thus be compared to the previous iteration much more readily.

Indicators of Innovation

As part of our innovation research, NJBIA released its first “Indicators of Innovation” report in 2019. The study looked at 12 indicators in New Jersey and six of our most direct regional competitors (Connecticut, Delaware, Massachusetts, Maryland, New York, and Pennsylvania) to understand the presence of an innovation ecosystem throughout the region. The 2019 study found that New Jersey’s overall innovation score ranked fifth, behind Maryland, Pennsylvania, Massachusetts, and New York.

In 2020, an updated report adjusted several of the indicators used to measure the innovation status of the seven states, and updated figures

were used to recalculate each state’s innovation score. In 2020, New Jersey increased its standing relative to regional competitors by placing fourth and narrowly placing above Connecticut and Maryland.

As in years prior, states are scored from 1 (least competitive) to 7 (most competitive) in each of the 12 measures. Because this study does not seek to determine which indicators, if any, are more important than others, these scores are not weighted. In total, a score of 84 points is the highest possible, representing a state that scored 7 points in every indicator.



CAPITAL

Capital is the lifeblood of any business. The amount of cash flow in and to a state dictates the opportunities available to individuals and businesses. Key capital indicators for purposes of analyzing an innovation ecosystem are a state’s ability to attract: 1) venture capital investment; 2) Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) awards; and 3) National Science Foundation awards. In addition, states must commit to investing in themselves through 4) state research & development (R&D) expenditures.



TALENT

Talent is also critical to a state’s ability to create an innovation ecosystem. A highly educated, highly skilled workforce plays a significant role in creating an innovation ecosystem. Top-tier institutions serve as incubators for innovation. In order to understand the various talent networks throughout New Jersey and the region, a number of factors are taken into consideration: 1) the number of institutions ranked in the top 100; 2) net migration of first-time college students; 3) the percentage of a population with a graduate or professional degree; and 4) the rate of new entrepreneurs.



BUSINESS

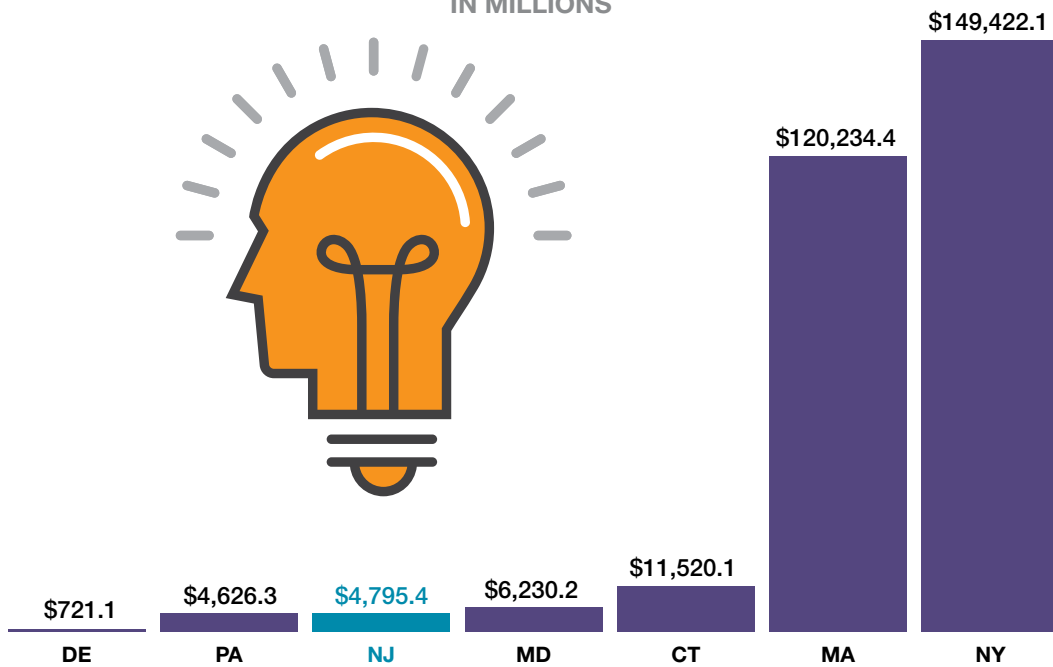
Without business there is no economy. Having a competitive business climate can make or break a state’s ability to attract and retain innovative businesses. A healthy/competitive business climate can spur innovation, while an unhealthy/uncompetitive climate can deter innovation in a state. In addition to GDP, there are various indicators to analyze when trying to understand a state’s business climate, including: 1) the number of patents granted; 2) the rate of new employer business actualization; 3) net business growth; and 4) business tax climate.

INDICATOR 1

Venture Capital – Assets Under Management

2021 Venture Capital
Assets Under Management (AUM)

IN MILLIONS



Regional Score*	
Connecticut	5
Delaware	1
Maryland	4
Massachusetts	6
New Jersey	3
New York	7
Pennsylvania	2

VENTURE CAPITAL IS a vital component of how startups develop into mature businesses. According to the National Venture Capital Association (NVCA), despite the uncertainties and interruptions of the COVID-19 pandemic, 2020 and 2021 were record-setting years for the venture capital industry nationwide and in New Jersey. Venture capital deal activity in the Garden State exploded from \$1.7 billion to \$5.7 billion in those two years.

According to NVCA, Assets Under Management (AUM) measures the value of all assets being managed in a state by venture capital funds. In 2021, New York and Massachusetts led the region with \$149.4 billion and \$120.2 billion in AUM, respectively.

Connecticut’s AUM was worth \$11.5 billion, followed by Maryland (\$6.2 billion), New Jersey (\$4.8 billion), and Pennsylvania (\$4.6 billion). Delaware had the smallest portfolio in the region with \$721.1 million in AUM.

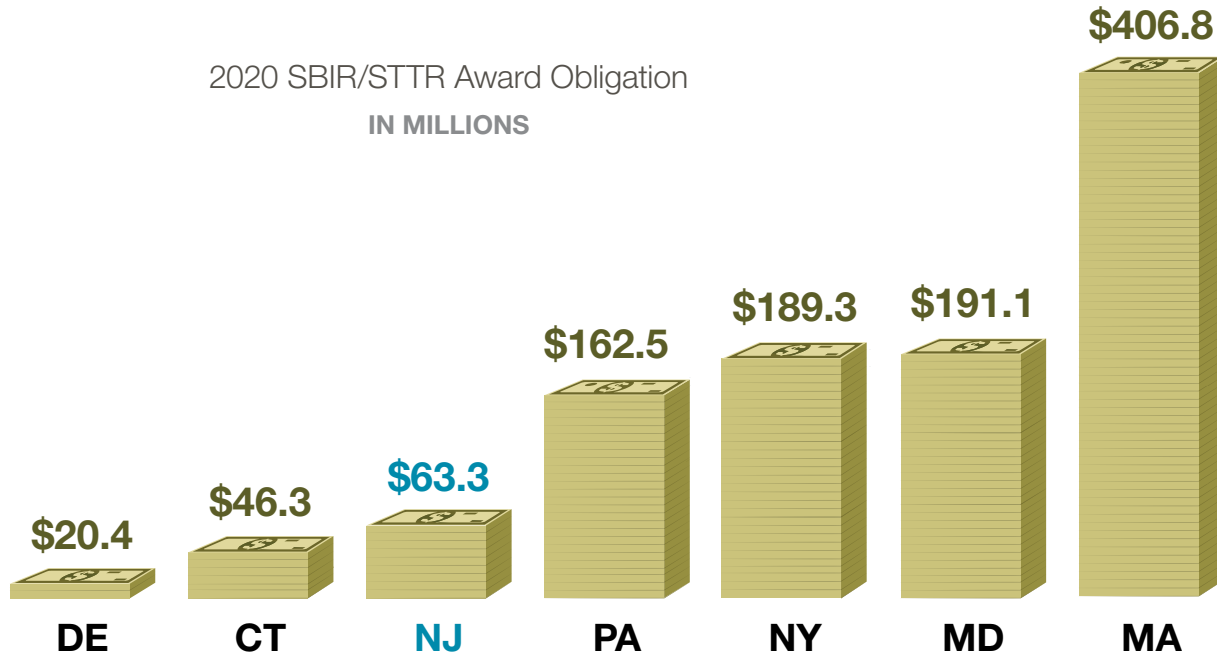
An analysis of the past decade shows that New York and Massachusetts have consistently led the region in total AUM. New York and Delaware have experienced the largest growth in AUM from 2010 to 2021, increasing their total AUM by 535% and 499%, respectively. New Jersey has experienced the only decline over this period, with total AUM decreasing by 2% from 2010 to 2021.

Historical data for AUM can be found in Appendix A.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 2

SBIR/STTR Award Obligation



Regional Score*	
Connecticut	2
Delaware	1
Maryland	6
Massachusetts	7
New Jersey	3
New York	5
Pennsylvania	4

THE SMALL BUSINESS Association (SBA) utilizes two highly competitive programs to stimulate federal research and development. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs “enable small businesses to explore their technological potential and provide the incentive to profit from its commercialization.”

In 2020, Massachusetts led the region in total SBIR/STTR award obligations, earning \$406.8 million. Maryland earned the second largest sum of awards, totaling \$191.1 million, followed closely by New York (\$189.3 million),

and Pennsylvania (\$162.5 million). New Jersey scored fifth with an award sum of \$63.3 million, followed by Connecticut (\$46.3 million), and Delaware (\$20.4 million).

Despite receiving the smallest sum of awards funding, Delaware experienced the largest growth in funding from 2015-2020 (96.4%). New York’s SBIR/STTR awards grew at the second fastest rate (61.9%), followed by Maryland (54.4%), Pennsylvania (48.1%), New Jersey (44.1%), Connecticut (34.1%), and Massachusetts (33.4%).

For full historical SBIR/STTR data, see Appendix B.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 3

State R&D Expenditures



2020 State Government R&D Expenditures:
New York vs. Rest of Region

Regional Score*	
Connecticut	5
Delaware	1
Maryland	4
Massachusetts	3
New Jersey	2
New York	7
Pennsylvania	6

THE NATIONAL CENTER for Science and Engineering Statistics (NCSES) recognizes research and development (R&D) as a core driver of scientific discovery and innovation. Federal spending on R&D far outpaces that of individual states. However, state R&D expenditures play an important role in business, higher education, and nonprofit institutions, among other parts of the economy, according to an NCSES brief.

New York not only continues to lead the region in R&D investment, but leads the nation as well, spending over \$453.8 million in 2020. Pennsylvania ranked second in the region, spending \$103.1 million, followed by Connecticut (\$58.8 million), Maryland (\$33.4

million), Massachusetts (\$31.7 million) and New Jersey (\$23.8 million). Delaware scored last, investing just \$3.6 million.

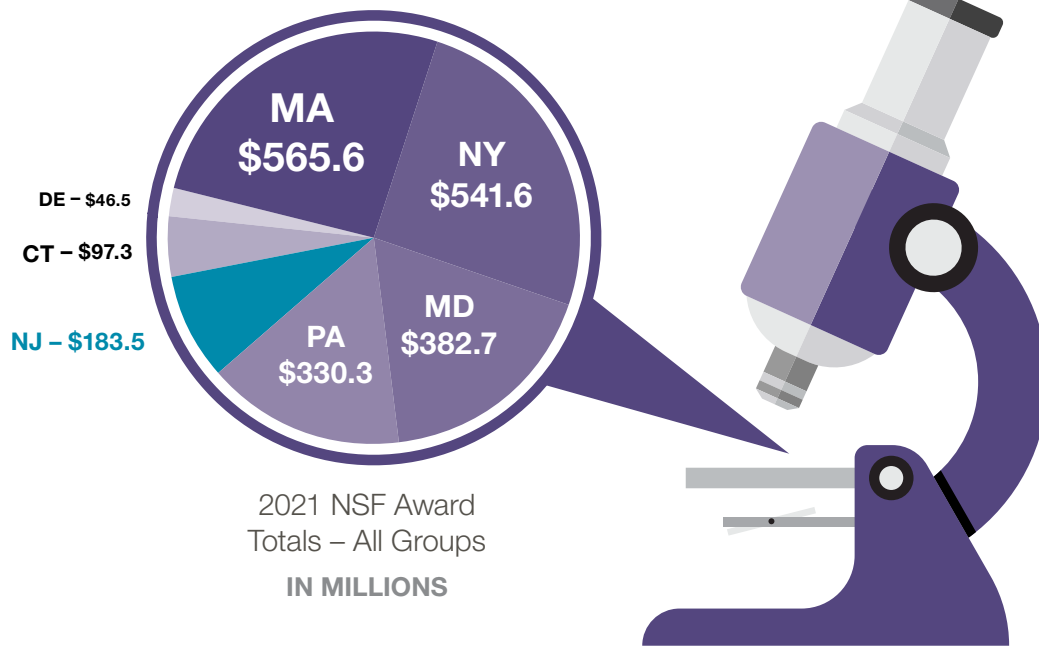
Notably, while Massachusetts scored fourth in 2020, state R&D expenditures in the state have increased by more than 549% from 2010 to 2020. No other state in the region experienced similar growth. The second largest growth occurred in Delaware (50.6%), followed by Connecticut (46.8%), Maryland (46.3%), Pennsylvania (17.3%), and New York (16%). New Jersey is the only state to have seen its investment in R&D decrease from 2010 to 2020 (-38.5%).

For full historical State R&D Expenditures, see Appendix C.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 4

National Science Foundation Award Totals – All Groups



Regional Score*	
Connecticut	2
Delaware	1
Maryland	5
Massachusetts	7
New Jersey	3
New York	6
Pennsylvania	4

THE NATIONAL SCIENCE Foundation (NSF) is “the only federal agency whose mission includes support for all fields of fundamental science and engineering [excluding medical sciences].” NSF research grants fund research, education, and research equipment for federal, industry, and small business projects, as well as potentially transformational, “high-risk, high-payoff” ideas.

In 2021, Massachusetts scored the highest, receiving approximately \$565.6 million in NSF award funding. New York had the second-largest funding haul, with \$541.6 million, followed by Maryland (\$382.7 million), Pennsylvania (\$330.3 million), New Jersey (\$183.5 million), and Connecticut (\$97.3 million). Delaware finished with the lowest

total in 2021, with \$46.5 million in total NSF award funding.

Despite scoring third in 2021, Maryland dramatically outpaced the rest of the region from 2010-2021 in terms of growth in NSF award funding. Over this span, total NSF funding awarded to Maryland increased by 135.4%. The second fastest growing state was Connecticut, where funding increased by 58.1%, followed by Delaware (32.2%), Massachusetts (18.7%), Pennsylvania (18.1%), and New Jersey (16.2%). Despite scoring second in 2021, New York experienced the slowest growth over this period, increasing total NSF award funding by 12.5%.

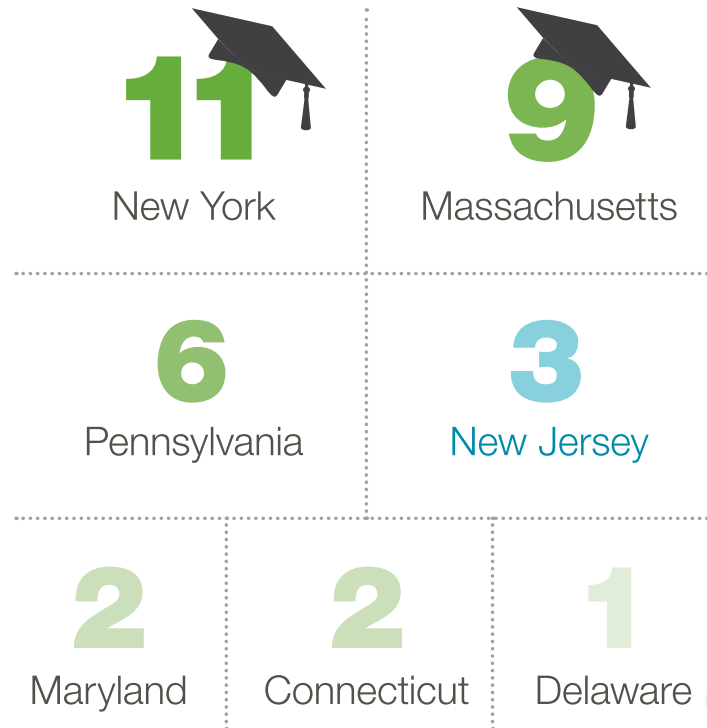
For historical NSF award funding totals, see Appendix D.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 5

Number of Institutions Ranked in the Top 100

2022 Number of Institutions Ranked in the Top 100



Regional Score*	
Connecticut	T3
Delaware	1
Maryland	T3
Massachusetts	6
New Jersey	4
New York	7
Pennsylvania	5

AS MEASURED ELSEWHERE in this report, innovative companies often rely on individuals with advanced degrees to drive growth and development, making the supply of these graduates critical to a successful innovation ecosystem. In deciding where to advance their studies, degree-seeking students may consider the graduation rate of current and past students, the size and expertise of the faculty, the success of school alumni, and many other variables which are utilized to compose U.S. News and World Report’s annual national university ranking.

In 2022, New York was home to 11 universities falling in the top 100 of these rankings. Massachusetts had the second most, with nine top-100 universities in the state, followed by Pennsylvania (6), New Jersey (3),

and Connecticut and Maryland (2). Delaware had the fewest top-100 ranked universities, with just one, University of Delaware, which ranked 93rd.

Prior issues of this report have noted that while Massachusetts scores second on this list, it benefits from the close proximity of its institutions. In 2022, seven of Massachusetts’ nine top-100 universities were located within a 10-mile radius of the City of Boston. This close proximity fuels competition and stimulates further innovation while also creating an ecosystem more accessible to collaboration and partnerships. In contrast, New Jersey’s three top institutions are geographically dispersed throughout the state .

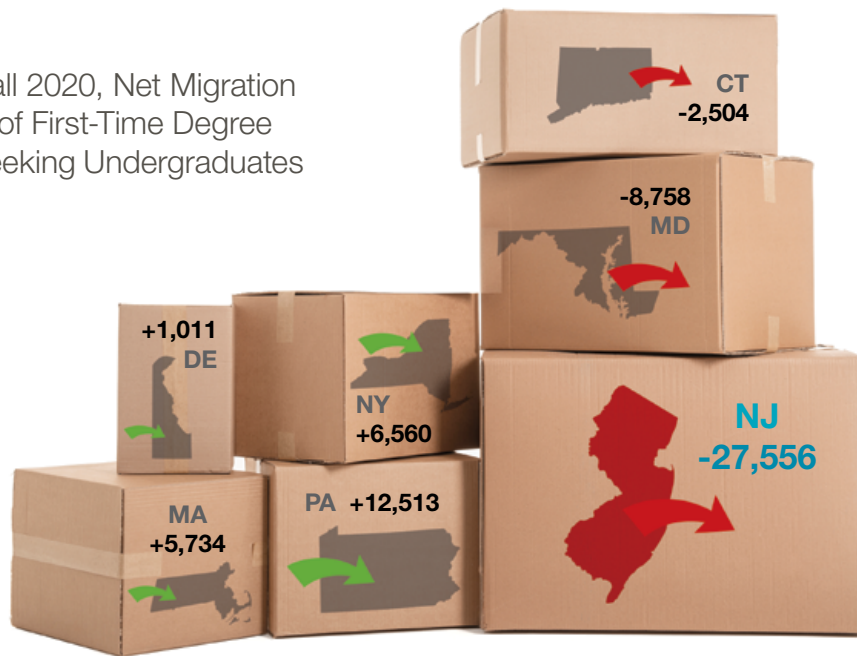
A complete list of each state’s top-100 universities can be found in Appendix E.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 6

Net Migration of First-Time Degree Seeking Undergraduates

Fall 2020, Net Migration of First-Time Degree Seeking Undergraduates



Regional Score*	
Connecticut	3
Delaware	4
Maryland	2
Massachusetts	5
New Jersey	1
New York	6
Pennsylvania	7

ACCORDING TO THE United States Census Bureau, New Jersey spent more per pupil on public elementary and secondary school systems than 48 other states in 2019, surpassed only by New York. Yet, the state also continues to experience the largest net loss of first-time college students year after year, based on an analysis of data from the National Center for Education Statistics (NCES). This net loss in students represents a lost investment for the state as some of its best and brightest students choose to study, and potentially stay, in other states.

According to NCES, in the fall of 2020,

New Jersey experienced a net loss of -27,556 first-time degree-seeking students, the largest net loss both regionally and nationally. Pennsylvania scored the highest in net migration of students in 2020, gaining 12,513 more students than were lost. New York scored second with a net gain of 6,560, followed by Massachusetts (+5,734), and Delaware (+1,011). Aside from New Jersey, Connecticut (-2,504) and Maryland (-8,758) were the only other states in the region to experience a net loss of first-time students.

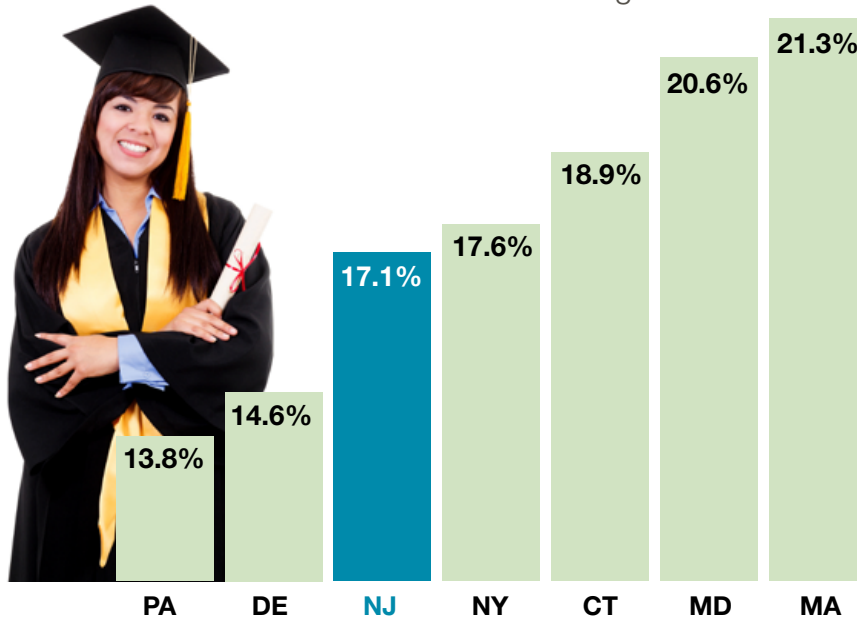
For historical data on the migration of first-time students, see Appendix F.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 7

Percentage of Population with a Graduate or Professional Degree

2020 % of Population with a Graduate or Professional Degree



Regional Score*	
Connecticut	5
Delaware	2
Maryland	6
Massachusetts	7
New Jersey	3
New York	4
Pennsylvania	1

A POPULATION OF highly-trained, highly-educated individuals is critical to a thriving innovation ecosystem. Higher education trains prospective innovators not only in business and technical skills, but in critical thinking, problem solving, and other areas which are of absolute importance to a successful entrepreneurial mindset.

According to the U.S. Census Bureau, Massachusetts was home to the highest percentage of residents with a graduate or professional degree in 2020, with 21.3%. Maryland was home to the second-largest percentage of such residents, with 20.6% having a graduate or professional degree, followed by Connecticut (18.9%), New York (17.6%), New Jersey (17.1%), and Delaware (14.6%). Pennsylvania had the lowest

percentage of residents with a graduate or professional degree in 2020, with 13.8%.

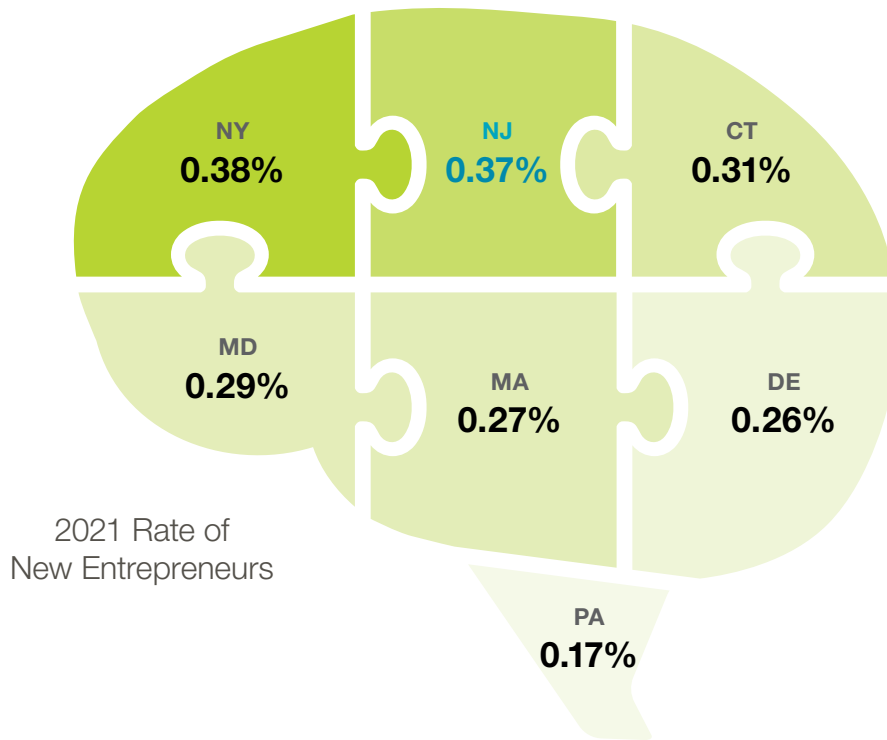
Despite scoring the lowest in 2020, Pennsylvania has increased its share of residents with a graduate or professional degree faster than any other state in the region over the past decade (2010-2020), increasing the percentage of residents meeting these criteria by 32.7%. Delaware’s highly-educated cohort grew the second-fastest over this span (29.2%), followed by New Jersey (28.6%), Massachusetts (27.5%), New York (25.7%), and Maryland (25.6%). Connecticut’s share of residents with a graduate or professional degree grew at the slowest pace over the decade, at 23.5%.

For historical educational achievement rates, see Appendix G.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 8

Rate of New Entrepreneurs



Regional Score*	
Connecticut	5
Delaware	2
Maryland	4
Massachusetts	3
New Jersey	6
New York	7
Pennsylvania	1

EACH YEAR, THE Ewing Marion Kauffman Foundation releases an annual “Indicators of Entrepreneurship” report which attempts to identify and measure entrepreneurial trends in the United States. Among the variables it seeks to measure is the “rate of new entrepreneurs,” which is reported annually as the percentage of residents in each state that start a new business. The estimate is produced using the Census Bureau’s Current Population Survey and includes employers and non-employers, as well as those who are starting their first business, or who already own incorporated or unincorporated businesses.

New York led the region in 2021 with .38% of the state’s population meeting the criteria of a “new entrepreneur.” New Jersey achieved the second highest rate of new entrepreneurs,

with .37% of the state’s population meeting the criteria, followed by Connecticut (.31%), Maryland (.29%), Massachusetts (.27%), and Delaware (.26%). Pennsylvania had the lowest rate of new entrepreneurs in the region in 2021 (.17%).

As noted in previous iterations of this report, the rate of new entrepreneurs fluctuates regularly. An analysis of data from the past eleven years (2010-2021) shows New York experienced the highest average annual rate of new entrepreneurs (.35%). New Jersey experienced the second highest rate with an annual average of .30%, followed by Massachusetts (.28%), Maryland (.27%), Connecticut (.27%), Delaware (.24%), and Pennsylvania (.18%).

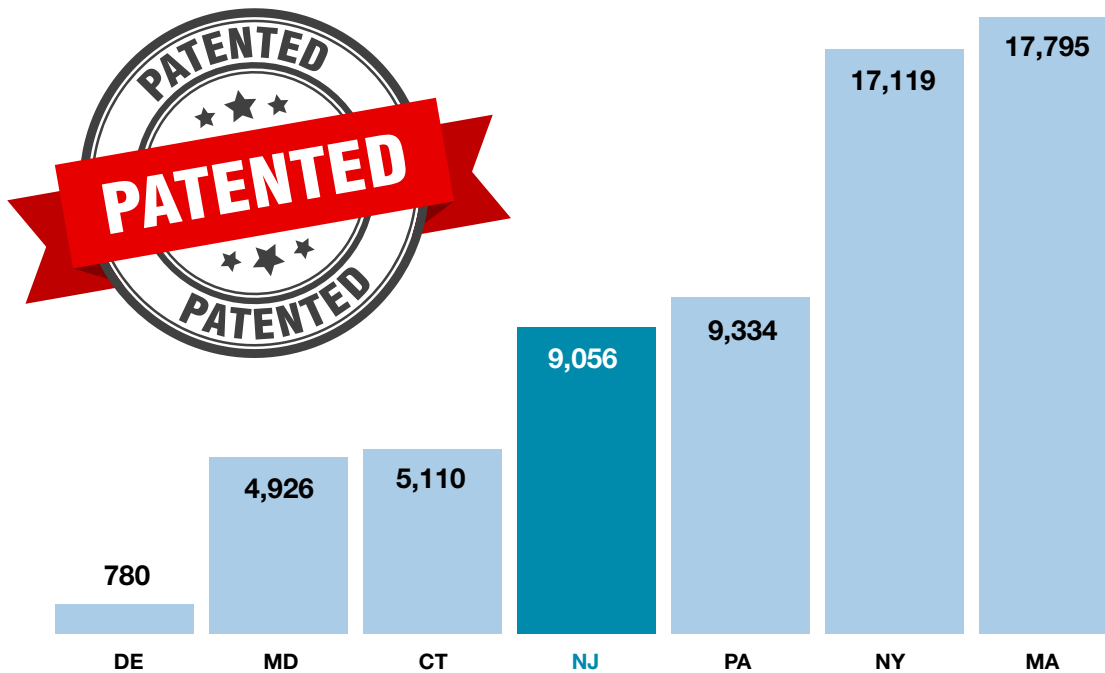
For historical data on the rate of new entrepreneurs, see Appendix H.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 9

Number of Patents Granted

2021 U.S. Patents Granted



Regional Score*	
Connecticut	3
Delaware	1
Maryland	2
Massachusetts	7
New Jersey	4
New York	6
Pennsylvania	5

PATENTS GRANT RIGHTS of ownership to inventors for their innovations. A high level of patent activity in a state therefore signals an environment where inventors are able to successfully commercialize and develop research concepts.

According to the U.S. Patent and Trademark Office (USPTO), Massachusetts led the region in 2021 with 17,795 total patents granted to inventors and assignees. New York scored second with 17,119 total patents awarded, followed by Pennsylvania (9,334), New Jersey (9,056), Connecticut (5,110), and

Maryland (4,926). Delaware had the fewest total patents awarded with just 780.

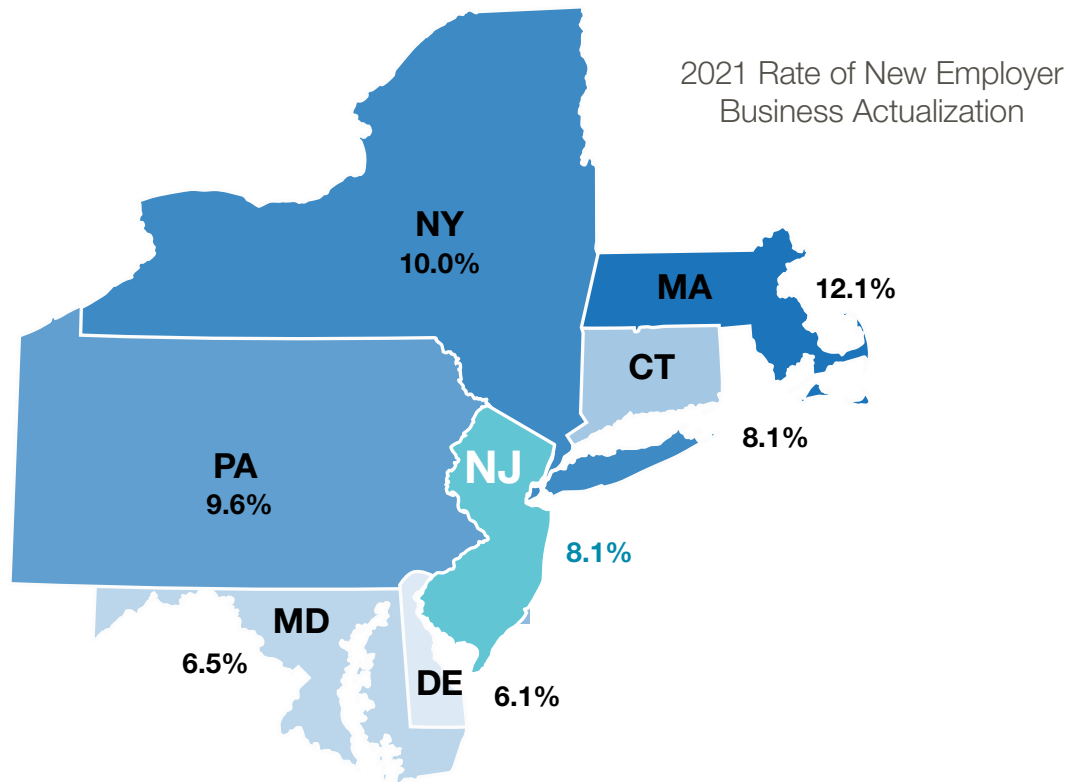
From 2010 to 2021, all states in the region experienced growth in the number of patents granted to inventors within their borders. In total, patents awarded to the region increased by approximately 42.2% over this period. On a state-by-state basis, Massachusetts experienced the highest growth rate (74.5%), while Delaware experienced the lowest (4.8%).

For a full breakdown of patent activity in the states being measured, see Appendix I.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 10

Rate of New Employer Business Actualization



Regional Score*	
Connecticut	T4
Delaware	1
Maryland	2
Massachusetts	7
New Jersey	T4
New York	6
Pennsylvania	5

IN ADDITION TO Kauffman’s rate of new entrepreneurs referenced in Indicator 8, the group releases an annual measure of each state’s Rate of New Business Actualization (NEBAR). The rate measures “the percent of new businesses that make a first payroll within eight quarters of business actualization.” In other words, the rate contributes to our understanding of where new businesses are able to not only form, but develop into an organization with employees.

In 2021, Massachusetts continued to lead the region with a NEBAR of 12.1%. New York had the second-highest NEBAR at 10%, followed by Pennsylvania (9.6%), New Jersey (8.1%), Connecticut (8.1%), and Maryland

(6.5%). Delaware had the lowest NEBAR in the region in 2021, at 6.1%.

Every state in the region experienced a decrease in NEBAR over the past decade (2010-2021). New York and Maryland experienced the greatest decline over the decade, falling -31.9% and -31.2%, respectively. New Jersey experienced a -30.5% decline, followed by Delaware (-29.8%), Pennsylvania (-28.5%), and Connecticut (-26.7%). Massachusetts experienced the slightest decline over this span, with its NEBAR falling just -12%.

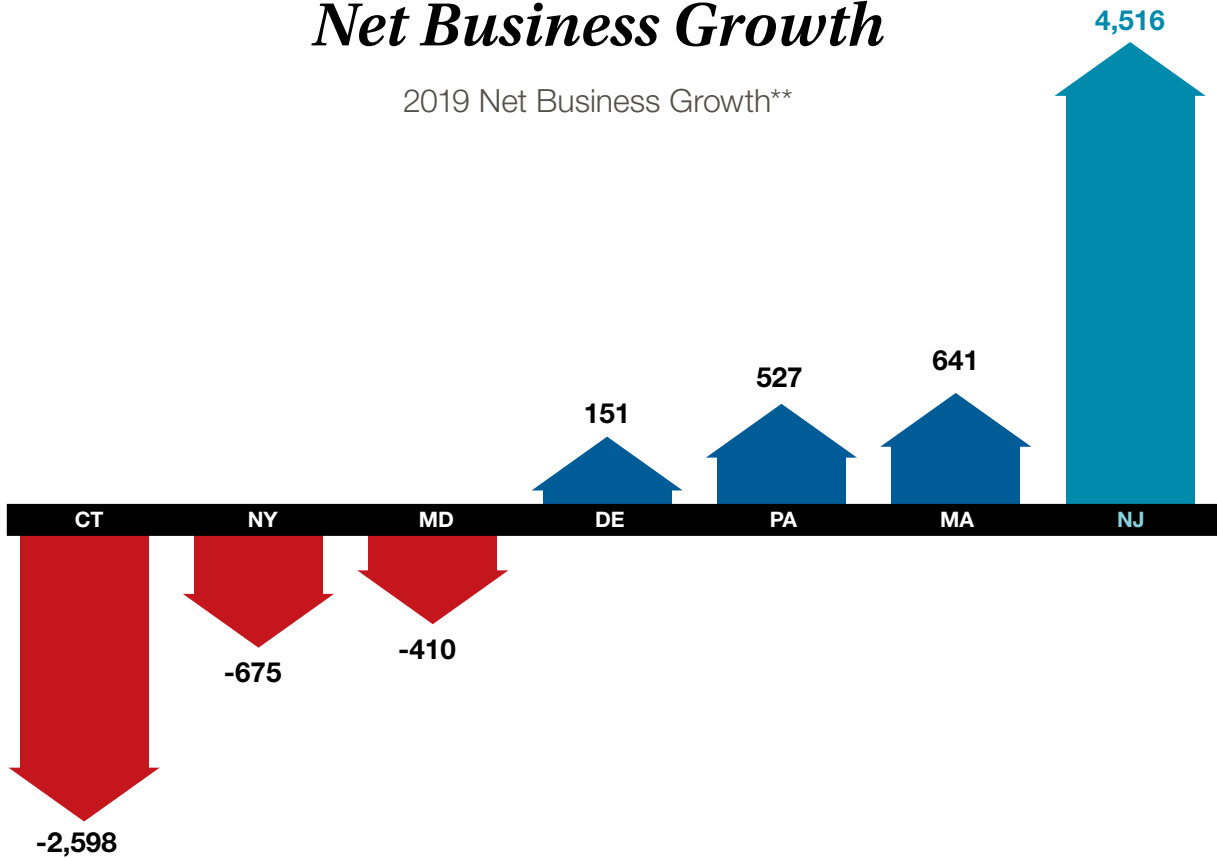
For a historical breakdown of NEBAR rates, see Appendix J.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

INDICATOR 11

Net Business Growth

2019 Net Business Growth**



Regional Score*	
Connecticut	1
Delaware	4
Maryland	3
Massachusetts	6
New Jersey	7
New York	2
Pennsylvania	5

EACH QUARTER, THE Bureau of Labor Statistics measures the opening and closing of business establishments as part of its Business Employment Dynamics Survey. Considered here, net business growth refers to the total number of private establishment “deaths” subtracted from the total number of private establishment “births” in each state. Quarterly data is aggregated into annual data for the year in which it occurs.

In 2019, New Jersey led the region by a sizable margin with a net business growth of 4,516 private establishments, while the second-scoring state, Massachusetts, experienced net growth of 641. Pennsylvania scored third with a net growth of 527, followed

by Delaware (151). Three states experienced a net decline of private establishments in 2019, including Maryland (-410), New York (-675), and Connecticut (-2,598).

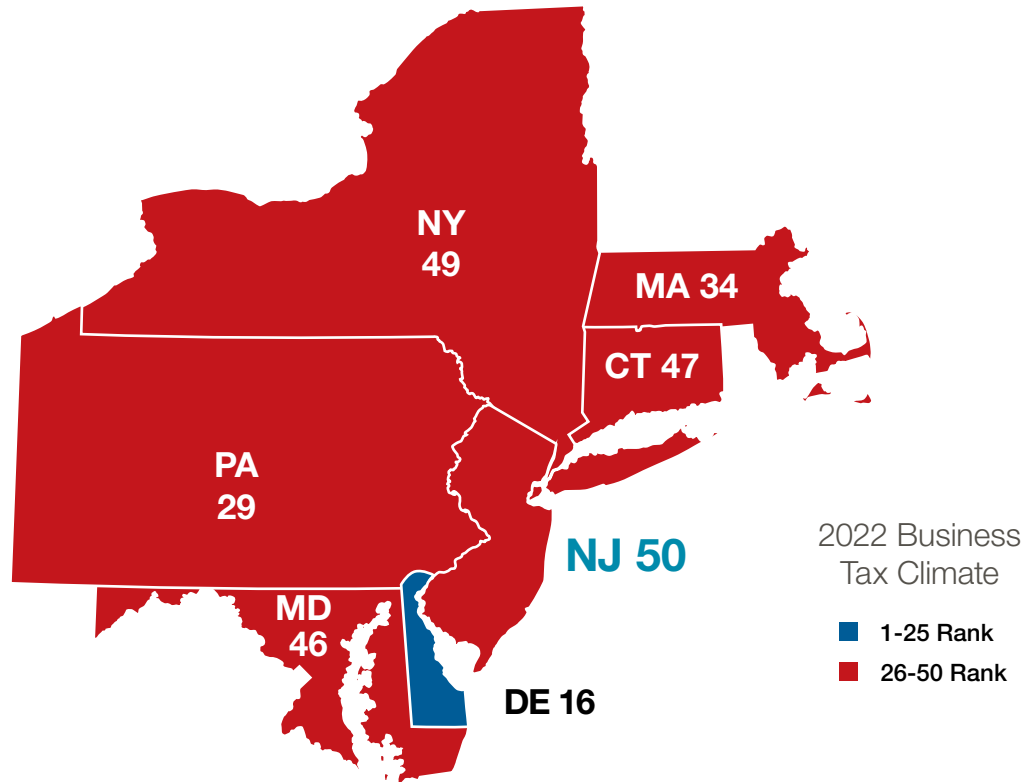
From 2010-2019, most states experienced a net growth of private establishments on average, with Connecticut being the sole state in the region to experience an average annual decline of approximately -128 private establishments. Massachusetts had the largest average annual gain over this period, with an average gain of 4,034 private establishments, followed by New York (3,068), New Jersey (869), Pennsylvania (483), Maryland (362), and Delaware (249).

For full historical data, see Appendix K.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region **See page 4

INDICATOR 12

Business Tax Climate



Regional Score*	
Connecticut	3
Delaware	7
Maryland	4
Massachusetts	5
New Jersey	1
New York	2
Pennsylvania	6

EVERY YEAR, THE Tax Foundation, an independent tax policy nonprofit, releases an updated business tax climate study to rank all 50 states based on the organization’s “State Business Tax Climate Index.” The index, built using each state’s individual income tax, sales tax, corporate income tax, property tax, and unemployment insurance tax, uses a variety of factors and weights to produce the state-by-state rankings. A low ranking is intended to indicate a state with a poor business tax climate, whereas a higher ranking suggests a more business-friendly climate.

In its 2022 State Business Tax Climate,

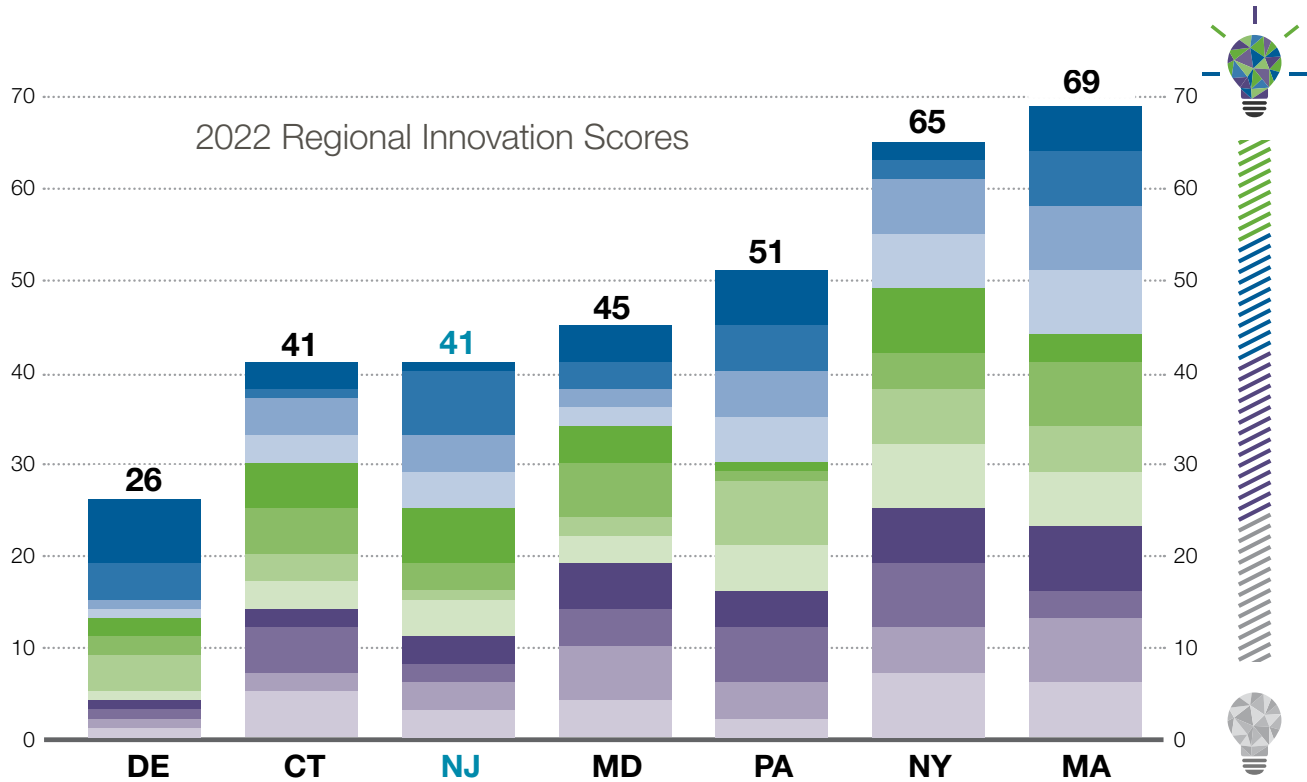
New Jersey ranked 50th in the United States for business tax climate for the seventh consecutive year. From least competitive to most competitive, New Jersey was followed by New York (49th), Connecticut (47th), Maryland (46th), Massachusetts (34th), Pennsylvania (29th), and Delaware (16th).

An analysis of historical rankings for each state show that ranks change only slightly year-to-year. The largest change in the region from 2010-2022 occurred in Connecticut, where the state’s ranking fell by nine places (from 38th to 47th).

For full historical data, see Appendix L.

*Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

Regional Innovation Scores



> CAPITAL

- Venture Capital Investment – Assets Under Management
- SBIR/STTR Award Obligation
- State R&D Expenditures
- National Science Foundation Award Totals – All Groups

> TALENT

- Number of Institutions Ranked in the Top 100
- Net Migration of First-Time Degree Seeking Undergraduates
- Percentage of Population with a Graduate or Professional Degree
- Rate of New Entrepreneurs

> BUSINESS

- Number of Patents Granted
- Rate of New Employer Business Actualization
- Net Business Growth
- Business Tax Climate

To put these indicators in perspective, NJBIA scored each from 1 (least competitive in the region) to 7 (most competitive in the region), with a potential high score of 84 points. This study does not determine which category or indicators may be more or most important relative to others in building an innovation ecosystem. As such, the indicators are not weighted. New Jersey’s cumulative innovative score totaled 41 (a decrease from 44 in the 2020 report), which ranks tied for FIFTH in the region. Massachusetts ranked first in the region, scoring 69 points, followed by New York (65). Pennsylvania earned 51 points, Maryland earned 45, and Connecticut scored 41. Delaware scored the lowest with 26 points.



Breaking Down State Innovation Scores

Based on the cumulative impact analysis, Pennsylvania, New York, and Massachusetts continued to surpass New Jersey. In order to gain a more nuanced view of New Jersey’s place among its regional competitors, the following section presents a breakdown of each category – capital, talent, and business – and each state’s average score within each category.

The tables that follow reflect the respective indicator score in each category for New Jersey and its primary competitors (Maryland, Pennsylvania, New York, Massachusetts), along with each state’s average indicator score in that category. Scores range from 1-7, with 1 indicating the lowest (or “worst”) score for that indicator, and 7 indicating the best.

In 2020 NJBIA also provided a series of recommendations related to each category that sought to make New Jersey more competitive in all three critical areas. In the following section, we restate each of the prior recommendations and provide an update as to the extent to which that recommendation has been put into action.



CAPITAL

New Jersey’s average score in the capital category was 2.75, trailed only by Delaware which scored last in all four categories. Compared to regional leaders New York and Massachusetts, New Jersey’s capacity for investment and research remains low.

Capital Indicators	NJ	PA	MD	MA	NY
Venture Capital AUM	3	2	4	6	7
SBIR/STTR Award Obligation	3	4	6	7	5
State R&D Expenditures	2	6	4	3	7
NSF Award Totals	3	4	5	7	6
Average Capital Score	2.75	4.00	4.75	5.75	6.25

Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

Recommendations to Increase Innovation Capital in New Jersey

Recommendation #1

MODIFY NEW JERSEY’S current R&D tax credit by increasing the credits awarded for R&D in strategic sectors to 15% of qualified expenses exceeding the base amount and at least 15% for basic research payments. The strategic sectors the government should emphasize are those that were identified by Gov. Phil Murphy in his Economic Development Plan and currently prioritized by the NJEDA’s Office of Economic Transformation: Technology, Life Sciences, Offshore Wind, Clean Energy, Transportation & Logistics, Advanced Manufacturing, Food & Beverage, and Finance & Professional Services.

Status: INCOMPLETE

New Jersey’s R&D tax credit remains the same as it was at the time of the 2020 report’s publication. The tax credit is 10% of excess qualified research expenditures over a base amount, plus an additional 10% of basic research payments.

Next Step

Pass A-2487/S-2707 to modify the state’s R&D tax credit.

Recommendation #2

INCREASE ANNUAL FUNDING for the New Jersey Commission on Science, Innovation, and Technology (CSIT) to increase the amount of direct financial support offered to small businesses through grants, as well as create and implement new programs including the already planned early-stage seed grant program and technology commercialization matching fund.

Status: IN PROGRESS

Gov. Murphy renewed the CSIT in 2018, at which point it received a \$1 million allocation in both the FY 2020 and FY 2021 state budgets. Funding for the commission was increased in FY 2022 and then again in FY 2023 to \$4.7 million and \$6.2 million, respectively.

Next Step

Continue to maintain/increase CSIT funding in future state budgets and increase grant funding to high-yield, innovation grant programs.

Recommendation #3

FORM PUBLIC-PRIVATE PARTNERSHIPS with state government and venture capital (VC) funds in New Jersey by providing the venture capital funds with state money to invest in a new generation of early-stage companies that will grow and innovate in the state.

Status: IN PROGRESS

In April 2022, the New Jersey Economic Development Authority (NJEDA) Board approved the creation of the New Jersey Innovation Evergreen Fund (NJIEF), a public-private partnership first announced as part of Gov. Murphy’s economic development strategic plan in 2018. According to a news release from the NJEDA, “Under the Fund, the state will become an equity investor in startups deploying up to \$600 million into companies alongside professional venture capital groups.”

Capital for the fund is to be raised by auctioning up to \$300 million in transferable tax credits over the first five years following the program’s launch.

Next Step

Monitor and analyze startup generation and job creation as a result of the fund.



TALENT

New Jersey’s average score in the talent category was 3.50, ranking in the bottom three of the seven states measured. New Jersey’s talent score is weighed down by its last place ranking with regard to the net migration of first-time college students. New York led the category scoring an average of 6.00 points.

Talent Indicators	NJ	PA	MD	MA	NY
Number of Institutions Ranked in the Top 100	4	5	3	6	7
Net Migration of First-Time Degree Seeking Undergraduates	1	7	2	5	6
Percentage of Population with a Graduate or Professional Degree	3	1	6	7	4
Rate of New Entrepreneurs	6	1	4	3	7
Average Talent Score	3.50	3.50	3.75	5.25	6.00

Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

Recommendations to Increase Innovation Talent in New Jersey

Recommendation #4

INCREASE THE NUMBER of public-private partnerships within New Jersey, focusing on partnerships to promote innovative talent or create innovative products. Agencies and universities need to identify areas where they can partner with New Jersey businesses and need funding to make strategic investments in these partnerships.

Status: IN PROGRESS

Efforts to increase the number of public-private partnerships in New Jersey are ongoing. One notable example of such a program is the NJ Pathways to Career Opportunities Program, which is being conducted jointly by NJBIA and the New Jersey Council of Community Colleges, and seeks to foster collaboration between business, academia, and government. The program received an \$8.5 million appropriation in the state's FY 2022 budget and an additional appropriation was included in the FY 2023 budget to continue these important efforts.

Next Step

Continue to implement the NJ Pathways to Career Opportunities Program; Identify and execute additional opportunities to form collaborative partnerships between business, academia, and other stakeholders.

Recommendation #5

ALLOCATE AND ADMINISTER funds to New Jersey's higher education research institutions to establish partnerships with GLOBAL EIR to retain international students and recent entrepreneur graduates.

Status: INCOMPLETE

Global EIR is a nonprofit that partners with universities to help entrepreneurs secure visas and allow them to build their businesses in the United States. Universities in Alaska, Massachusetts, Colorado, California, and Missouri formed partnerships with Global EIR prior to February 2020, however, the global COVID-19 pandemic has disrupted several of these programs. No new partnerships have been announced with Global EIR since the pandemic began.

Next Step

Allocate and administer funds to New Jersey's higher education research institutions to establish partnerships in order to retain international students and recent entrepreneur graduates.

Recommendation #6

INCREASE AND ANNUALIZE funding for the Innovation and Research Fellowship Program to support more researchers in New Jersey's innovation ecosystem. Increasing funding for the program will help the state retain promising researchers in crucial industries and signal that New Jersey is seriously committed to being a leader in STEM research.

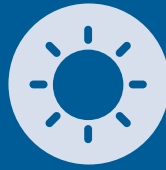
Status: IN PROGRESS

New Jersey created the Innovation and Research Fellowship Program through the Workforce Development Partnership Fund in May 2019, and the first recipient was announced in December 2019.

When announced in 2019, total available funding for the fellowship program was estimated to be approximately \$1.5 million for the fiscal year, according to a notice of grant opportunity (NGO) released on May 2, 2019. Additional NGOs were issued for FY 2021 and FY 2022, however total available funding advertised in both announcements had decreased to \$1 million in each fiscal year.

Next Step

Increase and annualize funding for the Innovation and Research Fellowship Program.



BUSINESS

After ranking second in net business growth in the region in 2020, New Jersey claimed the top spot for this indicator in 2022. Unfortunately, New Jersey continued to rank worst in the region in business tax climate. Overall, the state’s average score in business was 4.00. Massachusetts led the region with an average of 6.25, followed by Pennsylvania (5.25).

Business Indicators	MD	NJ	NY	PA	MA
U.S. Patents Granted	2	4	6	5	7
Rate of New Employer Business Actualization	2	4	6	5	7
Net Business Growth	3	7	2	5	6
Business Tax Climate	4	1	2	6	5
Average Business Score	2.75	4.00	4.00	5.25	6.25

Regional Scoring System: 1= least competitive in the region 7= most competitive in the region

Recommendations to Increase Business Innovation in New Jersey

Recommendation #7

ESTABLISH THE “GOVERNMENT Efficiency and Regulatory Review Commission,” as was proposed in S-4125 in 2019, to determine where rules and regulations are creating outsized burdens on the state’s businesses.

Status: INCOMPLETE

The bill did not receive a vote during the 2018-2019 legislative session but was reintroduced in 2021 and subsequently passed in both the Assembly (72-1-0) and the Senate (unanimously). On May 5, 2021, Gov. Murphy issued an absolute veto of the bill. The bill was reintroduced in 2022 (A-4161/S-1455).

Next Step

Pass A-4161/S-1455 establishing the Government Efficiency and Regulatory Review Commission.

Recommendation #8

REINSTATE A CORPORATE tax incentive program to help retain top businesses and encourage in-state growth. The new program should be modeled off the strengths of New Jersey’s old programs, while adopting measures such as those used in New York and California to target different types of behaviors that will spur innovative activity in the state. Credits awarded should depend on:

- Jobs created
- Investment
- Location in, or near, a city

Status: COMPLETED/IN PROGRESS

Following the sunset of the Grow New Jersey Assistance Program in 2019, the New Jersey Emerge Program was created in 2021 under the New Jersey Economic Recovery Act of 2020. Under the Emerge Program, businesses that create new, or retain existing, jobs, or make qualifying capital investments in the state, are eligible for a series of tax benefits.

Next Step

Continue to examine the effectiveness of New Jersey’s tax incentivize programs and refine these programs as needed to ensure strategic economic development.

Recommendations to Increase Business Innovation in New Jersey

Recommendation #9

AMEND NEW JERSEY'S current Angel Investor Tax Credit to provide additional incentives for investing in smaller, high-growth companies. Similar to the policy's additional 5% credit for investments in companies located in certain zones, the amended credit should provide additional credits for investments in high-growth companies, defined as companies that experience 30% job growth year over year.

- Additional credit is equal to 5% of the investment in a medium-sized company of 50-200 employees.
- Additional credit is equal to 10% of the investment in a small-sized company of 10-50 employees.

Status: **INCOMPLETE**

New Jersey's Angel Investor Tax Credit has not been changed since 2020, though the Economic Recovery Act of 2020 increased the annual program cap for the program from \$25 million to \$35 million.

Next Step

Amend New Jersey's current Angel Investor Tax Credit to provide additional incentives for investing in the state's high-growth companies.

Recommendation #10

IMPLEMENT THE PATH to Progress reforms for New Jersey's public employee pension and benefits system, state and local tax structure, county and municipal shared services, and education reform. Use the savings to deliver on key initiatives to improve New Jersey's business climate, which will help spur innovation by making the Garden State a more attractive place to do business. In addition to using these savings to create new programs, the state can also use the savings to reduce the tax burden on New Jersey's business community. By making the state an attractive place to grow, the Garden State will attract not only large, established businesses, but also early-stage companies.

Status: **IN PROGRESS**

Since being introduced in 2018, several of the bills initially included in the "Path to Progress" bill package have been signed into law, though most have not. Legislation requiring reviews of medical claims within the state and school employees' health benefits plans was enacted in 2019; a law requiring limited purpose regional school districts to coordinate with constituent districts regarding school calendar and curriculum was enacted in 2020; and a proposal to preserve federal deductibility of certain state income taxes for small businesses and partnerships was enacted on the last day of 2019 legislative session.

Next Step

Enact S-1001, A-1804, S-1445/A-3094, A-1097, S-2176, and other policies which advance efforts to reform New Jersey's structural budget challenges.

CONCLUSION

Since the last iteration of this report, New Jersey’s innovation score has decreased, and its overall position relative to its neighbors has weakened, falling behind Maryland and tying with Connecticut for the fifth position in NJBIA’s scoring system. However, meaningful progress in many of the indicators measured herein can only be appreciated over extended periods of time, as new or developing initiatives are implemented and begin to drive future activity.

While there has been progress in some indicators, and where recommendations outlined in NJBIA’s 2020 Indicators of Innovation report have been implemented, there still is much work to be done if the Garden State intends to bypass regional competitors as a leading innovation hub in the Northeast.



CAPITAL

New Jersey continues to trail its regional competitors in terms of its capacity for investment and research. Enhancing the R&D tax credit to incentivize investments in targeted industries remains incomplete and continues to lag Connecticut’s 15% tax credit for basic research payments, as well as New York’s Life Sciences R&D tax credit.



TALENT

Many of New Jersey’s programs and initiatives continue to operate independently of one another despite overlapping goals, and opportunities remain evident for collaborations between public and private enterprises. New Jersey’s institutions must work collaboratively to overcome its shortcomings and take advantage of the high rate of new entrepreneurs who are creating here.



BUSINESS

New Jersey has repeatedly ranked last in the Tax Foundation’s tax climate index, regardless of the administration or legislative leadership. In the short term, the state must avoid costly labor and environmental mandates that further restrict the ability of businesses to develop and grow here. Incorporating the tax reform strategies noted in this report can help the state better leverage its strong net business growth score.

Sources

1. Congressional Research Service. (2021). *Global Research and Development Expenditures: Fact Sheet*. Retrieved from <https://sgp.fas.org/crs/misc/R44283.pdf>
2. Moretti, Enrico. *The New Geography of Jobs*. Harper Business, 2012.
3. European Central Bank. (2017). *How does innovation lead to growth?* Retrieved from <https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/growth.en.html#:~:text=One%20of%20the%20major%20benefits,other%20words%2C%20the%20economy%20grows>
4. Fritts, J. & Walczak, J. *2022 State Business Tax Climate Index*. Tax Foundation. Retrieved from <https://taxfoundation.org/2022-state-business-tax-climate-index/>
5. Kauffman Indicators of Entrepreneurship. (2021). *Rate of New Employer Business Actualization*. Retrieved from <https://indicators.kauffman.org/indicator/rate-of-new-employer-business-actualization>
6. Kauffman Indicators of Entrepreneurship. (2021). *Early-Stage Entrepreneurship Series: Rate of New Entrepreneurs*. Retrieved from <https://indicators.kauffman.org/indicator/rate-of-new-entrepreneurs>
7. Moretti, Enrico. *The New Geography of Jobs*. Harper Business, 2012.
8. National Center for Education Statistics. (2012-2021). *Table 309.10. Residence and migration of all first-time degree-seeking undergraduates in degree-granting postsecondary institutions, by state or jurisdiction: Fall 2020*. Retrieved from https://nces.ed.gov/programs/digest/d21/tables/dt21_309.10.asp?current=yes
9. National Center for Science and Engineering Statistics. (2022). *Survey of State Government Research and Development: FY20*. National Science Foundation. Retrieved from <https://nces.nsf.gov/pubs/nsf22307>
10. *Award Summary Information: By State //Institution (nsf.gov)*
11. National Venture Capital Association. (2022). *2021 Yearbook*. Retrieved from <https://nvca.org/wp-content/uploads/2022/03/NVCA-2022-Yearbook-Final.pdf>
12. SBA Office of Investment and Innovation. (2022). *Awards Information*. Retrieved from <https://www.sbir.gov/reports/state-summary>
13. USPTO (2021). *Patents View – Comparison Innovation Trends*. Retrieved from <https://datatool.patentsview.org/#viz/comparisons&cmp=all/state/numDesc/2021>
14. US BLS (2022) *Table 9. Private sector establishment births and deaths, seasonally adjusted – New Jersey – Total private*. Retrieved from <https://www.bls.gov/news.release/cewbd.toc.htm>
15. US Census Bureau. (2010-2019). *American Community Survey 1-Year Estimates: EDUCATIONAL ATTAINMENT*. Retrieved from <https://data.census.gov/cedsci/table?t=Education&g=0400000US09,10,24,34,36,42,25&d=ACS%201-Year%20Estimates%20Subject%20Tables&tid=ACSST1Y2019.S1501>
16. US Census Bureau. (2020). *2020 ACS 1-Year Experimental Data Tables: EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER*. Retrieved from <https://www.census.gov/programs-surveys/acs/data/experimental-data/1-year.html>
17. US News & World Report. (2022). *2022 Best National University Rankings*. Retrieved from <https://www.usnews.com/best-colleges/rankings/national-universities>

New Jersey has repeatedly ranked last in the Tax Foundation’s tax climate index, regardless of the administration or legislative leadership. In the short term, the state must avoid costly labor and environmental mandates which further restrict the ability of businesses to develop and grow here.

Appendix A

Venture Capital – Assets Under Management
(Dollars in Millions)

	CT	DE	MD	MA	NJ	NY	PA
2010	6,446.10	120.4	1,763.80	39,265.00	4,873.40	23,524.30	4,016.00
2011	6,013.20	122.4	1,790.90	41,971.10	5,089.10	26,795.50	3,930.10
2012	6,189.00	118.2	1,798.00	39,956.70	4,884.30	29,499.20	3,777.60
2013	6,253.90	124.9	2,590.90	45,336.30	5,322.90	33,683.00	4,159.40
2014	6,850.50	126.4	3,617.50	47,270.30	5,218.20	41,218.80	4,159.50
2015	5,548.90	115.6	3,867.10	50,965.90	5,143.30	48,827.60	4,594.50
2016	5,099.40	137.4	3,546.20	52,410.10	4,513.00	49,095.10	3,760.30
2017	4,995.40	137.6	3,350.30	51,798.60	3,818.90	51,999.00	3,386.10
2018	5,045.70	143.1	4,043.90	63,368.80	4,083.80	68,783.70	3,501.40
2019	5,835.50	157.8	4,750.70	71,142.10	3,786.90	80,135.60	3,677.20
2020	7,846.40	677.1	4,600.30	92,067.00	3,683.80	99,681.30	3,893.90
2021	11,520.10	721.1	6,230.20	120,234.40	4,795.40	149,422.10	4,626.30
% Change in AUM (10-20)	79%	499%	253%	206%	-2%	535%	15%

Appendix B

SBIR/STTR Award Obligation
(Dollars in Millions)

	CT	DE	MD	MA	NJ	NY	PA
2010	\$43.21	\$12.69	\$136.97	\$320.73	\$78.10	\$119.69	\$93.90
2011	\$31.50	\$11.13	\$106.20	\$290.03	\$49.80	\$111.48	\$101.14
2012	\$25.68	\$7.83	\$104.73	\$268.47	\$50.62	\$115.13	\$91.90
2013	\$28.04	\$10.94	\$111.67	\$255.77	\$44.39	\$102.66	\$68.78
2014	\$31.19	\$8.51	\$122.01	\$262.57	\$57.56	\$99.31	\$98.12
2015	\$34.56	\$10.37	\$123.76	\$304.97	\$43.95	\$116.86	\$109.75
2016	\$38.98	\$17.63	\$134.64	\$302.19	\$56.45	\$120.01	\$103.91
2017	\$34.30	\$23.59	\$141.85	\$331.01	\$60.68	\$128.83	\$115.87
2018	\$33.75	\$24.44	\$148.51	\$354.30	\$49.58	\$133.23	\$133.83
2019	\$44.03	\$20.75	\$174.58	\$409.56	\$71.15	\$151.61	\$153.94
2020	\$46.33	\$20.37	\$191.07	\$406.77	\$63.33	\$189.25	\$162.54
% Change in SBIR/STTR (10-20)	7.20%	60.50%	39.50%	26.80%	-18.90%	58.10%	73.10%

Appendix C

State Government R&D Expenditures
(Dollars in Millions)

	CT	DE	MD	MA	NJ	NY	PA
2010	\$40.07	\$2.39	\$22.83	\$4.88	\$38.64	\$391.26	\$87.91
2011	\$39.19	\$2.61	\$20.08	\$4.88	\$27.87	\$405.35	\$75.49
2012	\$40.02	\$4.64	\$21.89	\$3.92	\$29.82	\$382.23	\$80.60
2013	\$41.02	\$4.73	\$29.47	\$4.59	\$34.41	\$382.14	\$66.43
2014	\$47.41	\$2.24	\$29.98	\$18.26	\$30.38	\$377.02	\$35.43
2015	\$55.82	\$2.24	\$24.85	\$22.66	\$33.76	\$370.59	\$75.02
2016	\$49.46	\$2.70	\$26.45	\$23.43	\$30.48	\$404.83	\$73.19
2017	\$55.59	\$3.27	\$29.52	\$27.74	\$37.42	\$434.29	\$92.51
2018	\$54.49	\$3.86	\$30.96	\$23.00	\$51.30	\$450.16	\$101.61
2019	\$57.24	\$3.83	\$29.11	\$31.97	\$23.89	\$448.50	\$85.05
2020	\$58.81	\$3.60	\$33.41	\$31.70	\$23.75	\$453.81	\$103.10
% Change in State Expenditures(10-20)	46.80%	50.60%	46.30%	549.60%	-38.50%	16.00%	17.30%

Appendix D

National Science Foundation Award Totals – All Groups
(Dollars in Millions)

	CT	DE	MD	MA	NJ	NY	PA
2010	\$61.53	\$35.17	\$162.57	\$476.67	\$157.96	\$481.21	\$279.66
2011	\$64.64	\$27.32	\$144.48	\$453.46	\$130.43	\$425.05	\$231.85
2012	\$60.56	\$33.54	\$250.71	\$457.27	\$131.27	\$458.87	\$261.13
2013	\$59.19	\$36.69	\$304.93	\$452.72	\$126.87	\$436.10	\$275.73
2014	\$71.44	\$39.21	\$336.25	\$461.10	\$142.83	\$467.95	\$275.82
2015	\$68.32	\$25.59	\$329.58	\$456.77	\$147.25	\$493.17	\$292.04
2016	\$79.65	\$46.12	\$343.28	\$448.70	\$163.70	\$480.11	\$275.03
2017	\$68.53	\$25.20	\$325.39	\$458.67	\$139.61	\$484.69	\$262.77
2018	\$70.06	\$36.65	\$392.03	\$502.74	\$163.44	\$514.15	\$261.35
2019	\$76.26	\$41.14	\$426.37	\$550.38	\$138.80	\$483.92	\$313.29
2020	\$71.52	\$44.31	\$402.65	\$558.91	\$165.48	\$523.64	\$296.35
2021	\$97.26	\$46.51	\$382.70	\$565.63	\$183.51	\$541.59	\$330.25
% Change in State Expenditures (10-21)	58.10%	32.20%	135.40%	18.70%	16.20%	12.50%	18.10%

Appendix E

Number of Institutions Ranked in the Top 100

Connecticut	
Institution	Ranking
Yale University	5
University of Connecticut	63

Delaware	
Institution	Ranking
University of Delaware	93

Maryland	
Institution	Ranking
Johns Hopkins University	9
University of Maryland – College Park	59

Massachusetts	
Institution	Ranking
Harvard University*	2
Massachusetts Institute of Technology*	2
Tufts University*	28
Boston College*	36
Boston Univeristy	42
Brandeis University	42
Northeastern University	49
Worcester Polytechnical Institute	63
University of Massachusetts-Amherst	68

New Jersey	
Institution	Ranking
Princeton University	1
Rutgers University – New Brunswick	63
Stevens Institute of Technology	83

New York	
Institution	Ranking
Columbia University	2
Cornell University	17
New York University	28
University of Rochester	34
Rensselaer Polytechnic Institute	55
Syracuse University	59
Fordham University	68
Binghamton University-SUNY	83
University of Buffalo	93
Stony Brook University-SUNY	93
Yeshiva University	68

Pennsylvania	
Institution	Ranking
University of Pennsylvania	8
Carnegie Mellon University	25
Villanova University	49
Lehigh University	49
Pennsylvania State University-University Park	63
University of Pittsburgh	59

Appendix F

Net Migration of First-Time Degree Seeking Undergraduates

	CT	DE	MD	MA	NJ	NY	PA
2012	-5,572	1,418	-8,756	9,253	-29,203	6,061	16,074
2014	-5,249	1,683	-8,422	9,089	-29,101	7,130	16,959
2016	-4,547	1,301	-6,550	7,680	-28,605	8,910	16,816
2018	-4,150	1,436	-6,999	7,631	-28,206	8,944	13,363
2020	-2,504	1,011	-8,758	5,734	-27,556	6,560	12,513

Appendix G

Percentage of Population with a Graduate or Professional Degree

	CT	DE	MD	MA	NJ	NY	PA
2010	15.30%	11.30%	16.40%	16.70%	13.30%	14.00%	10.40%
2011	15.70%	11.70%	16.50%	16.80%	13.30%	14.20%	10.40%
2012	16.60%	11.40%	16.90%	17.10%	13.80%	14.40%	10.90%
2013	16.60%	12.60%	17.10%	17.80%	14.00%	14.80%	11.20%
2014	16.70%	12.30%	17.50%	18.00%	14.30%	14.90%	11.40%
2015	16.70%	12.90%	17.70%	18.40%	14.30%	15.00%	11.60%
2016	16.70%	12.60%	18.50%	19.00%	14.90%	15.50%	12.00%
2017	17.30%	13.50%	18.30%	19.50%	15.60%	15.80%	12.50%
2018	17.80%	13.10%	18.90%	20.10%	16.00%	16.40%	12.70%
2019	17.80%	13.70%	19.10%	20.30%	16.10%	16.60%	12.80%
2020*	18.90%	14.60%	20.60%	21.30%	17.10%	17.60%	13.80%
% Change in Population with a Graduate or Professional Degree	16.30%	21.20%	16.50%	21.60%	21.10%	18.60%	23.10%

Appendix H

Rate of New Entrepreneurs

	CT	DE	MD	MA	NJ	NY	PA
2010	0.27	0.23	0.25	0.29	0.28	0.36	0.17
2011	0.29	0.26	0.28	0.31	0.28	0.36	0.18
2012	0.3	0.25	0.26	0.29	0.24	0.36	0.18
2013	0.31	0.28	0.27	0.26	0.22	0.34	0.19
2014	0.3	0.29	0.24	0.29	0.24	0.33	0.2
2015	0.29	0.24	0.28	0.29	0.32	0.35	0.18
2016	0.27	0.2	0.26	0.29	0.34	0.36	0.17
2017	0.23	0.16	0.32	0.26	0.32	0.33	0.18
2018	0.2	0.23	0.27	0.23	0.29	0.32	0.19
2019	0.19	0.25	0.3	0.25	0.31	0.3	0.2
2020	0.28	0.27	0.26	0.27	0.36	0.39	0.18
2021	0.31	0.26	0.29	0.27	0.37	0.38	0.17

Appendix I

Number of U.S. Patents Granted

	CT	DE	MD	MA	NJ	NY	PA
2010	3690	744	3418	10196	7510	12418	7124
2011	3638	1020	3304	10502	7498	12174	6924
2012	3933	1050	3524	11513	8077	13163	7299
2013	4069	1105	3766	12738	8783	13932	8108
2014	4423	1100	4135	13367	9041	14490	8302
2015	3881	874	3965	13625	8360	14070	7893
2016	4053	752	4040	13991	8309	14062	8133
2017	4289	781	4276	14909	8543	14531	8757
2018	4415	749	4082	14533	7934	14144	8427
2019	4990	778	4773	16500	8264	15820	9101
2020	5031	810	4815	16817	8362	15916	9144
2021	5110	780	4926	17795	9056	17119	9334
% Change in Patents Granted	38.48%	4.84%	44.12%	74.53%	20.59%	37.86%	31.02%

Appendix J

Rate of New Employer Business Actualization
(In Percent)

	CT	DE	MD	MA	NJ	NY	PA
2010	11.00%	8.62%	9.40%	13.78%	11.59%	14.66%	13.35%
2011	11.22%	N/A	9.35%	13.65%	11.24%	14.14%	12.98%
2012	10.77%	N/A	9.29%	14.36%	11.29%	14.28%	13.17%
2013	10.79%	N/A	9.31%	14.18%	11.36%	14.17%	12.70%
2014	10.51%	7.67%	8.97%	13.86%	11.16%	13.39%	12.71%
2015	10.78%	7.93%	8.81%	14.44%	10.70%	13.31%	12.28%
2016	9.40%	7.21%	8.12%	13.83%	10.26%	12.64%	11.62%
2017	9.04%	6.29%	7.46%	13.34%	9.62%	11.87%	10.75%
2018	8.69%	6.11%	7.34%	13.34%	9.48%	11.68%	10.86%
2019	8.89%	6.36%	7.19%	13.07%	9.01%	11.23%	10.37%
2020	7.94%	6.19%	6.20%	11.93%	7.89%	9.95%	9.34%
2021	8.10%	6.10%	6.50%	12.10%	8.10%	10.00%	9.60%
% Change in New Employer business Actualization	-26.70%	-29.80%	-31.20%	-12.00%	-30.50%	-31.90%	-28.50%

Appendix K

Net Business Growth

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total Net Businesses
CONNECTICUT	Births	8,036	7,066	7,492	7,913	8,414	8,296	8,310	8,747	8,327	8,961	9,130	9,208	
	Deaths	9,212	9,862	7,855	7,660	7,995	8,082	8,173	8,342	8,504	8,971	8,694	11,806	
	Net	-1,176	-2,796	-363	253	419	214	137	405	-177	-10	436	-2,598	-5,256
DELAWARE	Births	2,962	2,406	2,732	2,830	3,046	2,869	3,211	3,127	3,226	3,406	3,553	3,531	
	Deaths	3,356	3,157	2,740	2,914	2,657	2,637	2,736	2,940	2,920	3,134	2,980	3,380	
	Net	-394	-751	-8	-84	389	232	475	187	306	272	573	151	1,348
MARYLAND	Births	15,021	13,454	14,069	14,857	15,029	14,886	15,217	16,246	15,519	15,739	15,558	15,722	
	Deaths	17,033	17,131	14,543	14,565	14,293	14,531	14,528	14,896	15,170	15,118	15,444	16,132	
	Net	-2,012	-3,677	-474	292	736	355	689	1,350	349	621	114	-410	-2,067
MASSACHUSETTS	Births	17,061	15,545	17,422	20,105	20,841	20,860	25,950	24,261	23,878	25,734	25,920	24,136	
	Deaths	17,289	17,870	16,007	14,739	15,477	17,550	18,493	19,942	19,413	21,193	22,454	23,495	
	Net	-228	-2,325	1,415	5,366	5,364	3,310	7,457	4,319	4,465	4,541	3,466	641	37,791
NEW JERSEY	Births	26,442	25,178	25,077	25,663	25,789	25,915	24,895	28,937	26,872	25,045	27,222	30,144	
	Deaths	29,182	30,091	26,504	25,956	25,139	24,686	25,638	26,224	25,707	25,564	25,827	25,628	
	Net	-2,740	-4,913	-1,427	-293	650	1,229	-743	2,713	1,165	-519	1,395	4,516	1,033
NEW YORK	Births	52,281	50,388	54,246	55,806	55,398	57,132	56,726	59,678	58,189	58,965	57,531	59,393	
	Deaths	54,761	54,907	49,814	52,190	51,380	51,024	52,606	54,490	55,833	56,477	58,499	60,068	
	Net	-2,480	-4,519	4,432	3,616	4,018	6,108	4,120	5,188	2,356	2,488	-968	-675	23,684
PENNSYLVANIA	Births	28,939	26,083	27,990	28,528	32,651	28,373	27,464	28,795	27,915	28,056	28,215	29,257	
	Deaths	28,726	29,040	25,085	28,412	29,497	31,880	27,103	27,515	27,664	28,038	28,491	28,730	
	Net	213	-2,957	2,905	116	3,154	-3,507	361	1,280	251	18	-276	527	2,085

Appendix L

Business Tax Climate
(National Ranking)

	CT	DE	MD	MA	NJ	NY	PA
2010	38	8	45	36	50	49	27
2011	40	12	44	28	50	49	21
2012	40	12	42	24	50	49	19
2013	40	14	41	22	49	50	19
2014	47	18	39	26	49	50	36
2015	47	16	39	28	49	50	36
2016	47	15	40	27	50	49	36
2017	47	23	41	28	50	49	31
2018	47	22	41	25	50	49	36
2019	47	13	40	27	50	48	35
2020	47	15	41	34	50	49	33
2021	47	16	44	35	50	49	32
2022	47	16	46	34	50	49	29

NJBIA

New Jersey Business
& Industry Association

10 West Lafayette Street
Trenton, NJ 08608
609-393-7707
njbia.org
info@njbia.org

NEW JERSEY **BUSINESS** MAGAZINE

10 West Lafayette Street
Trenton, NJ 08608
973-882-5004
njbmagazine.com



www.njbia.org/research