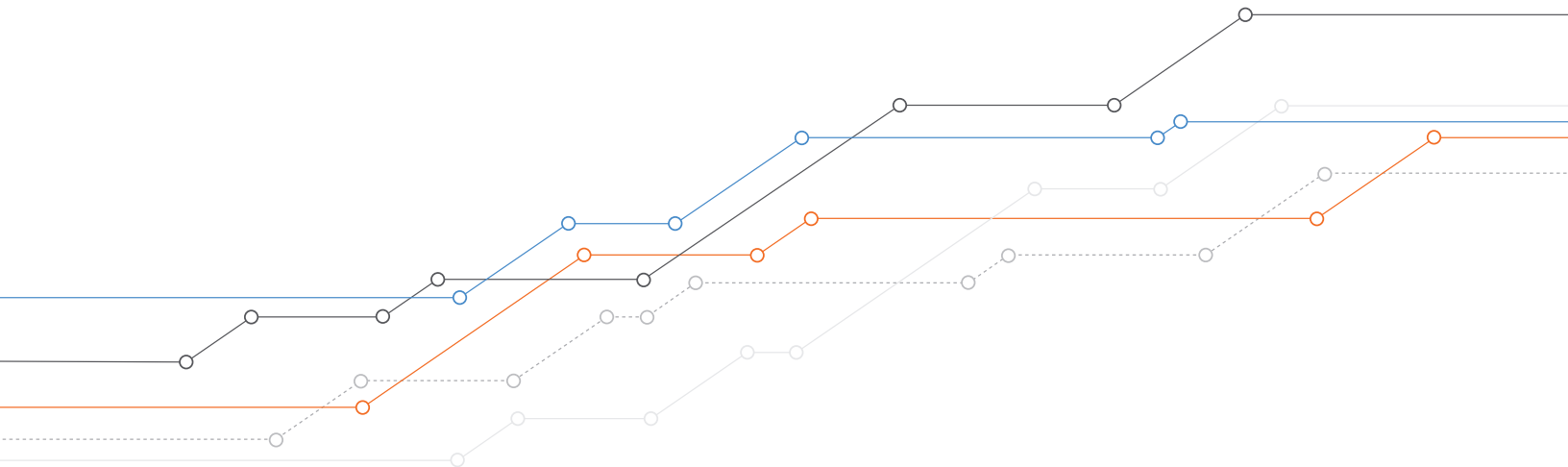




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2017 STATE REPORT
ON **EARLY-STAGE**
ENTREPRENEURSHIP

FEBRUARY 2019



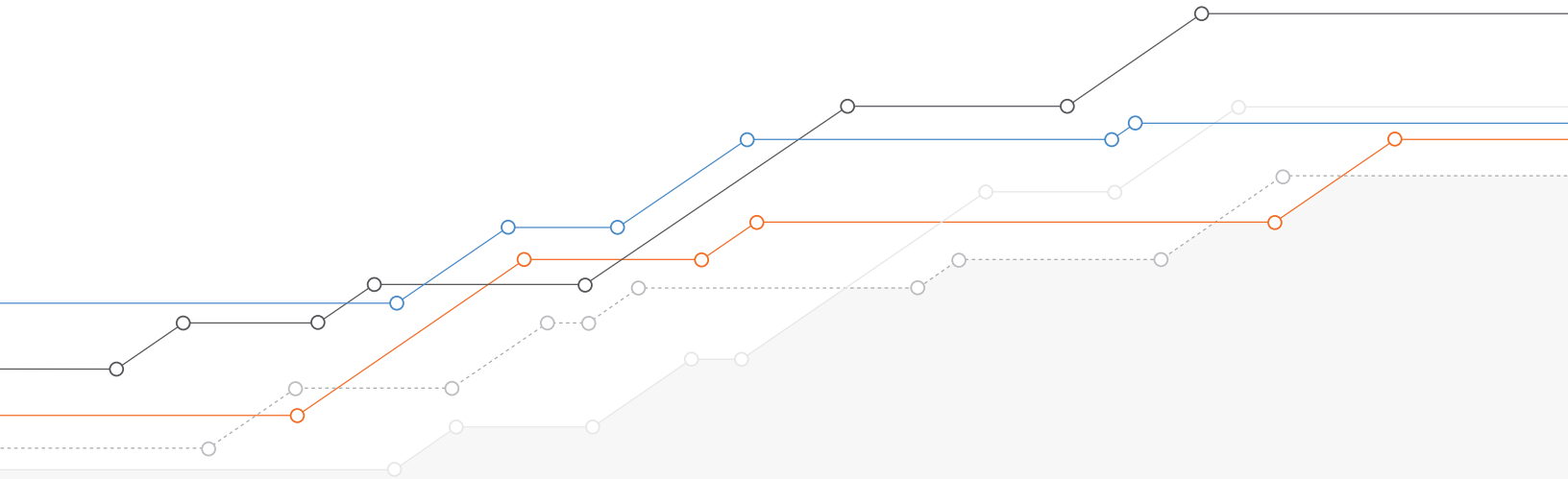
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Explore the Kauffman Indicators further at: www.kauffman.org/indicators



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EARLY-STAGE ENTREPRENEURSHIP IN THE UNITED STATES

This report tracks Early-Stage Entrepreneurship using a set of four indicators capturing early-stage entrepreneurship activity in the United States:

Rate of new entrepreneurs

Opportunity share of new entrepreneurs

Startup early job creation

Startup early survival rate

These indicators collectively inform the Kauffman Early-Stage Entrepreneurship (KESE) Index, a summary index of entrepreneurial activity.

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Executive Summary

Kauffman Indicators of Early-Stage Entrepreneurship is a set of measures that represents new business creation in the United States, integrating several high-quality, timely sources of information on early-stage entrepreneurship.

This report presents indicators for all 50 states and the District of Columbia for 2017.

Early-Stage Entrepreneurship Indicators

- The **rate of new entrepreneurs** ranged from a low of 0.16 percent in Delaware to a high of 0.47 percent in Wyoming, with a median of 0.30 percent.¹ Nationally, the rate of new entrepreneurs in 2017 was 0.33 percent, meaning that an average of 330 out of every 100,000 adults became new entrepreneurs in a given month.
- The **opportunity share of new entrepreneurs** estimates the percentage of those new entrepreneurs who created their businesses out of opportunity instead of necessity. This indicator ranged from a low of 68.7 percent in Rhode Island to a high of 94.0 percent in Nebraska, with a median of 84.7 percent. The national opportunity share of new entrepreneurs in 2017 was 84.4 percent.
- **Startup early job creation** captures job creation, measured as the total number of jobs created by startups per capita. This indicator ranged from 2.95 jobs per 1,000 people in West Virginia to 10.34 in the District of Columbia, with a median of 4.71. The national startup early job creation in 2017 was 5.27 jobs per 1,000 people.
- **Startup early survival rate** reflects the one-year survival rate for new firms. It ranged from 73.48 percent in Georgia to 88.13 percent in Maine, with a median of 79.1 percent. Nationally, the startup early survival rate was 79.8 percent in 2017.

- The overall **KESE Index**—a composite of the four indicators—ranged from -2.93 in Rhode Island to 2.86 in California, with a median of 0.01. The national figure was 0.68. The KESE increased from 0.50 in 2016 to 0.68 in 2017. This large increase in 2017 resulted in the highest level recorded over the past two decades. It was driven by increases in the rate of new entrepreneurs, startup early job creation, and startup early survival rate.²

Table 1 provides the full list of the four indicators and the index for all 50 states and the District of Columbia.

1. We report the median in addition to the overall national rate in order to provide a more complete picture of the middle point for all 50 states. These data enable state policymakers to understand how the state compares to other states, as well as the nation as a whole.

2. The summary index is centered at 0, which is the average over the full time period (1996–2017). Thus, a positive index value indicates that the index is above its two-decade average and a negative value indicates that it is below its two-decade average.

TABLE 1		FOUR INDICATORS AND KESE INDEX FOR ALL STATES AND DISTRICT OF COLUMBIA			
STATE	RATE OF NEW ENTREPRENEURS	OPPORTUNITY SHARE OF NEW ENTREPRENEURS	STARTUP EARLY JOB CREATION	STARTUP EARLY SURVIVAL RATE	KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX
	Percent of adults becoming entrepreneurs in given month, year average	Percent of entrepreneurs driven by opportunity	Jobs created by startups per 1,000 people	Percent of firms surviving one year after founding	Equally weighted average of four indicators
Alabama	0.24%	78.91%	4.40	80.29%	-0.88
Alaska	0.40%	79.25%	3.53	78.46%	0.45
Arizona	0.39%	89.60%	5.23	77.85%	1.31
Arkansas	0.29%	84.16%	3.97	78.98%	-0.33
California	0.44%	87.01%	6.56	82.33%	2.86
Colorado	0.33%	83.58%	6.52	78.12%	0.54
Connecticut	0.23%	81.86%	3.94	79.67%	-0.94
Delaware	0.16%	93.41%	5.27	78.56%	-0.86
District of Columbia	0.24%	74.50%	10.34	76.58%	-0.51
Florida	0.42%	85.38%	6.47	78.41%	1.75
Georgia	0.38%	87.30%	6.17	73.48%	0.43
Hawaii	0.27%	81.36%	5.14	77.96%	-0.62
Idaho	0.34%	83.94%	5.99	80.56%	1.08
Illinois	0.24%	74.10%	5.46	78.30%	-1.36
Indiana	0.20%	83.41%	3.37	80.20%	-1.26
Iowa	0.22%	93.98%	3.61	80.39%	-0.24
Kansas	0.30%	80.16%	4.89	74.20%	-1.15
Kentucky	0.22%	85.90%	4.14	79.18%	-0.82
Louisiana	0.31%	75.55%	4.61	80.41%	-0.22
Maine	0.33%	78.35%	4.65	88.13%	1.63
Maryland	0.32%	75.92%	4.16	77.50%	-0.78
Massachusetts	0.26%	88.63%	6.10	82.74%	0.89
Michigan	0.24%	87.59%	4.20	81.47%	-0.03
Minnesota	0.30%	88.04%	4.36	83.93%	1.14
Mississippi	0.37%	82.53%	3.75	78.42%	0.31
Missouri	0.32%	88.47%	5.20	85.32%	1.86
Montana	0.40%	86.23%	4.71	80.59%	1.54
Nebraska	0.25%	94.03%	5.10	77.71%	0.01
Nevada	0.38%	86.81%	6.58	76.89%	1.06
New Hampshire	0.24%	82.79%	3.42	77.28%	-1.40
New Jersey	0.32%	85.53%	5.61	80.03%	0.75
New Mexico	0.38%	75.98%	3.88	76.41%	-0.31
New York	0.33%	86.96%	6.34	80.01%	1.12

STATE	RATE OF NEW ENTREPRENEURS	OPPORTUNITY SHARE OF NEW ENTREPRENEURS	STARTUP EARLY JOB CREATION	STARTUP EARLY SURVIVAL RATE	KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX
	Percent of adults becoming entrepreneurs in given month, year average	Percent of entrepreneurs driven by opportunity	Jobs created by startups per 1,000 people	Percent of firms surviving one year after founding	Equally weighted average of four indicators
North Carolina	0.28%	87.20%	4.57	78.89%	-0.02
North Dakota	0.39%	88.26%	5.41	77.01%	1.05
Ohio	0.22%	82.59%	3.69	75.80%	-1.85
Oklahoma	0.41%	87.73%	5.10	76.75%	1.17
Oregon	0.32%	80.03%	5.24	78.44%	-0.05
Pennsylvania	0.18%	84.71%	3.91	80.18%	-1.30
Rhode Island	0.18%	68.72%	3.95	77.41%	-2.93
South Carolina	0.25%	77.65%	4.34	80.82%	-0.70
South Dakota	0.28%	92.73%	4.04	81.44%	0.66
Tennessee	0.26%	89.39%	4.66	81.18%	0.29
Texas	0.42%	83.79%	5.69	79.46%	1.67
Utah	0.30%	90.03%	5.20	78.57%	0.39
Vermont	0.38%	76.55%	3.81	78.82%	0.17
Virginia	0.21%	79.95%	5.02	78.75%	-1.23
Washington	0.32%	92.01%	5.32	80.28%	1.09
West Virginia	0.25%	89.00%	2.95	79.37%	-0.54
Wisconsin	0.26%	73.27%	4.17	79.29%	-1.29
Wyoming	0.47%	85.59%	4.72	77.25%	1.68

Introduction

The Kauffman Indicators of Early-Stage Entrepreneurship captures early-stage entrepreneurial activity broadly defined, and includes four key early-stage measures of entrepreneurial activity.

Each of the indicators is based on either a nationally representative sample size of more than a half-million observations each year or the universe of employer businesses in the United States (roughly five million businesses). These datasets allow for an examination of entrepreneurs and the early-stage startups that they create.

The four indicators are as follows:³

- 1) **Rate of new entrepreneurs:** the broadest measure possible for business creation by population.
- 2) **Opportunity share of new entrepreneurs:** the percentage of new entrepreneurs who created a business out of choice instead of necessity.
- 3) **Startup early job creation:** the number of jobs created in the first year of business per capita.
- 4) **Startup early survival rate:** the rate of survival in the first year of business.⁴

A summary index of entrepreneurship activity, the KESE Index, is also created from these four indicators. The KESE Index presents a snapshot of early-stage entrepreneurial activity. It evenly weights contributions from the rate of new

entrepreneurs, the share of entrepreneurs that represents opportunity, early-stage job creation by startups, and startup survival rates after one year. These four measures represent a set of indicators capturing the first year of these new businesses in the United States.

The purpose of these indicators is to provide a picture of early-stage entrepreneurial activity. The indicators track changes in entrepreneurial activity over time, across geographies, and among various demographic groups.

We provide these indicators with the hope that interested individuals and organizations will be able to better understand trends in different aspects of entrepreneurial activity. For example, if the rate of new entrepreneurs were to increase rapidly while the startup early survival rate stayed fairly constant, it suggests a need for further exploration of the causes of this difference. Along the same lines, if an indicator were to differ significantly across demographic groups, this points to the need to investigate the reasons for such differences.

The Kauffman Indicators of Early-Stage Entrepreneurship offers a guidepost for a broad picture of early-stage entrepreneurship. No single indicator can provide a complete picture of all types of entrepreneurial activity at any given time. Like many measures derived from large longitudinal datasets, the indicators are limited by sampling, interpretation, and reporting constraints. The KESE Index can be used to track changes in entrepreneurial activity over time at the national or state level.

The Kauffman Indicators of Early-Stage Entrepreneurship provides a picture of early-stage entrepreneurial activity. The indicators track changes in entrepreneurial activity over time, across geographies, and among various demographic groups.

3. The first two indicators were calculated using special panel and cross-sectional databases created from the U.S. Bureau of Labor Statistics microdata. The latter two indicators were calculated using data that are extracted and compiled from the U.S. Bureau of Labor Statistics, Business Employment Dynamics (BED) series on business establishments with employees.

4. More specifically, this is the percentage of new employer establishments that are still active after one year of operation.



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The **rate of new entrepreneurs** captures the percentage of the adult, non-business owner population that starts a business each month. This indicator captures all new business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non-employers.⁵ The rate of new entrepreneurs is calculated from a special panel dataset created from the Current Population Survey (CPS), a monthly survey conducted by the U.S. Bureau of the Census and the Bureau of Labor Statistics.

Kauffman Indicators of Entrepreneurship

RATE OF NEW ENTREPRENEURS

The rate of new entrepreneurs provides a broad measure of entrepreneurship, capturing all new business owners, regardless of business size or origin. As such, it includes businesses of all types, regardless of their growth potential or the intentions of their owners.

At the state level, the rate of new entrepreneurs ranged from 0.16 percent in Delaware to 0.47 percent in Wyoming. The median rate of new entrepreneurs was 0.30 percent. Nationally, the rate of new entrepreneurs in 2017 was 0.33 percent.

Other states with a high rate of new entrepreneurs include California (0.44 percent), Florida (0.42 percent), Texas (0.42 percent), and Oklahoma (0.41 percent). States with a relatively low rate of new entrepreneurs include Rhode Island (0.18 percent), Pennsylvania (0.18 percent), Indiana (0.20 percent), and Virginia (0.21 percent).

Figure 1 below presents the rate of new entrepreneurs for all 50 states.

FIGURE 1 RATE OF NEW ENTREPRENEURS BY STATE (2017)

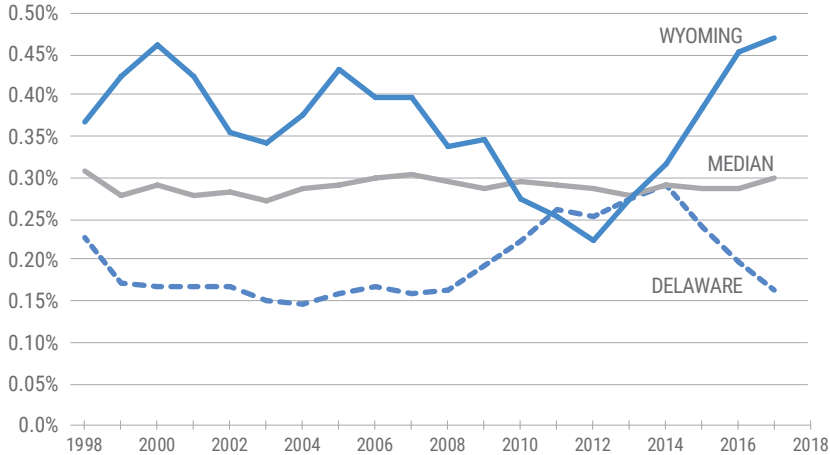
										ME 0.33%
									VT 0.38%	NH 0.24%
AK 0.40%										
WA 0.32%	ID 0.34%	MT 0.40%	ND 0.39%	MN 0.30%	IL 0.24%	WI 0.26%	MI 0.24%	NY 0.33%	RI 0.18%	MA 0.26%
OR 0.32%	NV 0.38%	WY 0.47%	SD 0.28%	IA 0.22%	IN 0.20%	OH 0.22%	PA 0.18%	NJ 0.32%	CT 0.23%	
CA 0.44%	UT 0.30%	CO 0.33%	NE 0.25%	MO 0.32%	KY 0.22%	WV 0.25%	VA 0.21%	MD 0.32%	DE 0.16%	
	AZ 0.39%	NM 0.38%	KS 0.30%	AR 0.29%	TN 0.26%	NC 0.28%	SC 0.25%	DC 0.24%		
			OK 0.41%	LA 0.31%	MS 0.37%	AL 0.24%	GA 0.38%			
HI 0.27%				TX 0.42%				FL 0.42%		

For an interactive version of the map, please see www.kauffman.org/indicators.

5. The U.S. Census Bureau notes that the definitions of non-employers and self-employed business owners are not the same. Although most self-employed business owners are non-employers, about a million self-employed business owners are classified as employer businesses. <https://www.census.gov/epcd/nonemployer/view/define.html>.

The rate of new entrepreneurs in a state can vary substantially over time. Figure 2 below displays the rate of new entrepreneurs over time for the median state and the states with the highest (Wyoming) and lowest (Delaware) levels in 2017.

FIGURE 2 RATE OF NEW ENTREPRENEURS OVER TIME (1998–2017)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2017)



As recently as 2013, Wyoming and Delaware both had rates of new entrepreneurship that were very close to the national median of 0.28 percent. Since then, however, the states have shown dramatically different trends on this indicator.



KAUFFMAN INDICATORS of ENTREPRENEURSHIP

The rate of new entrepreneurs includes entrepreneurs and businesses of all types. As such, additional analysis is necessary to distinguish between individuals who are “**opportunity entrepreneurs**,” including those coming out of wage and salary work, school, or other labor market statuses, and individuals who are “**necessity entrepreneurs**,” due to unemployment.⁶ This distinction is useful because it offers some suggestive evidence of the influence of economic conditions on overall business creation.

OPPORTUNITY SHARE OF NEW ENTREPRENEURS

Not surprisingly, over the past two decades, the opportunity share of new entrepreneurs increased when economic conditions were improving and decreased when economic conditions were worsening. The largest opportunity share of new entrepreneurs occurred in the late 1990s, and the smallest share was observed in 2009, at the end of the Great Recession. The opportunity share of new entrepreneurs also decreased in the recession of the early 2000s and increased in the growth period that followed in the mid-2000s.

It is important to note that although the motivations for starting businesses can differ (and can be in the context of weak economic conditions and high unemployment rates), necessity businesses could eventually become very successful.⁷

The opportunity share of new entrepreneurs estimates the percentage of those new entrepreneurs who created their business out of opportunity instead of necessity. This indicator ranged from 68.72 percent in Rhode Island to 94.03 percent in Nebraska, with a median of 84.7 percent. Nationally, the opportunity share in 2017 was 84.4 percent.

FIGURE 3 OPPORTUNITY SHARE OF NEW ENTREPRENEURS BY STATE (2017)

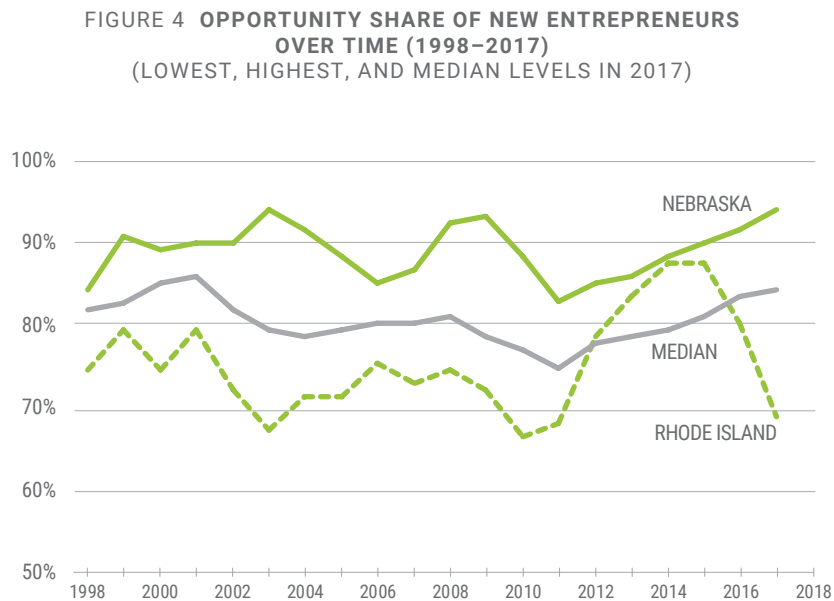
									ME 78.35%	
AK 79.25%									VT 76.55%	NH 82.79%
WA 92.01%	ID 83.94%	MT 86.23%	ND 88.26%	MN 88.04%	IL 74.10%	WI 73.27%	MI 87.59%	NY 86.96%	RI 68.72%	MA 88.63%
OR 80.03%	NV 86.81%	WY 85.59%	SD 92.73%	IA 93.98%	IN 83.41%	OH 82.59%	PA 84.71%	NJ 85.53%	CT 81.86%	
CA 87.01%	UT 90.03%	CO 83.58%	NE 94.03%	MO 88.47%	KY 85.90%	WV 89.00%	VA 79.95%	MD 75.92%	DE 93.41%	
	AZ 89.60%	NM 75.98%	KS 80.16%	AR 84.16%	TN 89.39%	NC 87.20%	SC 77.65%	DC 74.50%		
			OK 87.73%	LA 75.55%	MS 82.53%	AL 78.91%	GA 87.30%			
HI 81.36%				TX 83.79%				FL 85.38%		

For an interactive version of the map, please see www.kauffman.org/indicators.

6. See Fairlie and Fossen (2017).

7. Block and Sandner (2009); Hinz and Junbauer-Gans (2010); Caliendo and Kritikos (2010); Stangler (2009).

Like the rate of new entrepreneurs, the opportunity share of new entrepreneurs for a specific state can vary substantially over time. Figure 4 below displays the opportunity share of new entrepreneurs over time for the median state and the states with the highest (Nebraska) and lowest (Rhode Island) levels in 2017.



As recently as 2015, Rhode Island had an opportunity share of 87.3 percent—above the national median for that year (81.3 percent). However, historically, Rhode Island has lagged both Nebraska and the national median on this indicator.



Startup early job creation, the third indicator, measures how many total jobs are created by startups in their first year and is normalized by the population. We use this measure because it allows us to track the total number of jobs created by startups while accounting for differences in population over time or by geography.

STARTUP EARLY JOB CREATION

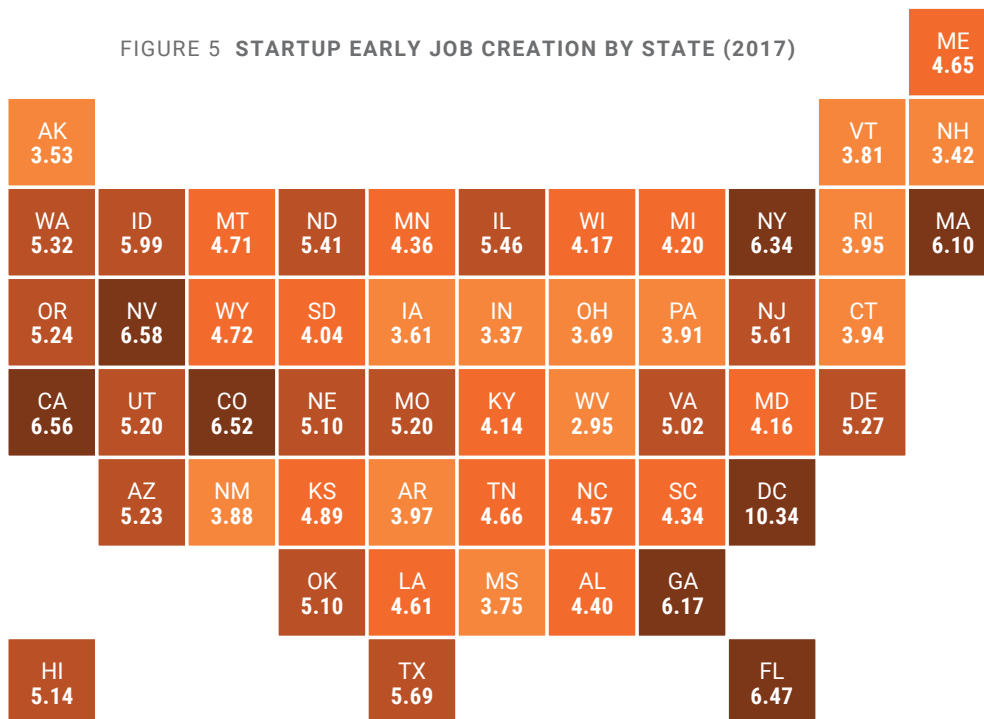
To create this indicator, we calculate the total employment created by new employer firms in their first year and divide it by the total population. This measure of job creation is normalized by dividing by the total population to make it a per capita metric. Focusing on only the quantity of employer startups or the average number of jobs created per startup alone would not capture the potential of startups for early job creation. Total employment created by new employer firms captures the average number of jobs created by each startup. Although the measure focuses on job creation, it can also be viewed as an early-stage indicator of business growth.

Startup early job creation captures the employment of a cohort of startup businesses in their first year of operation. This measure represents job creation in the first year of operation and does not directly reflect long-term job creation. As reported here, it does not provide detail on trends in job creation by industry, which may be an important consideration for policy interpretation of the measure.

TRENDS IN STARTUP EARLY JOB CREATION

This indicator ranged from 2.95 jobs per 1,000 people in West Virginia to 10.34 per 1,000 people in the District of Columbia, with a median of 4.71. Nationally, startups in their first year created 5.27 jobs per 1,000 people in 2017.

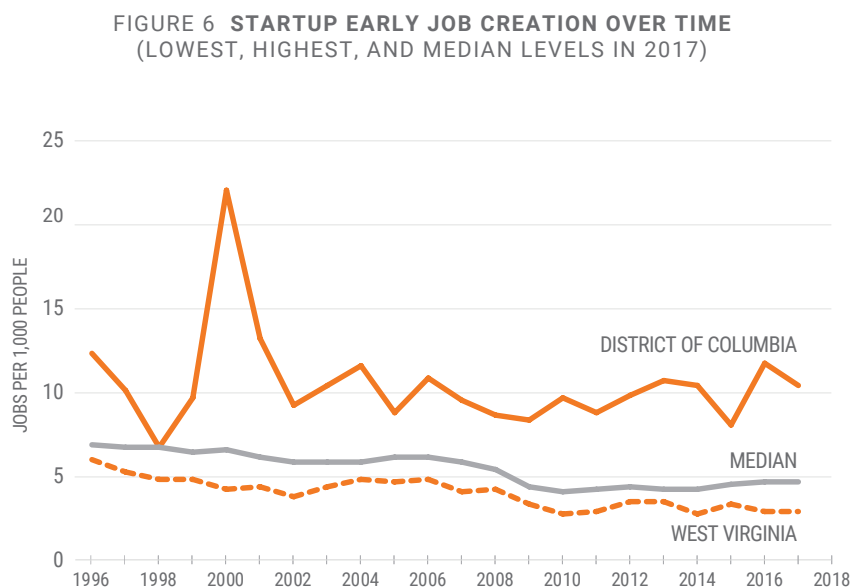
FIGURE 5 STARTUP EARLY JOB CREATION BY STATE (2017)



For an interactive version of the map, please see www.kauffman.org/indicators.

Figure 6 below displays startup early job creation data for the states with the highest (District of Columbia) and lowest (West Virginia) levels in 2017, as well as the median state.

The median startup early job creation declined from 6.79 in 1996 to a low of 4.04 in 2010, but it has since recovered to the current figure of 4.71.



Since 1996, the District of Columbia (highest in 2017) has consistently had more startup jobs created per 1,000 residents than the median state. Similarly, West Virginia has consistently had fewer startup jobs created per 1,000 residents than the median state.



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The **startup early survival rate**, an early-stage indicator of business performance, measures the percentage of new employer establishments that are still active after one year of operation. This indicator is an annual measure calculated from the BED.

STARTUP EARLY SURVIVAL RATE

INTERPRETING THE STARTUP EARLY SURVIVAL RATE

As with startup early job creation, the startup early survival rate measure reflects a trend among startups within their first year. This indicator is a measure of immediate survival; it does not reflect the long-term survival of startups. And for businesses that do not survive, it does not assume the reason for exit. It is also important to note that this indicator measures the early survival rates of new establishments rather than new firms. Unlike new firms, new establishments can be generated from existing businesses. For example, a new location of a service-oriented business (such as a restaurant or gas station) would count as a new establishment but not as a new firm. Historically, however, the establishment survival rate has been very similar to the firm survival rate.⁸

The startup early survival rate ranged from 73.48 percent in the state of Georgia to 88.13 percent in Maine, with a median of 79.1 percent in 2017. Nationally, the one-year survival rate for new firms in 2017 was 79.8 percent. Figure 7 presents the variation in early survival rate for all 50 states.

FIGURE 7 STARTUP EARLY SURVIVAL RATE BY STATE (2017)

										ME 88.13%
AK 78.46%									VT 78.82%	NH 77.28%
WA 80.28%	ID 80.56%	MT 80.59%	ND 77.01%	MN 83.93%	IL 78.30%	WI 79.29%	MI 81.47%	NY 80.01%	RI 77.41%	MA 82.74%
OR 78.44%	NV 76.89%	WY 77.25%	SD 81.44%	IA 80.39%	IN 80.20%	OH 75.80%	PA 80.18%	NJ 80.03%	CT 79.67%	
CA 82.33%	UT 78.57%	CO 78.12%	NE 77.71%	MO 85.32%	KY 79.18%	WV 79.37%	VA 78.75%	MD 77.50%	DE 78.56%	
	AZ 77.85%	NM 76.41%	KS 74.20%	AR 78.98%	TN 81.18%	NC 78.89%	SC 80.82%	DC 76.58%		
			OK 76.75%	LA 80.41%	MS 78.42%	AL 80.29%	GA 73.48%			
HI 77.96%				TX 79.46%				FL 78.41%		

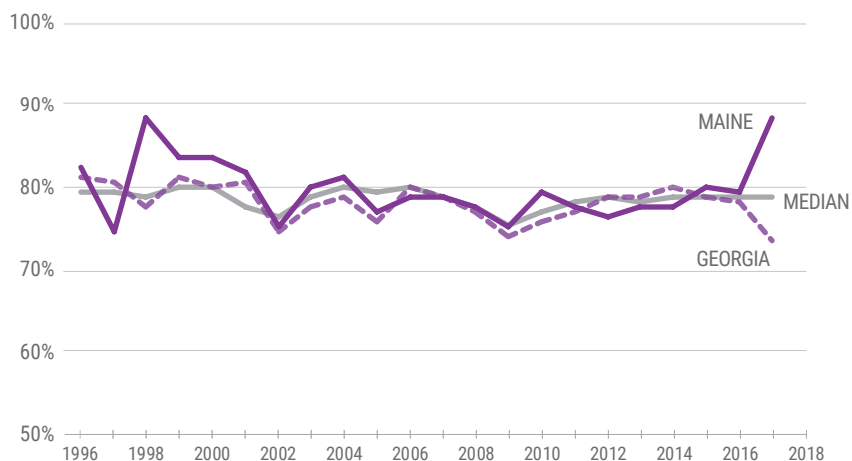
For an interactive version of the map, please see www.kauffman.org/indicators.

8. Historical data on firm survival rate is available from the U.S. Census Business Dynamics Statistics at https://www.census.gov/ces/dataproducts/bds/data_firm2016.html.

The median startup early survival rate has been very stable over time, ranging between 75.3 percent and 80.2 percent for all of the years between 1996 and 2017.

Figure 8 below displays startup early survival rates for the states with the highest (Maine) and lowest (Georgia) levels in 2017, as well as the median state.

FIGURE 8 STARTUP EARLY SURVIVAL RATE OVER TIME (1996–2017)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2017)



Kauffman Early-Stage Entrepreneurship (KESE) Index

Using the four indicators, we create the KESE Index, a summary index that reflects entrepreneurial activity in the United States, broadly defined. It is an equally weighted index of the four normalized indicators of entrepreneurship activity:⁹

- 1) **Rate of new entrepreneurs:** the percentage of adults becoming entrepreneurs in a given month.
- 2) **Opportunity share of new entrepreneurs:** the percentage of new entrepreneurs driven primarily by opportunity rather than necessity.

3) **Startup early job creation:** the total number of jobs created by startups in their first year normalized by the population (i.e., per capita).

4) **Startup early survival rate:** the percentage of startups that remain in operation through their first year.

Table 2 below and Figure 9 presents the KESE Index score for 2017 for all 50 states and the District of Columbia. Index scores ranged from -2.93 (Rhode Island), -1.85 (Ohio), and -1.40 (New Hampshire) to 2.86 (California), 1.86 (Missouri), and 1.75 (Florida).

STATE	KESE Index Score 2017	STATE	KESE Index Score 2017
Alabama	-0.88	Missouri	1.86
Alaska	0.45	Montana	1.54
Arizona	1.31	Nebraska	0.01
Arkansas	-0.33	Nevada	1.06
California	2.86	New Hampshire	-1.40
Colorado	0.54	New Jersey	0.75
Connecticut	-0.94	New Mexico	-0.31
Delaware	-0.86	New York	1.12
District of Columbia	-0.51	North Carolina	-0.02
Florida	1.75	North Dakota	1.05
Georgia	0.43	Ohio	-1.85
Hawaii	-0.62	Oklahoma	1.17
Idaho	1.08	Oregon	-0.05
Illinois	-1.36	Pennsylvania	-1.30
Indiana	-1.26	Rhode Island	-2.93
Iowa	-0.24	South Carolina	-0.70
Kansas	-1.15	South Dakota	0.66
Kentucky	-0.82	Tennessee	0.29
Louisiana	-0.22	Texas	1.67
Maine	1.63	Utah	0.39
Maryland	-0.78	Vermont	0.17
Massachusetts	0.89	Virginia	-1.23
Michigan	-0.03	Washington	1.09
Minnesota	1.14	West Virginia	-0.54
Mississippi	0.31	Wisconsin	-1.29
		Wyoming	1.68

9. We normalize each of the four measures by subtracting the mean and dividing by the standard deviation for that measure (i.e., creating a z-score for each variable). This calculation creates a comparable scale for including the four measures in the summary index. We use annual estimates from more than two decades to calculate the mean and standard deviations for each component measure (see Methodology and Underlying Data Sources for more details).

It is important to note that the KESE Index is a composite of the four indicators, and each should be interpreted separately. In some cases, an index score may be driven by one very high or low indicator. As such, for more actionable insights, we recommend that users of the index focus primarily on each individual indicator and less on the overall composite score.

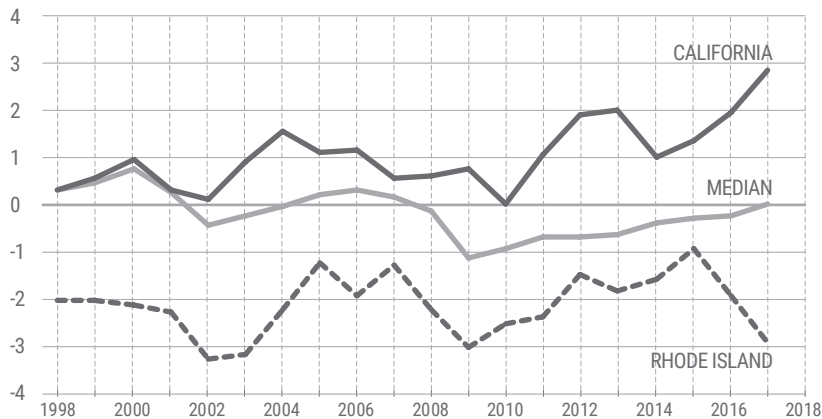
Figure 10 below displays the index score over 20 years for the states with the highest (California) and lowest (Rhode Island) scores in 2017, as well as the median.

FIGURE 9 KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX (2017)

										ME 1.63	
AK 0.45										VT 0.17	NH -1.40
WA 1.09	ID 1.07	MT 1.54	ND 1.05	MN 1.14	IL -1.36	WI -1.29	MI -0.03	NY 1.12	RI -2.93	MA 0.89	
OR -0.05	NV 1.06	WY 1.68	SD 0.66	IA -0.24	IN -1.26	OH -1.85	PA -1.30	NJ 0.75	CT -0.94		
CA 2.86	UT 0.39	CO 0.54	NE 0.01	MO 1.86	KY -0.82	WV -0.54	VA -1.23	MD -0.78	DE -0.86		
	AZ 1.31	NM -0.31	KS -1.15	AR -0.33	TN 0.29	NC -0.02	SC -0.70	DC -0.51			
			OK 1.17	LA -0.22	MS 0.31	AL -0.88	GA 0.43				
HI -0.62				TX 1.67				FL 1.75			

For an interactive version of the map, please see www.kauffman.org/indicators.

FIGURE 10 KESE INDEX OVER TIME (1998–2017)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2017)



Rhode Island has consistently had a composite index score below the national median. California's KESE score was close to the national median between 1998 and 2001, but it has consistently had a higher KESE score since that time—a trend which seems to have accelerated in the wake of the Great Recession.

Methodology

This section of the report discusses the methodology and underlying data sources for each of the Kauffman Indicators of Early-Stage Entrepreneurship and the methodology for calculating the summary KESE Index.

The underlying definitions and methodology are the same for the national and state estimates, with appropriate adjustments for geography and population size by state.

Indicator 1: Rate of New Entrepreneurs

The rate of new entrepreneurs is calculated using a special panel dataset created from the Current Population Survey (CPS). The CPS is a monthly survey of approximately 60,000 households conducted by the Bureau of Labor Statistics on behalf of the U.S. Census Bureau. The survey primarily asks questions focused on the employment status of household members, including their employment and business ownership status.¹⁰ The CPS microdata capture all business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non-employers. To create the rate of new entrepreneurs,¹¹ all individuals who do not own a business as their main job are identified in the first survey month. By matching monthly CPS files, it is then determined if these individuals own a business as their main job with 15 or more hours worked per usual week in the following survey month.

Changes to respondents' main jobs from month to month are measured accurately because CPS survey takers ask whether the individual has the same main job that they reported in the previous month. If the answer is yes, the interviewer carries forward job information, including business ownership, from the previous month's survey. If the answer is no, the respondent is asked the full series of job-related questions. Survey-takers ask this question at the beginning of the job section to save time during the interview process and improve consistency in reporting.

The main job is defined as the job with the most hours worked. Individuals who start side businesses will, therefore, not be counted if they are working more hours on a wage/salary job.

The requirement that business owners work 15 or more hours per week in the second month is imposed to rule out part-time business owners and very small business activities.

The rate of new entrepreneurs may, therefore, underestimate or overestimate the percent of individuals creating any type of business.

The rate of new entrepreneurs excludes individuals who owned a business and worked fewer than 15 hours in the first survey month. Thus, it does not capture business owners who increased their hours from less than 15 per week in one month to 15 or more hours per week in the second month. It also does not capture when these business owners changed from being non-business owners to business owners with less than 15 hours worked. These individuals are excluded from the sample but may actually have been at the earliest stages of starting a business.

At the same time, the rate of new entrepreneurs may overstate entrepreneurship because of how individuals report their work status. Longstanding business owners who are also salaried in the business may, for example, not report that business ownership is their main job if their wage/salary jobs had more hours in that particular month. If these individuals later report having worked more hours in business ownership in a subsequent month, it would appear that a new business had been created.

For the rate of new entrepreneurs calculations presented in this report, all observations from the CPS with allocated labor force status, class of worker, and hours worked variables are excluded. The rate of new entrepreneurs is substantially higher for allocated or imputed observations.

Indicator 2: Opportunity Share of New Entrepreneurs

Building from the same data used for the rate of new entrepreneurs, the opportunity share of new entrepreneurs is defined as the share of the new business owners that are coming out of wage and salary work, school, or other labor market statuses. This "opportunity entrepreneurship" can be

10. <https://www.census.gov/programs-surveys/cps.html>.

11. This measure was created by Fairlie (2014), formerly known as the Kauffman Index of Entrepreneurial Activity.

contrasted to the “necessity entrepreneurship” that occurs when individuals start businesses coming out of unemployment. The opportunity share of new entrepreneurs considers individuals’ initial labor market status in the first survey month.

The distinction between opportunity versus necessity has been discussed extensively in the entrepreneurship literature.¹² It is conceptually useful because the motivations for starting a business could influence the type, nature, and future direction of the business; it is also meaningful because it reflects to some extent the landscape of economic opportunity for entrepreneurs. Although there is some convergence about the theoretical distinction between the two motivations for business creation, a clean distinction is difficult to make with empirical data. Distinguishing between opportunity and necessity entrepreneurship using prior labor market status presents a useful approach.

UNDERLYING CURRENT POPULATION SURVEY (CPS) PANEL DATA

To calculate the rate of new entrepreneurs and the opportunity share of new entrepreneurs, a special panel dataset is created by matching the basic monthly files of the Current Population Survey (CPS) over time. These surveys, conducted monthly by the U.S. Census Bureau and the Bureau of Labor Statistics, represent the entire U.S. population and contain observations for more than 130,000 people each month. By linking the CPS files over time, longitudinal data are created, allowing for the examination of month-to-month changes in business creation. Combining the monthly files creates a sample size of roughly 700,000 adults ages 20 to 64 each year.

This method of creating panel data takes advantage of the household surveying strategies used for the CPS. Households in the CPS are interviewed each month over a four-month period. Eight months later, they are re-interviewed in each month of a second four-month period. Thus, individuals who are interviewed in January,

February, March, and April of one year are interviewed again in January, February, March, and April of the following year. The CPS rotation pattern makes it possible to match information on individuals monthly and, therefore, to create two-month panel data for up to 75 percent of all CPS respondents. To match these data, the household and individual identifiers provided by the CPS are used. False matches are removed by comparing race, sex, and age codes from the two months of data. After removing all non-unique matches, the underlying CPS data are checked extensively for coding errors and other problems.

Monthly match rates are generally between 94 percent and 96 percent. Household moves are the primary reason for non-matching. A somewhat non-random sample (mainly geographic movers) will, therefore, be lost due to the matching routine. Moves do not appear to create a serious problem for month-to-month matches, however, because the observable characteristics of the original sample and the matched sample are very similar.

The CPS sample was designed to produce national and state estimates of the unemployment rate and additional labor force characteristics of the civilian, non-institutional population ages 16 and older.¹³ The total national sample size is drawn to ensure a high level of precision for the monthly national unemployment rate. For each of the 50 states and the District of Columbia, the sample also is designed to guarantee precise estimates of average annual unemployment rates, resulting in varying sample rates by state.¹⁴ Sampling weights provided by the CPS, which also adjust for non-response and post-stratification raking, are used for all national and state-level estimates.

Indicator 3: Startup Early Job Creation

Startup early job creation uses BED data to capture early-stage job creation among startup cohorts each year. To focus on early-stage business success, a one-year window is used to

12. See Fairlie and Fossen (2017) and Desai (2017), among others.

13. The civilian non-institutional population is defined as persons 16 years of age and older residing in the 50 states and the District of Columbia, who are not inmates of institutions (e.g., penal and mental facilities, homes for the aged), and who are not on active duty in the Armed Forces. This number is reported regularly by the Federal Reserve and is available here: <https://fred.stlouisfed.org/series/CNP16OV>.

14. See Polivka (2000).

measure job creation. For this measure, startups are defined as new employer establishments that are younger than one year old in a given year. The total employment generated by these startups in their first year is divided by the population to create the per capita startup early job creation measure.

Indicator 4: Startup Early Survival Rate

The startup early survival rate uses BED data to measure the percentage of new employer establishments that survive their first year of operation.

UNDERLYING BUSINESS EMPLOYMENT DYNAMICS (BED) DATA

Startup early job creation and startup early survival rate both use the U.S. Bureau of Labor Statistics, Business Employment Dynamics (BED) series. The BED is derived from the Quarterly Census of Employment and Wages (QCEW), or ES-202, program. The data include all establishments subject to state unemployment insurance (UI) laws and federal agencies subject to the Unemployment Compensation for Federal Employees program. It covers all employer establishments in the United States (approximately seven million establishments).

The BED data include numbers of businesses tabulated by firm age, establishment age, employment size, and geography (national and state). Firm age information is used to identify and measure the number of startups, defined as employer businesses younger than one year old.

Because the BED is based on underlying administrative data that covers the universe of employer establishments in the United States, sampling concerns such as standard errors and confidence intervals are irrelevant. Nonetheless, non-sampling errors still could occur. These could be caused, for example, by data entry issues or by businesses submitting incorrect employment data.

Kauffman Early-Stage Entrepreneurship Index

The KESE is calculated from the four indicators of entrepreneurship activity. It is an equally weighted index of the four normalized indicators. Each of the measures is normalized by subtracting its mean and dividing by its standard deviation (i.e., creating a z-score for each variable). This calculation creates a comparable scale for including the four measures in the KESE. We use national annual estimates from 1996 to 2017 to calculate the mean and standard deviation for each component. The same normalization method, which is based on national data, is used for both geographical levels—national and state—for comparability and consistency over time.

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APPENDIX: Changes to the Kauffman Index Series

The Kauffman Indicators of Entrepreneurship replaces the previous 2015–2018 Kauffman Index of Entrepreneurship series. The previous Kauffman Index series consisted of three sets of reports: 1) Startup Activity, 2) Main Street Entrepreneurship, and 3) Growth Entrepreneurship.

This redesign was motivated by several priorities, including the need for a series of clear indicators, timely and current information in the context of existing data constraints, and a focus on the nature of early-stage entrepreneurship. The Kauffman Foundation received input from policymakers, researchers, and other stakeholders about how to best accomplish these goals.

The Kauffman Indicators of Early-Stage Entrepreneurship is the first set of data in the Kauffman Indicators of Entrepreneurship. Presented across four clear indicators—Rate of New Entrepreneurs, Opportunity Share of New Entrepreneurs, Startup Early Job Creation, and Startup Early Survival Rate—as well as one single, early-stage entrepreneurship score, the Kauffman Early-Stage Entrepreneurship (KESE) Index, the Kauffman Indicators of Early-Stage Entrepreneurship is intended to be directly relevant to users. A key goal of the series is to provide a balanced perspective on measuring a complex phenomenon. Data are continually changing, and future years may see revisions to the methodology, if appropriate.

In addition to the development of the indicators, we have made the decision to present data for all 50 states (and the District of Columbia) in a consolidated format. In years past, the state reports presented data for the 25 largest and smallest states separately. Additionally, reports in past years emphasized the overall rankings of each state, as well as changes in rankings from year to year.

This decision to consolidate was made in an effort to emphasize the underlying indicators, which we believe are the most valuable components of the Kauffman Index. Furthermore, we recognize that there are a variety of dimensions (in addition to population) that states may consider when choosing other states as benchmarks. As such, we hope that presenting data for all 50 states makes it easier to understand the relative performance of each state on each indicator. The Kauffman Indicators website provides additional tools which interested users can use to compare state data.

Comparisons Between Components of the Kauffman Indicators of Early-Stage Entrepreneurship and Components of the Previous Kauffman Index Series

RATE OF NEW ENTREPRENEURS

The rate of new entrepreneurs was previously reported as the Kauffman Index of Entrepreneurial Activity from 2000 to 2014.¹⁵ It was also reported as the Rate of New Entrepreneurs in the Startup Activity Index report from 2015 to 2017.

OPPORTUNITY SHARE OF NEW ENTREPRENEURS

The opportunity share of new entrepreneurs was previously reported as the Opportunity Share in the Kauffman Index of Entrepreneurial Activity from 2008 to 2014.¹⁶ It was also reported as the Opportunity Share of Entrepreneurs in the Startup Activity Index Report from 2015 to 2017.

STARTUP EARLY JOB CREATION

Startup early job creation is related to two measures used in previous index reports: Startup Density from the Startup Activity Index, and Employment Growth from the Growth Index report.

The new measure differs from the Startup Density Component of the Startup Activity Index because startup early job creation captures the total number of jobs created by startups per capita. The earlier measure captures the number of employer startups per employer business total. Measuring total jobs created by startups per capita captures both the quantity of employer startups and the number of jobs created by each startup.

The two previous measures do not fully capture the potential of startups for early job creation. The number of employer startups per capita alone does not indicate how many jobs each startup is creating, and the average number of jobs per startup focuses only on those startups which create jobs. In addition, startup early job creation uses data from the U.S. Bureau of Labor Statistics, Business Employment Dynamics (BED) series, while the previous measures used data from the U.S. Census Bureau, Business Dynamics Statistics (BDS) series. This shift allows for more timely reporting of this indicator.

15 See Fairlie (2014) and <https://www.kauffman.org/historical-kauffman-index>.

16. Older versions of the Kauffman Index reports are available online: <https://www.kauffman.org/historical-kauffman-index/reports>.

The new measure is also loosely related to the Rate of Startup Growth included in the earlier Growth Index reports. The Rate of Startup Growth was defined as the percentage change between the average employment of all employer firms that were less than one year old in a given year and the average employment of the surviving firms in that cohort five years later. It tracked employment growth over a five-year window using data from the Business Dynamics Statistics series. The new measure represents job creation in the first year.

STARTUP EARLY SURVIVAL RATE

The startup early survival rate is related to the Survival Rate component in the previous Main Street Index.¹⁷ A key difference is that the underlying data for the new measure come from the BED instead of the BDS. The new measure from the BED also focuses on new employer establishments instead of businesses in the BDS. And again, instead of using a five-year window to measure survival, we now use a one-year window to focus on early-stage success and improve the timeliness of the measure.



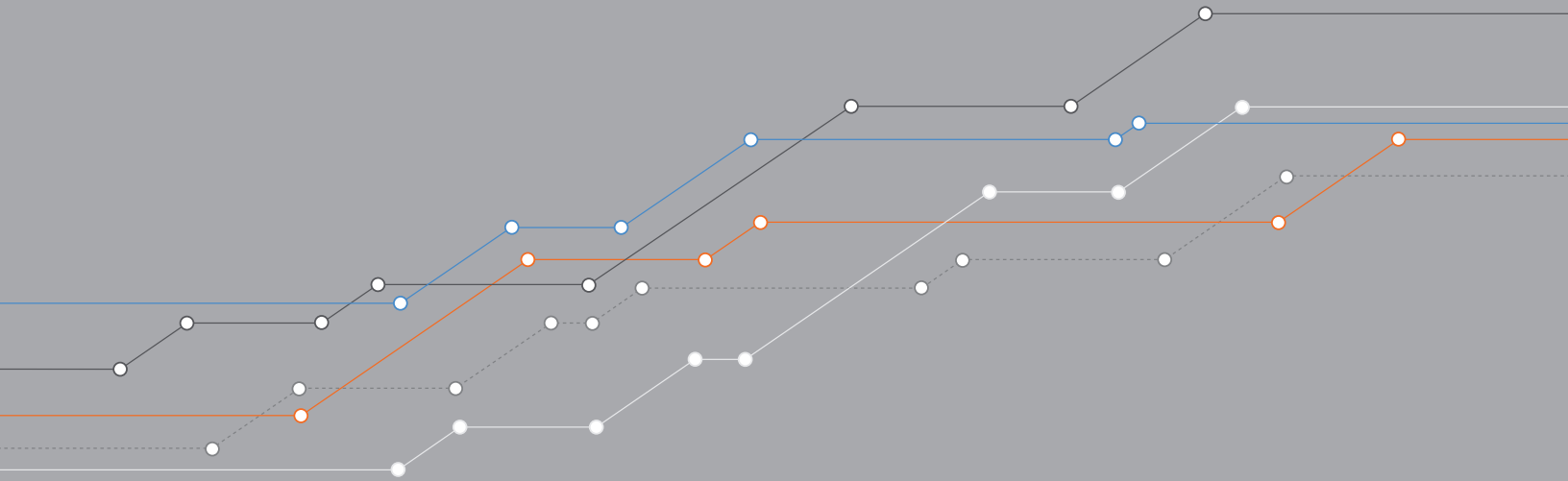
Explore the Kauffman Indicators further at: www.kauffman.org/indicators

17. For more discussion, see Reedy and Litan (2011).

NOTES



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