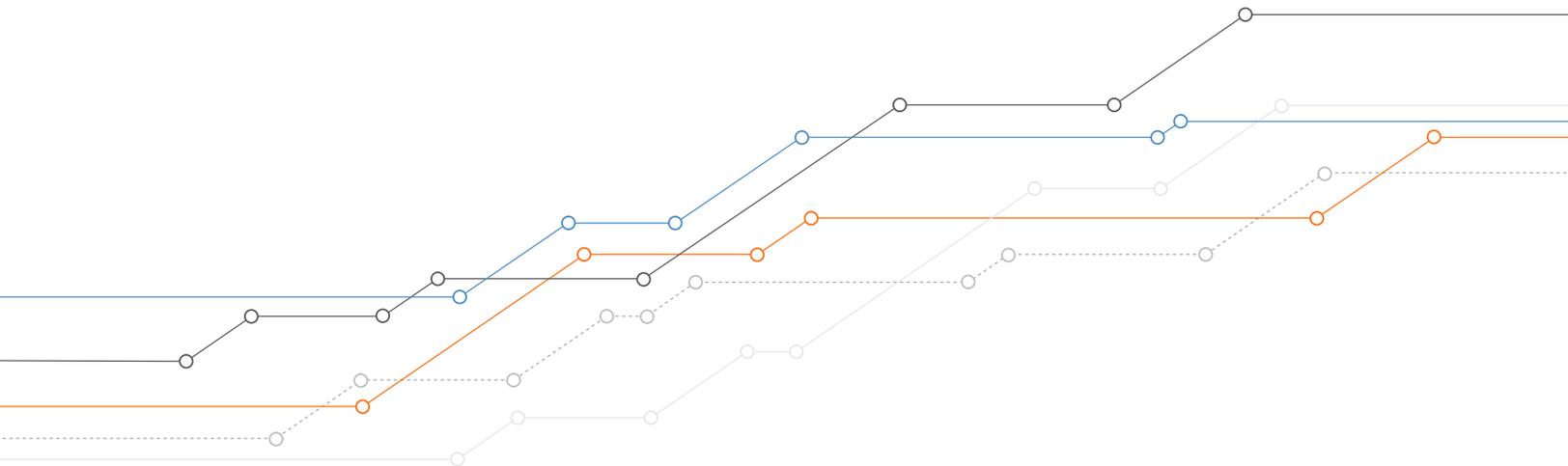




KAUFFMAN
INDICATORS *of*
ENTREPRENEURSHIP

2018 STATE REPORT
**ON EARLY-STAGE
ENTREPRENEURSHIP**

SEPTEMBER 2019



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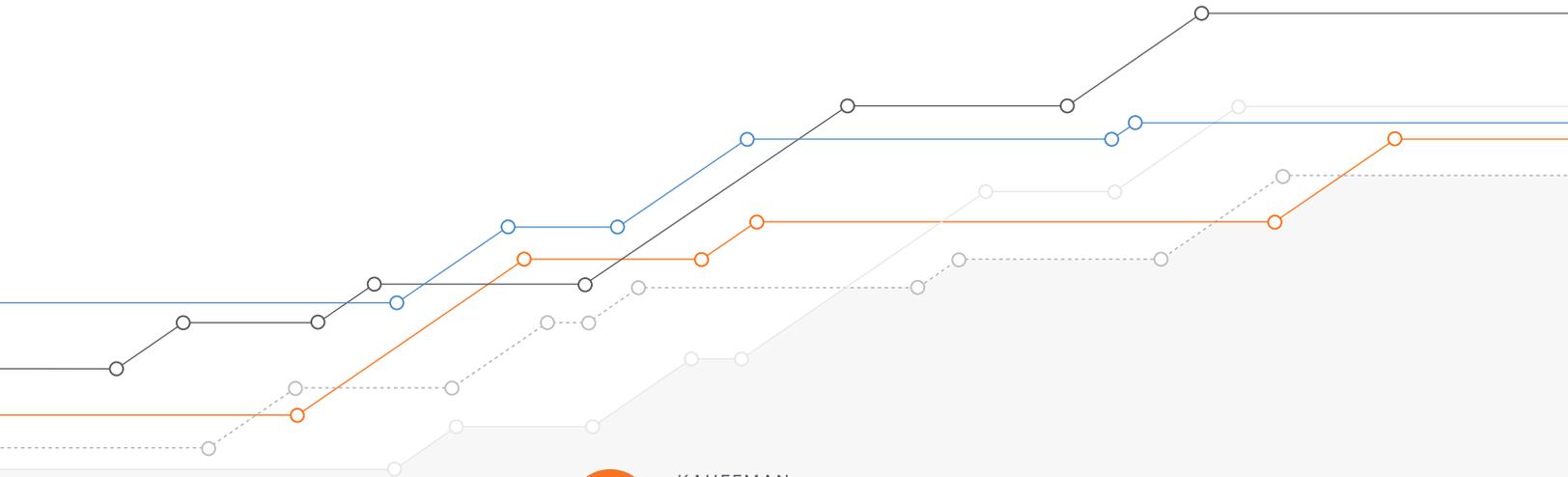
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Explore the Kauffman Indicators further at:
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EARLY-STAGE ENTREPRENEURSHIP IN THE UNITED STATES

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.

TABLE OF CONTENTS

Executive Summary.....	4
Early-Stage Entrepreneurship Indicators.....	4
Table 1: Four Indicators and KESE Index for all States and District of Columbia.....	5
Introduction.....	7
Kauffman Indicators of Entrepreneurship.....	8
RATE OF NEW ENTREPRENEURS.....	8
Figure 1: Rate of New Entrepreneurs by State (2018).....	8
Figure 2: Rate of New Entrepreneurs Over Time (1998–2018).....	9
(Lowest, Highest, and Median Levels in 2018)	
OPPORTUNITY SHARE OF NEW ENTREPRENEURS.....	10
Figure 3: Opportunity Share of New Entrepreneurs by State (2018).....	10
Figure 4: Opportunity Share of New Entrepreneurs Over Time (1998–2018).....	11
(Lowest, Highest, and Median Levels in 2018)	
STARTUP EARLY JOB CREATION.....	12
<i>Trends in Startup Early Job Creation.....</i>	12
Figure 5: Startup Early Job Creation by State (2018).....	12
Figure 6: Startup Early Job Creation Over Time (1996–2018).....	13
(Lowest, Highest, and Median Levels in 2018)	
STARTUP EARLY SURVIVAL RATE.....	14
<i>Interpreting the Startup Early Survival Rate.....</i>	14
Figure 7: Startup Early Survival Rate by State (2018).....	14
Figure 8: Startup Early Survival Rate Over Time (1996–2018).....	15
(Lowest, Highest, and Median Levels in 2018)	
KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX.....	16
Table 2: Kauffman Early-Stage Entrepreneurship Index (2018).....	16
Figure 9: Kauffman Early-Stage Entrepreneurship Index (2018).....	17
Figure 10: KESE Index Over Time (1998–2018).....	17
(Lowest, Highest, and Median Levels in 2018)	

Methodology..... 18

Indicator 1: Rate of New Entrepreneurs 18

Indicator 2: Opportunity Share of New Entrepreneurs 18

 Underlying Current Population Survey (CPS) Panel Data..... 19

Indicator 3: Startup Early Job Creation 19

Indicator 4: Startup Early Survival Rate..... 19

 Underlying Business Employment Dynamics (BED) Data 20

Kauffman Early-Stage Entrepreneurship Index 20

References 20



Executive Summary

The 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 2018.

Early-Stage Entrepreneurship Indicators

- The **rate of new entrepreneurs** ranged from a low of 0.12 percent in Rhode Island to a high of 0.46 percent in Florida, with a median of 0.29 percent.¹ Nationally, the rate of new entrepreneurs in 2018 was 0.32 percent, meaning that an average of 320 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 68.43 percent in Wisconsin to 94.05 percent in South Dakota, with a median of 85.68 percent. The national opportunity share of new entrepreneurs in 2018 was 86.16 percent.
- **Startup early job creation** captures job creation, measured as the total number of jobs created by startups per capita. This indicator ranged from 3.06 jobs per 1,000 people in West Virginia to 11.32 in the District of Columbia, with a median of 4.68. The national startup early job creation in 2018 was 5.20 jobs per 1,000 people.
- **Startup early survival rate** reflects the one-year survival rate for new firms. It ranged from 70.94 percent in Missouri to 81.97 percent in Mississippi with a median of 79.4 percent. Nationally, the startup early survival rate was 79.43 percent in 2018.

- The overall **KESE Index**—a composite of the four indicators—ranged from -3.80 in Rhode Island to 2.78 in California, with a median of 0.17. Rhode Island also had the lowest score on this measure in 2017, and California also had the highest score in the previous year. The national figure was 0.56, a slight decline from 0.68 in 2017. The national figure is still relatively high compared to historical averages.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.

2. The summary index is centered at 0, which is the average over the full time period (1996–2018). 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.

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 a 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	0.21%	84.11%	4.17	79.42%	-1.06
Alaska	0.41%	82.50%	4.00	78.28%	0.84
Arizona	0.35%	85.68%	4.86	76.18%	0.11
Arkansas	0.29%	84.55%	4.38	78.90%	-0.13
California	0.45%	87.94%	6.47	81.13%	2.78
Colorado	0.35%	80.43%	6.45	81.12%	1.13
Connecticut	0.20%	87.33%	4.03	78.82%	-1.14
Delaware	0.23%	93.41%	6.65	78.20%	0.13
District of Columbia	0.27%	74.00%	11.32	77.22%	0.18
Florida	0.46%	86.72%	6.41	78.81%	2.27
Georgia	0.42%	90.92%	5.88	76.12%	1.47
Hawaii	0.30%	88.73%	3.84	80.33%	0.38
Idaho	0.38%	87.90%	6.10	77.93%	1.25
Illinois	0.25%	79.46%	4.48	80.00%	-0.75
Indiana	0.21%	86.79%	3.72	80.39%	-0.82
Iowa	0.28%	93.62%	3.82	80.31%	0.42
Kansas	0.27%	84.52%	4.05	76.49%	-0.94
Kentucky	0.26%	85.38%	4.26	78.71%	-0.53
Louisiana	0.34%	71.90%	5.03	80.29%	0.00
Maine	0.31%	87.62%	4.25	72.24%	-1.10
Maryland	0.27%	76.50%	4.04	77.58%	-1.23
Massachusetts	0.23%	84.63%	5.88	81.18%	-0.06
Michigan	0.23%	85.28%	4.33	80.95%	-0.44
Minnesota	0.20%	83.96%	4.24	77.45%	-1.49
Mississippi	0.32%	86.33%	3.76	81.97%	0.71
Missouri	0.32%	83.96%	5.73	70.94%	-1.07
Montana	0.40%	85.42%	4.68	79.54%	1.26
Nebraska	0.30%	92.49%	4.92	77.35%	0.26
Nevada	0.34%	85.82%	6.39	77.40%	0.60
New Hampshire	0.22%	85.09%	3.87	76.86%	-1.39
New Jersey	0.29%	86.95%	5.38	78.65%	0.11
New Mexico	0.42%	69.47%	4.07	79.55%	0.35
New York	0.32%	87.03%	6.11	79.81%	0.88

EXECUTIVE SUMMARY

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 a 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	0.27%	90.35%	4.61	81.20%	0.44
North Dakota	0.36%	88.23%	4.85	79.06%	0.97
Ohio	0.20%	81.40%	3.60	79.58%	-1.50
Oklahoma	0.39%	85.39%	5.51	81.51%	1.72
Oregon	0.27%	89.94%	5.15	79.23%	0.20
Pennsylvania	0.19%	86.52%	3.67	80.50%	-1.02
Rhode Island	0.12%	72.46%	4.16	74.30%	-3.80
South Carolina	0.26%	83.31%	4.89	79.68%	-0.34
South Dakota	0.32%	94.05%	4.05	80.20%	0.99
Tennessee	0.27%	88.11%	4.87	80.32%	0.19
Texas	0.43%	84.64%	5.74	79.17%	1.73
Utah	0.29%	89.51%	5.67	79.27%	0.49
Vermont	0.36%	78.72%	4.33	80.53%	0.48
Virginia	0.18%	76.14%	4.68	78.62%	-1.95
Washington	0.30%	90.13%	5.26	80.89%	0.87
West Virginia	0.21%	90.40%	3.06	80.15%	-0.76
Wisconsin	0.25%	68.43%	3.88	79.62%	-1.73
Wyoming	0.45%	88.28%	4.79	81.66%	2.44

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 5 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 questions about 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.

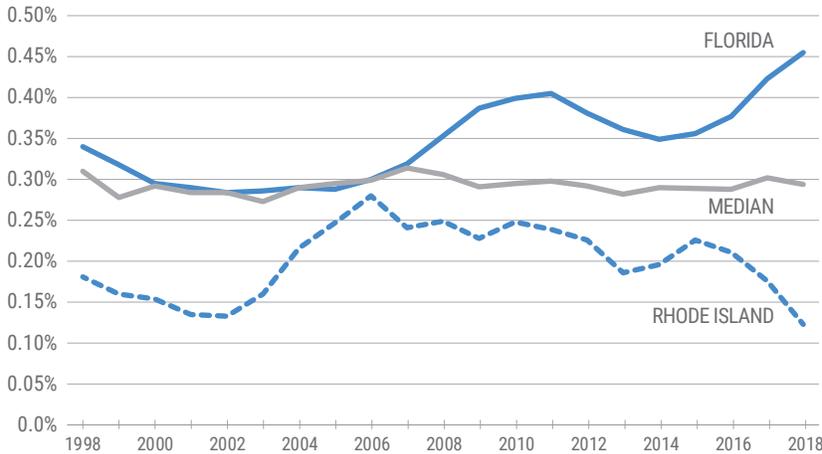
The Kauffman Indicators of Early-Stage Entrepreneurship provides a picture of early-stage entrepreneurial activity in the United States. The indicators track changes in entrepreneurial activity over time, across geographies, and among various demographic groups.

3. The first two indicators were calculated using special panel 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.

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 (Florida) and lowest (Rhode Island) levels in 2018.

FIGURE 2 RATE OF NEW ENTREPRENEURS OVER TIME (1998–2018)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2018)



Over the last 20 years, Florida has consistently had a higher rate of new entrepreneurs, and Rhode Island a lower rate of new entrepreneurs, than the median state.



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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

Over the past two decades, the opportunity share of new entrepreneurs appears to have 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 new entrepreneurs who created their business out of opportunity instead of necessity. Nationally, the opportunity share in 2018 was 86.16 percent. This indicator ranged from 68.43 percent in Wisconsin to 94.05 percent in South Dakota, with a median of 85.68 percent.

FIGURE 3 OPPORTUNITY SHARE OF NEW ENTREPRENEURS BY STATE (2018)

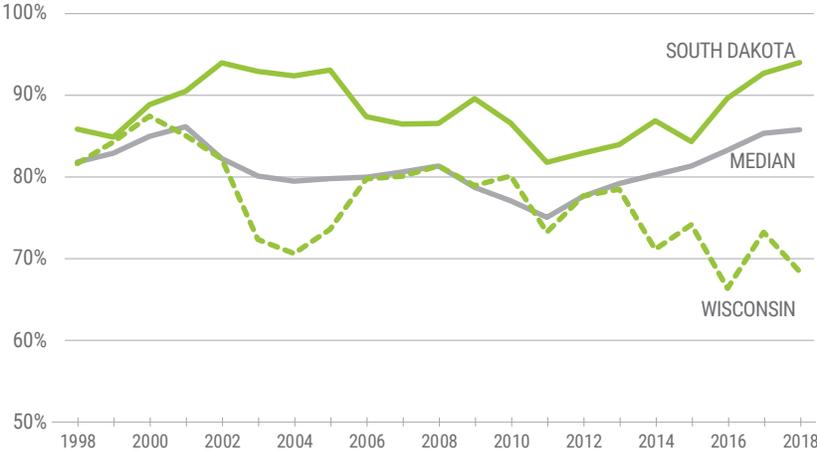
										ME 87.62%
									VT 78.72%	NH 85.09%
AK 82.50%										
WA 90.13%	ID 87.90%	MT 85.42%	ND 88.23%	MN 83.96%	IL 79.46%	WI 68.43%	MI 85.28%	NY 87.03%	RI 72.46%	MA 84.63%
OR 89.94%	NV 85.82%	WY 88.28%	SD 94.05%	IA 93.62%	IN 86.79%	OH 81.40%	PA 86.52%	NJ 86.95%	CT 87.33%	
CA 87.94%	UT 89.51%	CO 80.43%	NE 92.49%	MO 83.96%	KY 85.38%	WV 90.40%	VA 76.14%	MD 76.50%	DE 93.41%	
	AZ 85.68%	NM 69.47%	KS 84.52%	AR 84.55%	TN 88.11%	NC 90.35%	SC 83.31%	DC 74.00%		
			OK 85.39%	LA 71.90%	MS 86.33%	AL 84.11%	GA 90.92%			
HI 88.73%				TX 84.64%				FL 86.72%		

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 (South Dakota) and lowest (Wisconsin) levels in 2018.

FIGURE 4 OPPORTUNITY SHARE OF NEW ENTREPRENEURS OVER TIME (1998-2018)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2018)

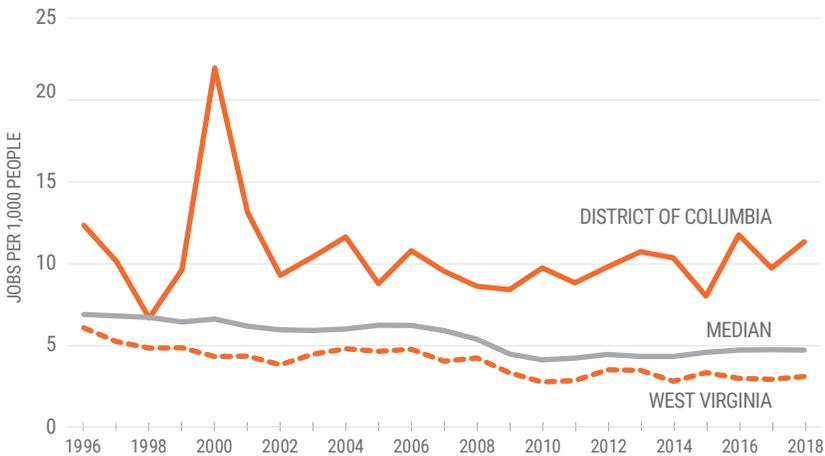


Over the last 20 years, South Dakota has generally had an opportunity share higher than the median state, and Wisconsin below the median state.

Figure 6 below displays startup early job creation data for the states with the highest (District of Columbia) and lowest (West Virginia) levels in 2018, 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 4.68 (albeit a slight decline from 4.71 in 2017).

FIGURE 6 STARTUP EARLY JOB CREATION OVER TIME
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2018)



Since 1996, the District of Columbia (highest in 2018) 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 reflect 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

Nationally, the one-year survival rate for new firms in 2018 was 79.43 percent. The startup early survival rate ranged from 70.94 percent in Missouri to 81.97 percent in Mississippi, with a median of 79.4 percent in 2018. Figure 7 presents the variation in early survival rate for all 50 states.

FIGURE 7 STARTUP EARLY SURVIVAL RATE BY STATE (2018)

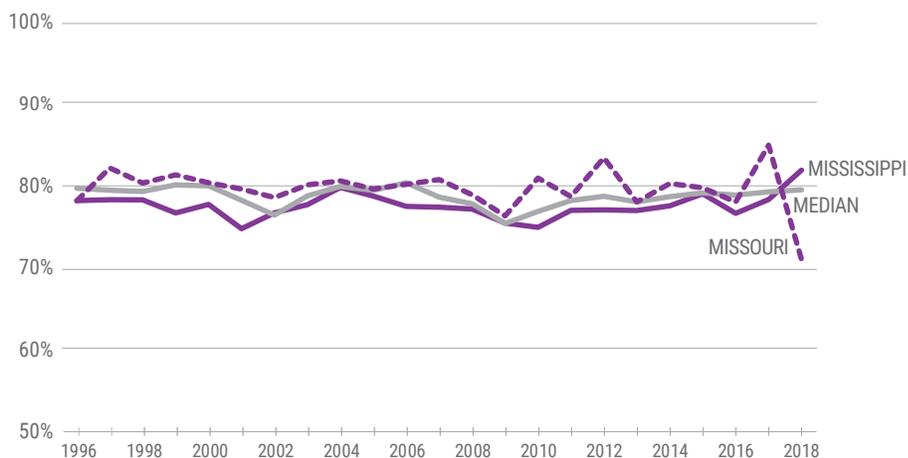
AK 78.28%											VT 80.53%	ME 72.24%
WA 80.89%	ID 77.93%	MT 79.54%	ND 79.06%	MN 77.45%	IL 80.00%	WI 79.62%	MI 80.95%	NY 79.81%	RI 74.30%	MA 81.18%		
OR 79.23%	NV 77.40%	WY 81.66%	SD 80.20%	IA 80.31%	IN 80.39%	OH 79.58%	PA 80.50%	NJ 78.65%	CT 78.82%			
CA 81.13%	UT 79.27%	CO 81.12%	NE 77.35%	MO 70.94%	KY 78.71%	WV 80.15%	VA 78.62%	MD 77.58%	DE 78.20%			
	AZ 76.18%	NM 79.55%	KS 76.49%	AR 78.90%	TN 80.32%	NC 81.20%	SC 79.68%	DC 77.22%				
			OK 81.51%	LA 80.29%	MS 81.97%	AL 79.42%	GA 76.12%					
HI 80.33%				TX 79.17%				FL 78.81%				

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 stable over time, ranging between 75.3 percent and 80.2 percent for all of the years between 1996 and 2018.

Figure 8 below displays startup early survival rates for the states with the highest (Mississippi) and lowest (Missouri) levels in 2018, as well as the median state.

FIGURE 8 STARTUP EARLY SURVIVAL RATE OVER TIME (1996–2018)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2018)



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 2018 for all 50 states and the District of Columbia. Index scores ranged from -3.80 (Rhode Island), -1.95 (Virginia), and -1.73 (Wisconsin) to 2.78 (California), 2.44 (Wyoming), and 2.27 (Florida).

STATE	KESE Index Score 2018	STATE	KESE Index Score 2018
Alabama	-1.06	Missouri	-1.07
Alaska	0.84	Montana	1.26
Arizona	0.11	Nebraska	0.26
Arkansas	-0.13	Nevada	0.60
California	2.78	New Hampshire	-1.39
Colorado	1.13	New Jersey	0.11
Connecticut	-1.14	New Mexico	0.35
Delaware	0.13	New York	0.88
District of Columbia	0.18	North Carolina	0.44
Florida	2.27	North Dakota	0.97
Georgia	1.47	Ohio	-1.50
Hawaii	0.38	Oklahoma	1.72
Idaho	1.25	Oregon	0.20
Illinois	-0.75	Pennsylvania	-1.02
Indiana	-0.82	Rhode Island	-3.80
Iowa	0.42	South Carolina	-0.34
Kansas	-0.94	South Dakota	0.99
Kentucky	-0.53	Tennessee	0.19
Louisiana	0.00	Texas	1.73
Maine	-1.10	Utah	0.49
Maryland	-1.23	Vermont	0.48
Massachusetts	-0.06	Virginia	-1.95
Michigan	-0.44	Washington	0.87
Minnesota	-1.49	West Virginia	-0.76
Mississippi	0.71	Wisconsin	-1.73
		Wyoming	2.44

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).

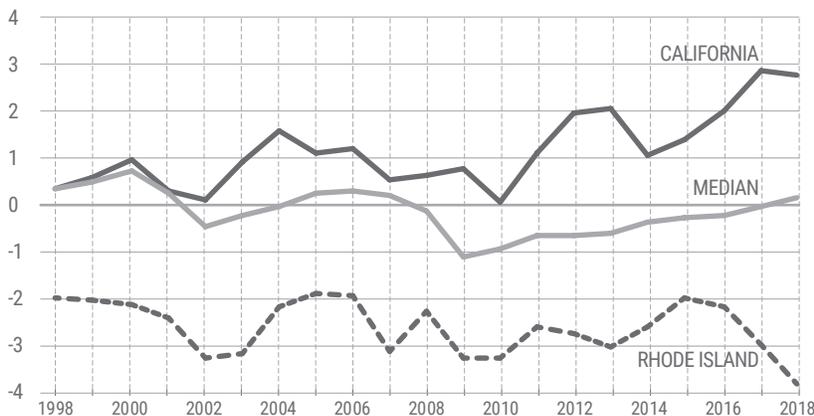
It is important to note that the KESE Index is a composite of the four indicators. In some cases, an index score may be driven by one very high or low indicator. As such, for more actionable insights, we recommend that users of the index focus primarily on each individual indicator and less on the overall 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 2018, as well as the median.

FIGURE 9 KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX (2018)

										ME -1.10	
										VT 0.48	NH -1.39
AK 0.84											
WA 0.87	ID 1.25	MT 1.26	ND 0.97	MN -1.49	IL -0.75	WI -1.73	MI -0.44	NY 0.88	RI -3.80	MA -0.06	
OR 0.20	NV 0.60	WY 2.44	SD 0.99	IA 0.42	IN -0.82	OH -1.50	PA -1.02	NJ 0.11	CT -1.14		
CA 2.78	UT 0.49	CO 1.13	NE 0.26	MO -1.07	KY -0.53	WV -0.76	VA -1.95	MD -1.23	DE 0.13		
		AZ 0.11	NM 0.35	KS -0.94	AR -0.13	TN 0.19	NC 0.44	SC -0.34	DC 0.18		
			OK 1.72	LA -0.00	MS 0.71	AL -1.06	GA 1.47				
HI 0.38				TX 1.73						FL 2.27	

FIGURE 10 KESE INDEX OVER TIME (1998–2018)
(LOWEST, HIGHEST, AND MEDIAN LEVELS IN 2018)



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 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

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

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

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 data set 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 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.

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).

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 7 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

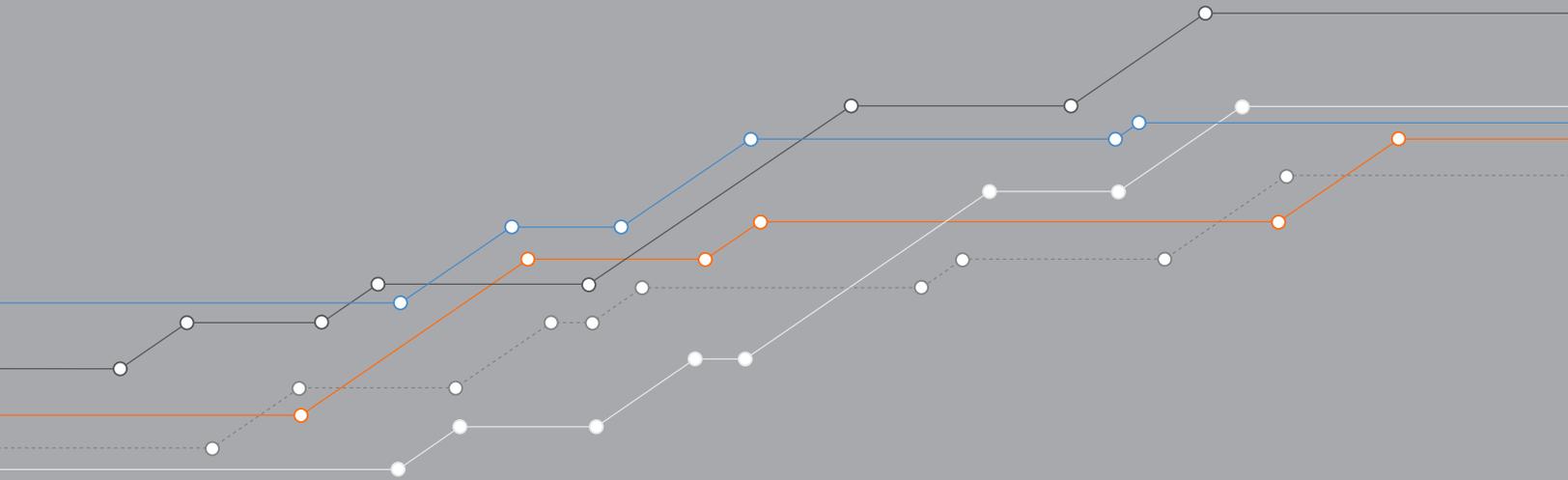
The KESE is calculated from the four indicators of entrepreneurship activity. It is an equally weighted index of the four normalized indicators. Each of the measures is normalized by subtracting its mean and dividing by its standard deviation (i.e., creating a z-score for each variable). This calculation creates a comparable scale for including the four measures in the KESE. We use national annual estimates from 1996 to 2018 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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