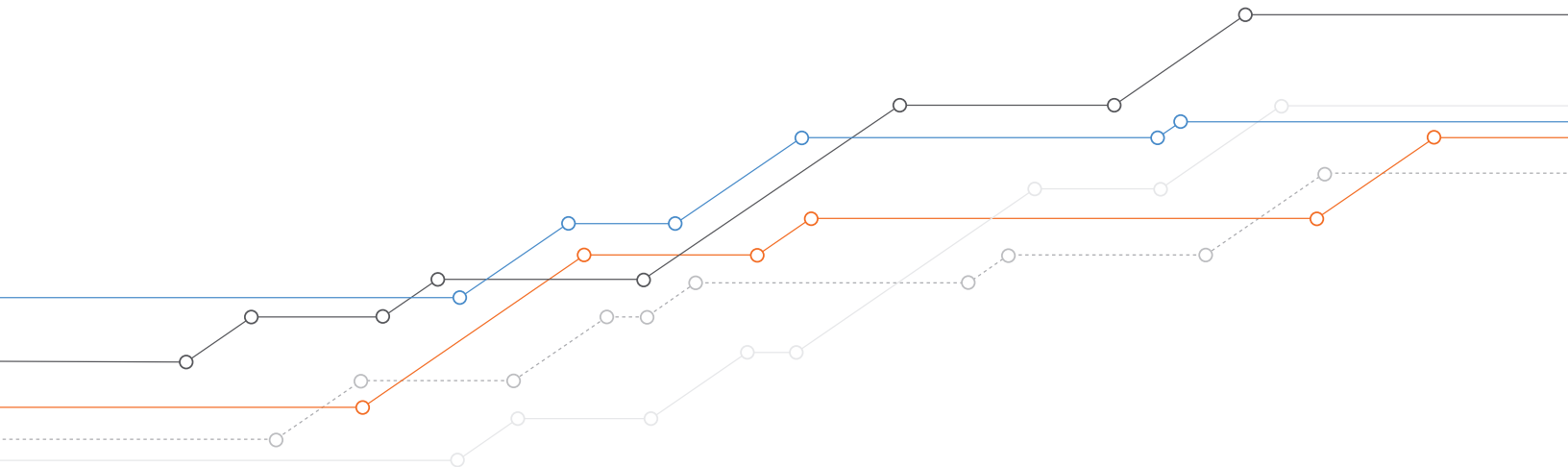




KAUFFMAN
INDICATORS *of*
ENTREPRENEURSHIP

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

FEBRUARY 2019



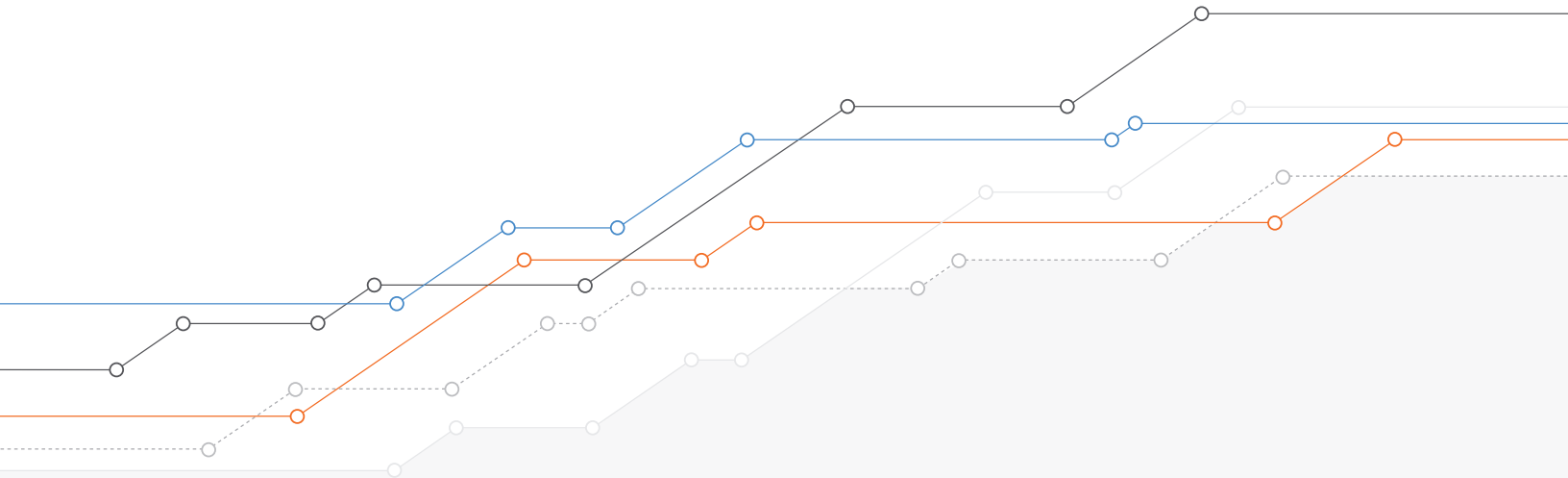
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Explore the Kauffman Indicators further at: www.kauffman.org/indicators



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Suggested citation:

Fairlie, Robert, Sameeksha Desai, and A.J. Herrmann. (2019) *2017 National Report on Early-Stage Entrepreneurship*,
Kauffman Indicators of Entrepreneurship, Ewing Marion Kauffman Foundation: Kansas City.

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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

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 national trends in early-stage entrepreneurship for the years 1996–2017 in the United States, as well as trends for specific demographic groups when possible.

Early-Stage Entrepreneurship Indicators

- The **rate of new entrepreneurs** in 2017 was 0.33 percent, which reflects that 330 out of every 100,000 adults became new entrepreneurs in an average month.
- The **opportunity share of new entrepreneurs**, representing the percentage of new entrepreneurs who created businesses out of opportunity instead of necessity, was 84.4 percent in 2017. This figure is down slightly from 2016, when it was 86.3 percent, but it is more than 10 percentage points higher than it was in 2009 (73.8 percent), at the depths of the Great Recession.
- **Startup early job creation** focuses on early-stage job creation by startups per capita. This indicator was 5.27 jobs per 1,000 people in 2017, reflecting an increase from 5.23 jobs per 1,000 people in 2016, but a longer-term decline from 6.23 in 2007.
- The **startup early survival rate** captures the one-year survival rate of new employer business establishments. It was 79.78 percent in 2017, representing a small increase from 79.58 percent in 2016 and 77.88 percent in 2007.

National Trends in Early-Stage Entrepreneurship

- **Sex:** The rate of new entrepreneurs was 0.27 percent among women and 0.40 percent among men in 2017. These figures reflect a continued increase in

entrepreneurial activity, as the rate of new entrepreneurs among women has increased by 15.4 percent from its 2016 rate (0.23 percent), and 29.1 percent from its 2007 rate (0.21 percent). The rate of new entrepreneurs among men also increased slightly (2.96 percent) from 2016. The 2017 rate, however, is essentially at the same level as it was in 2007.

- **Race:** The rate of new entrepreneurs in 2017 was similar among whites (0.30 percent), African Americans (0.30 percent), and Asians (0.31 percent), and it was much higher for Latinos (0.50 percent). The rate of new entrepreneurs increased for all race and ethnic groups except Asians between 2016 and 2017. The fastest increase in 2017 was among African Americans, as the rate of new entrepreneurs among African Americans increased by 39 percent from 2016, when it was 0.22 percent. When compared to 2007, rates of entrepreneurship have increased dramatically among Latinos (up by 24.6 percent) and African Americans (up by 37.8 percent). The rate of new entrepreneurs among whites has remained steady (with a slight increase of 0.5 percent since 2007), and it has declined slightly among Asians (-3.9 percent). The share of new entrepreneurs who are from minority groups is now 45 percent, a considerable increase since 2007 when 33.6 percent of new businesses were started by non-whites.
- **Nativity:** The rate of new entrepreneurs was 0.56 percent for immigrants in 2017, which means they are twice as likely to start businesses as native-born Americans (0.28 percent). Both groups started businesses at slightly higher rates than they did in 2016 and 2007. Immigrants now comprise nearly 30 percent of all new entrepreneurs, a substantial increase from 2007, when 24.6 percent of new entrepreneurs were immigrants.
- **Age:** The rate of new entrepreneurs was highest among Americans aged 45–54 (0.39 percent) and 55–64 (0.38 percent), and lowest among Americans aged 20–34 (0.24 percent). The rate of new entrepreneurs increased between 2016 and 2017 among all age groups. However,

KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX

The KESE Index, the summary index that combines the four indicators, was 0.68 in 2017. This figure reflects an upward trend over time, moving from -0.03 in 2007 to 0.50 in 2016, to the highest level recorded over the past two decades.

between 2016 and 2017, the rate of new entrepreneurs increased the most (12.8 percent) among Americans aged 20-34, with the smallest gains among Americans aged 35-44 (0.9 percent). Older adults also represent a growing

segment of the entrepreneurial population: adults between the ages of 55 and 64 made up 26 percent of new entrepreneurs in 2017, a significant increase over the 19.1 percent they represented in 2007.

Each of the indicators is based on either a nationally representative sample of more than a half-million observations each year or the universe of employer businesses in the United States (roughly five million businesses).

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 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:¹

- 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.²

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 dimensions 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 level.

1. 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 is extracted and compiled from the U.S. Bureau of Labor Statistics, Business Employment Dynamics (BED) series on business establishments with employees.

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



KAUFFMAN INDICATORS *of* ENTREPRENEURSHIP

RATE OF ENTREPRENEURS DEFINED

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.³ 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.

The large sample sizes and detailed demographic information available in the CPS allow for the estimation of separate business creation rates by sex, race, immigrant status, age, and level of education. These attributes of the dataset represent an advantage of using the individual-level CPS data because large, nationally representative business-level datasets typically provide either no or very limited demographic information on the owner. New business owners are defined here as those individuals who work an average of 15 or more hours per week in their businesses in the preceding month.

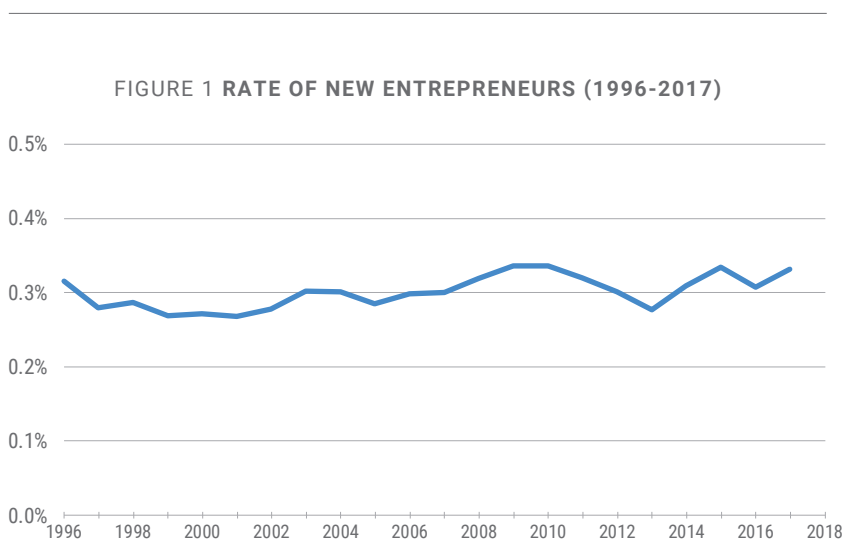
Kauffman Indicators of Entrepreneurship

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.

Figure 1 presents the rate of new entrepreneurs from 1996 to 2017. In 2017, an average of 0.33 percent of the adult population, or 330 out of 100,000 adults, created a new business each month.⁴ This 2017 rate of new entrepreneurs continues the upward trend over several years, and it represents one of the highest levels for this indicator in the past two decades.

The rate of new entrepreneurs increased from 0.28 percent of the adult population (280 out of 100,000) in 2013 to 0.33 percent (330 out of 100,000) in 2017.



Source: Estimates calculated from the Current Population Survey.

3. 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>.

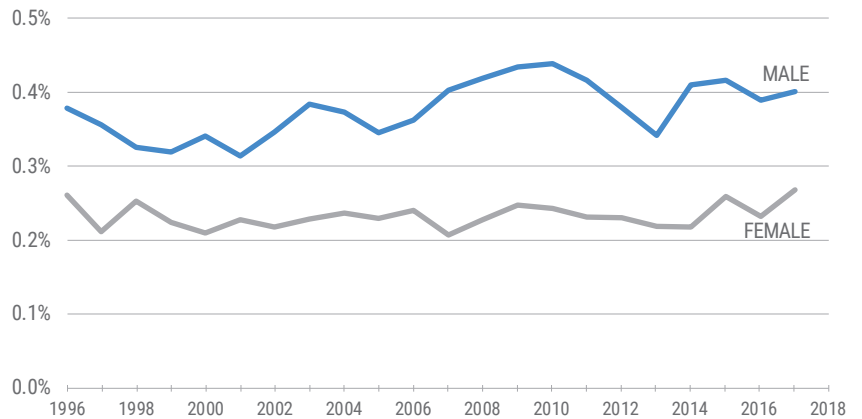
4. Estimates of annual business creation rates would be approximately six to eight times higher. Annual rates are not twelve times higher than monthly rates because individuals potentially can start and exit from business ownership multiple times within the same year. For example, an individual with a sole proprietorship might work more than 15 hours a week during one month, showing up in our data as a new entrepreneur, then be unable to find a new project for that business for several months, taking a seasonal position as an employee at another business during that time. Later in the year they may find a new project which enables them to activate the business and work more than 15 hours in a subsequent month. This person will show up "twice" in our data even though the business is the same from an ownership point of view. The yearly figures presented in the graphs in this report are averages of the monthly rate.

TRENDS IN THE RATE OF NEW ENTREPRENEURS

The rate of new entrepreneurs increased for women from 0.23 percent in 2016 to 0.27 percent in 2017 (Figure 1.1 and Table 1.1 report results). For men, the rate of new entrepreneurs grew slightly from 0.39 percent in 2016 to 0.40 percent in 2017.

Overall, men are substantially more likely to start businesses each month than women, which holds in all reported years.

FIGURE 1.1 RATE OF NEW ENTREPRENEURS BY SEX (1996–2017)



Source: Estimates calculated from the Current Population Survey.

TABLE 1.1

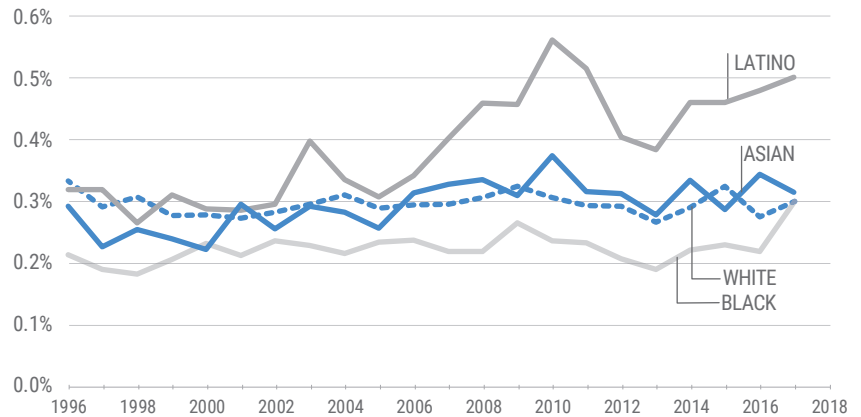
RATE OF NEW ENTREPRENEURS BY SEX (1996–2017)

YEAR	MALE	FEMALE	TOTAL
1996	0.38%	0.26%	0.32%
1997	0.36%	0.21%	0.28%
1998	0.32%	0.25%	0.29%
1999	0.32%	0.22%	0.27%
2000	0.34%	0.21%	0.27%
2001	0.31%	0.23%	0.27%
2002	0.35%	0.22%	0.28%
2003	0.38%	0.23%	0.30%
2004	0.37%	0.24%	0.30%
2005	0.35%	0.23%	0.28%
2006	0.36%	0.24%	0.30%
2007	0.40%	0.21%	0.30%
2008	0.42%	0.23%	0.32%
2009	0.43%	0.25%	0.34%
2010	0.44%	0.24%	0.34%
2011	0.42%	0.23%	0.32%
2012	0.38%	0.23%	0.30%
2013	0.34%	0.22%	0.28%
2014	0.41%	0.22%	0.31%
2015	0.42%	0.26%	0.33%
2016	0.39%	0.23%	0.31%
2017	0.40%	0.27%	0.33%

Notes: (1) Estimates calculated from the Current Population Survey. (2) The rate of new entrepreneurs is the percent of individuals (ages 20–64) who do not own a business in the first survey month and start a business in the following month with 15 or more hours worked per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Among ethnic and racial groups,⁵ African Americans, Latinos, and whites experienced increases in the rate of new entrepreneurs in 2017. Asians were the only group to experience a decline in 2017. Figure 1.2 and Table 1.2 report estimates of the rate of new entrepreneurs by race and ethnicity. African Americans experienced the largest increase in 2017. Over most of the time period covered, the rate of new entrepreneurs is highest among Latinos and lowest among African Americans.

FIGURE 1.2 RATE OF NEW ENTREPRENEURS BY RACE AND ETHNICITY (1996–2017)



Source: Estimates calculated from the Current Population Survey.

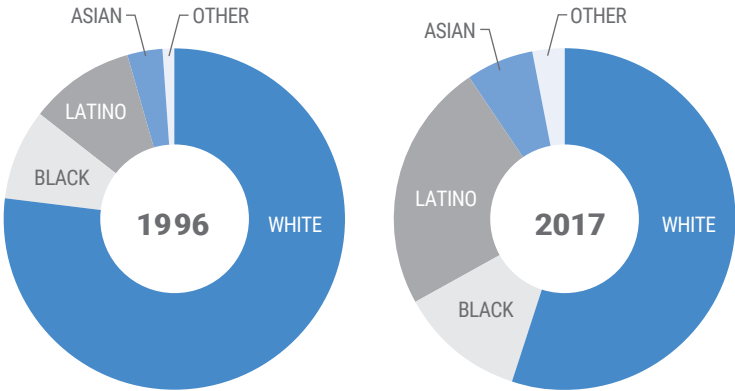
YEAR	WHITE	BLACK	LATINO	ASIAN	TOTAL
1996	0.33%	0.21%	0.32%	0.29%	0.32%
1997	0.29%	0.19%	0.32%	0.23%	0.28%
1998	0.31%	0.18%	0.27%	0.25%	0.29%
1999	0.28%	0.21%	0.31%	0.24%	0.27%
2000	0.28%	0.23%	0.29%	0.22%	0.27%
2001	0.27%	0.21%	0.29%	0.30%	0.27%
2002	0.28%	0.24%	0.30%	0.26%	0.28%
2003	0.30%	0.23%	0.40%	0.29%	0.30%
2004	0.31%	0.22%	0.34%	0.28%	0.30%
2005	0.29%	0.23%	0.31%	0.26%	0.28%
2006	0.30%	0.24%	0.34%	0.31%	0.30%
2007	0.30%	0.22%	0.40%	0.33%	0.30%
2008	0.31%	0.22%	0.46%	0.34%	0.32%
2009	0.33%	0.27%	0.46%	0.31%	0.34%
2010	0.31%	0.24%	0.56%	0.37%	0.34%
2011	0.29%	0.23%	0.52%	0.32%	0.32%
2012	0.29%	0.21%	0.40%	0.31%	0.30%
2013	0.27%	0.19%	0.38%	0.28%	0.28%
2014	0.29%	0.22%	0.46%	0.33%	0.31%
2015	0.32%	0.23%	0.46%	0.29%	0.33%
2016	0.28%	0.22%	0.48%	0.34%	0.31%
2017	0.30%	0.30%	0.50%	0.31%	0.33%

Notes: (1) Estimates calculated from the Current Population Survey. (2) The rate of new entrepreneurs is the percent of individuals (ages 20–64) who do not own a business in the first survey month and start a business in the following month with 15 or more hours worked per week. (3) Race and Latino codes changed in 2003. Estimates for 2003 only include individuals reporting one race. (4) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

5. For Census classifications, refer to: <https://www.census.gov/topics/population/race/about.html>. We present data for all racial/ethnic categories for which there were sufficient sample sizes to present accurate estimates. Due to this constraint, we are unable to include data for Native-American, Native Hawaiian or Pacific-Islander, or individuals of two or more races.

The share of all new entrepreneurs who are Latino rose from 10.0 percent in 1996 to 23.6 percent in 2017, reflecting the longer-term trends of rising Latino rates of entrepreneurship and the growing Latino share of the total U.S. population. While both the Latino and Asian share of new entrepreneurs rose substantially between 1996 and 2017, the white share of new entrepreneurs declined over the past eighteen years, and the African American share increased slightly.

FIGURE 1.2A CHANGES IN SHARE OF NEW ENTREPRENEURS BY RACE (1996, 2017)



RACE	1996	2017
White	77.1%	55.3%
Black	8.4%	11.8%
Latino	10.0%	23.6%
Asian	3.4%	6.5%
Other	1.0%	2.9%

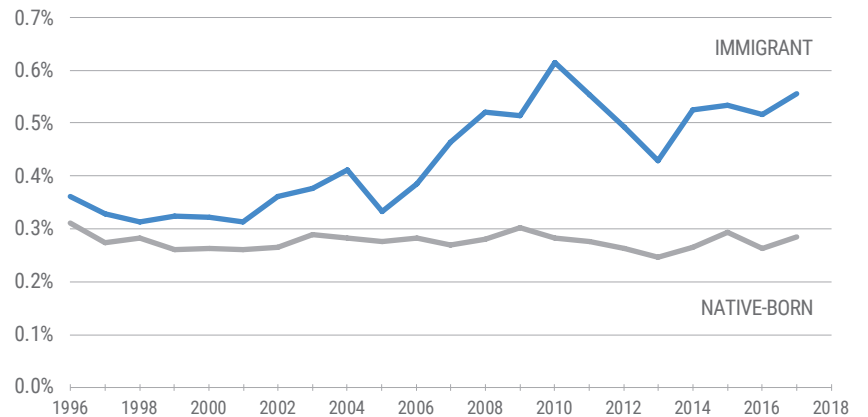
Source: Estimates calculated from the Current Population Survey.

While both the Latino and Asian share of new entrepreneurs rose substantially between 1996 and 2017, the white share of new entrepreneurs declined over the past eighteen years, and the African American share increased slightly.

The rate of new entrepreneurs increased for immigrants in 2017. Figure 1.3 and Table 1.3 report estimates of the rate of new entrepreneurs by nativity.

The 2017 rate of new entrepreneurs among immigrants of 0.56 percent is substantially higher than that for the native-born of 0.28 percent.

FIGURE 1.3 RATE OF NEW ENTREPRENEURS BY NATIVITY (1996–2017)



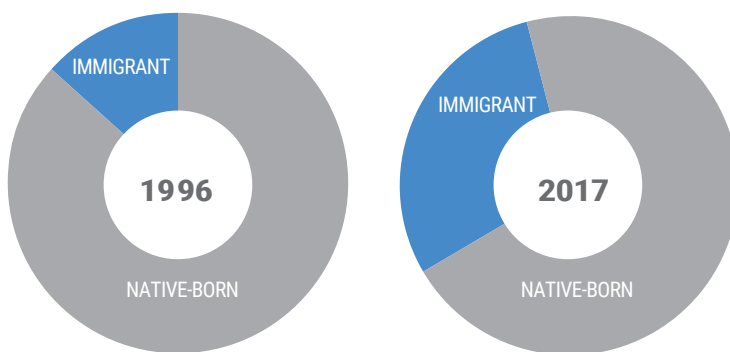
Source: Estimates calculated from the Current Population Survey.

YEAR	NATIVE-BORN	IMMIGRANT	TOTAL
1996	0.31%	0.36%	0.32%
1997	0.27%	0.33%	0.28%
1998	0.28%	0.31%	0.29%
1999	0.26%	0.32%	0.27%
2000	0.26%	0.32%	0.27%
2001	0.26%	0.31%	0.27%
2002	0.26%	0.36%	0.28%
2003	0.29%	0.38%	0.30%
2004	0.28%	0.41%	0.30%
2005	0.28%	0.33%	0.28%
2006	0.28%	0.38%	0.30%
2007	0.27%	0.46%	0.30%
2008	0.28%	0.52%	0.32%
2009	0.30%	0.51%	0.34%
2010	0.28%	0.62%	0.34%
2011	0.27%	0.55%	0.32%
2012	0.26%	0.49%	0.30%
2013	0.25%	0.43%	0.28%
2014	0.27%	0.52%	0.31%
2015	0.29%	0.53%	0.33%
2016	0.26%	0.52%	0.31%
2017	0.28%	0.56%	0.33%

Notes: (1) Estimates calculated from the Current Population Survey. (2) The rate of new entrepreneurs is the percent of individuals (ages 20–64) who do not own a business in the first survey month and start a business in the following month with 15 or more hours worked per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

This rising rate of new entrepreneurs and the growing immigrant population have contributed to an increasing immigrant share of new entrepreneurs. Figure 1.3A reports estimates of the share of new entrepreneurs by nativity. Immigrant entrepreneurs account for 29 percent of all new entrepreneurs in 2017, which represents a substantial increase from 13 percent in 1996.

FIGURE 1.3A CHANGES IN SHARE OF NEW ENTREPRENEURS BY NATIVITY (1996, 2017)



NATIVITY	1996	2017
Native-Born	86.7%	70.7%
Immigrant	13.3%	29.3%

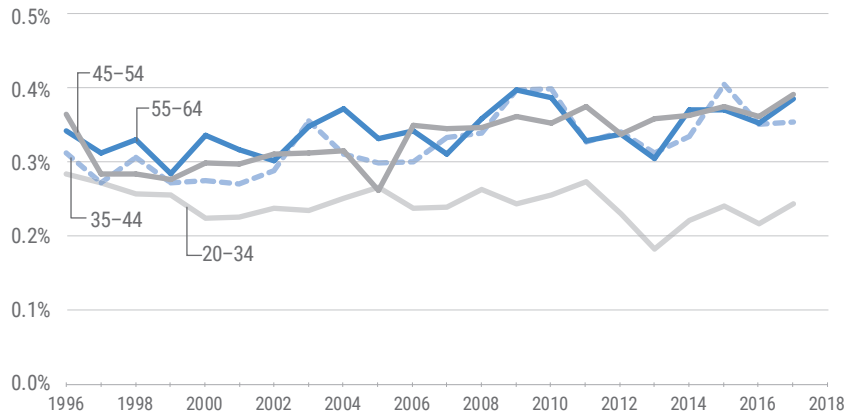
Source: Estimates calculated from the Current Population Survey.

This rising rate of new entrepreneurs and the growing immigrant population have contributed to an increasing immigrant share of new entrepreneurs

Figure 1.4 and Table 1.4 report estimates of the rate of new entrepreneurs by age group.

All of the age groups either experienced increases or no change in the rate of new entrepreneurs in 2017. The rate of new entrepreneurs is lowest among the youngest group.

FIGURE 1.4 RATE OF NEW ENTREPRENEURS BY AGE (1996–2017)



Source: Estimates calculated from the Current Population Survey.

TABLE 1.4

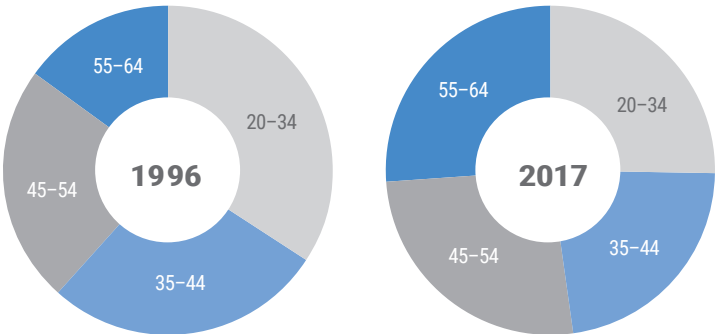
RATE OF NEW ENTREPRENEURS BY AGE (1996–2017)

YEAR	AGES 20–34	AGES 35–44	AGES 45–54	AGES 55–64	TOTAL
1996	0.28%	0.31%	0.36%	0.34%	0.32%
1997	0.27%	0.27%	0.28%	0.31%	0.28%
1998	0.26%	0.31%	0.28%	0.33%	0.29%
1999	0.26%	0.27%	0.28%	0.28%	0.27%
2000	0.22%	0.27%	0.30%	0.34%	0.27%
2001	0.23%	0.27%	0.30%	0.32%	0.27%
2002	0.24%	0.29%	0.31%	0.30%	0.28%
2003	0.23%	0.36%	0.31%	0.35%	0.30%
2004	0.25%	0.31%	0.31%	0.37%	0.30%
2005	0.27%	0.30%	0.26%	0.33%	0.28%
2006	0.24%	0.30%	0.35%	0.34%	0.30%
2007	0.24%	0.33%	0.35%	0.31%	0.30%
2008	0.26%	0.34%	0.35%	0.36%	0.32%
2009	0.24%	0.40%	0.36%	0.40%	0.34%
2010	0.26%	0.40%	0.35%	0.39%	0.34%
2011	0.27%	0.33%	0.37%	0.33%	0.32%
2012	0.23%	0.34%	0.34%	0.34%	0.30%
2013	0.18%	0.31%	0.36%	0.31%	0.28%
2014	0.22%	0.33%	0.36%	0.37%	0.31%
2015	0.24%	0.40%	0.37%	0.37%	0.33%
2016	0.22%	0.35%	0.36%	0.35%	0.31%
2017	0.24%	0.35%	0.39%	0.38%	0.33%

Notes: (1) Estimates calculated from the Current Population Survey. (2) The rate of new entrepreneurs is the percent of individuals (ages 20–64) who do not own a business in the first survey month and start a business in the following month with 15 or more hours worked per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 1.4A reports estimates of the share of new entrepreneurs for each age group. An aging population has led to a rising share of new entrepreneurs in the group aged 55-64. This group represented 15 percent of new entrepreneurs in 1996, and it represented 26 percent of new entrepreneurs in 2017.

FIGURE 1.4A CHANGES IN SHARE OF NEW ENTREPRENEURS BY AGE (1996, 2017)



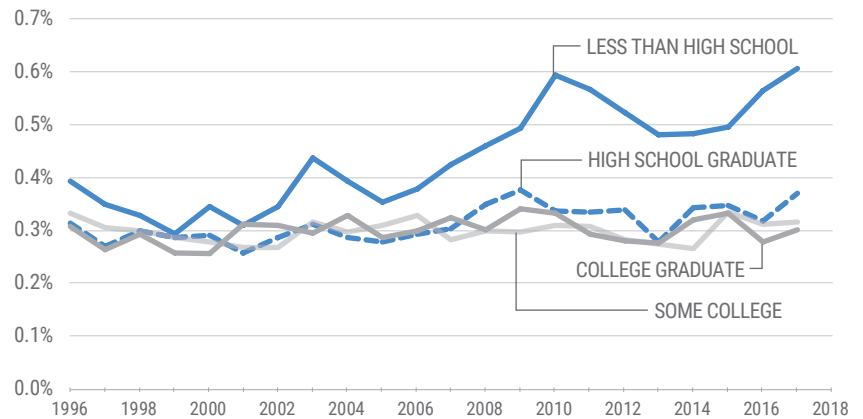
AGE	1996	2017
20-34	34.3%	25.5%
35-44	27.4%	22.5%
45-54	23.5%	26.0%
55-64	14.8%	26.0%

Source: Estimates calculated from the Current Population Survey.

An aging population has led to a rising share of new entrepreneurs in the group aged 55-64. This group represented 15 percent of new entrepreneurs in 1996, and it represented 26 percent of new entrepreneurs in 2017.

The rate of new entrepreneurs increased or remained constant when grouped by levels of education. Figure 1.5 and Table 1.5 report estimates by education level. The rate of new entrepreneurs increased most among the groups with the two lowest levels of education (high school dropouts and high school graduates). The rate of new entrepreneurs is highest among the least-educated group.⁶

FIGURE 1.5 RATE OF NEW ENTREPRENEURS BY EDUCATION(1996–2017)



Source: Estimates calculated from the Current Population Survey.

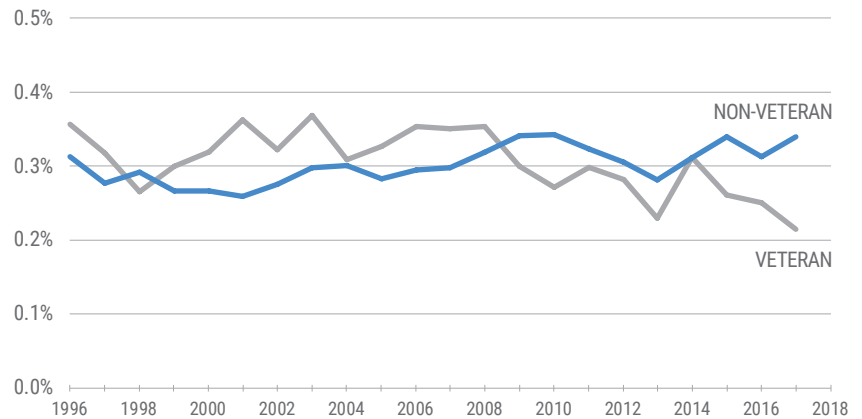
YEAR	LESS THAN HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL
1996	0.39%	0.31%	0.33%	0.31%	0.33%
1997	0.35%	0.27%	0.31%	0.26%	0.29%
1998	0.33%	0.30%	0.30%	0.29%	0.30%
1999	0.29%	0.29%	0.29%	0.26%	0.28%
2000	0.35%	0.29%	0.28%	0.26%	0.29%
2001	0.31%	0.26%	0.27%	0.31%	0.28%
2002	0.35%	0.29%	0.27%	0.31%	0.29%
2003	0.44%	0.31%	0.32%	0.29%	0.32%
2004	0.39%	0.29%	0.30%	0.33%	0.32%
2005	0.35%	0.28%	0.31%	0.29%	0.30%
2006	0.38%	0.29%	0.33%	0.30%	0.31%
2007	0.42%	0.30%	0.28%	0.33%	0.32%
2008	0.46%	0.35%	0.30%	0.30%	0.33%
2009	0.49%	0.38%	0.30%	0.34%	0.36%
2010	0.59%	0.34%	0.31%	0.33%	0.36%
2011	0.57%	0.33%	0.31%	0.29%	0.34%
2012	0.52%	0.34%	0.28%	0.28%	0.32%
2013	0.48%	0.28%	0.27%	0.28%	0.30%
2014	0.48%	0.34%	0.27%	0.32%	0.33%
2015	0.50%	0.35%	0.33%	0.33%	0.35%
2016	0.56%	0.32%	0.31%	0.28%	0.33%
2017	0.61%	0.37%	0.31%	0.30%	0.35%

Notes: (1) Estimates calculated from the Current Population Survey. (2) The rate of new entrepreneurs is the percent of individuals (ages 20–64) who do not own a business in the first survey month and start a business in the following month with 15 or more hours worked per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

6. This finding could partially reflect a high level of necessity entrepreneurship for this group. See Fairlie and Fossen (2017).

Figure 1.6 and Table 1.6 report estimates of the rate of new entrepreneurs by veteran status. In 2017, the rate of new entrepreneurs was 0.21 percent for veterans, representing a decrease from 2016. The non-veteran rate increased from 0.31 percent in 2016 to 0.34 percent in 2017.

FIGURE 1.6 RATE OF NEW ENTREPRENEURS BY VETERAN STATUS (1996–2017)



Source: Estimates calculated from the Current Population Survey.

YEAR	VETERAN	NON-VETERAN	TOTAL
1996	0.36%	0.31%	0.32%
1997	0.32%	0.27%	0.28%
1998	0.27%	0.29%	0.29%
1999	0.30%	0.26%	0.27%
2000	0.32%	0.26%	0.27%
2001	0.36%	0.26%	0.27%
2002	0.32%	0.27%	0.28%
2003	0.37%	0.30%	0.30%
2004	0.31%	0.30%	0.30%
2005	0.33%	0.28%	0.28%
2006	0.35%	0.29%	0.30%
2007	0.35%	0.30%	0.30%
2008	0.35%	0.32%	0.32%
2009	0.30%	0.34%	0.34%
2010	0.27%	0.34%	0.34%
2011	0.30%	0.32%	0.32%
2012	0.28%	0.30%	0.30%
2013	0.23%	0.28%	0.28%
2014	0.31%	0.31%	0.31%
2015	0.26%	0.34%	0.33%
2016	0.25%	0.31%	0.31%
2017	0.21%	0.34%	0.33%

Notes: (1) Estimates calculated from the Current Population Survey. (2) The rate of new entrepreneurs is the percent of individuals (ages 20–64) who do not own a business in the first survey month and start a business in the following month with 15 or more hours worked per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded. (4) The total sample size is slightly larger than the sum of the veteran and non-veteran sample sizes from 1996 to 2005 because of missing values for veteran status in those years.



OPPORTUNITY SHARE OF NEW ENTREPRENEURS DEFINED

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 status, and individuals who are “necessity entrepreneurs,” due to unemployment.⁷ This distinction is useful because it offers some insight into the influence of economic conditions on overall business creation. The opportunity share of new entrepreneurs reflects the percent of the total number of new entrepreneurs who were not unemployed and not looking for a job as they started the new business.

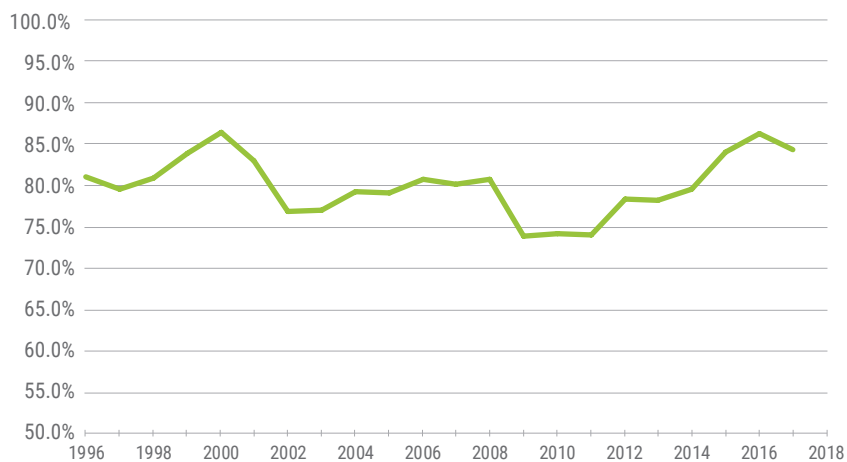
OPPORTUNITY SHARE OF NEW ENTREPRENEURS

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 opportunity share of new entrepreneurs was largest in the 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.⁸

In 2017, the opportunity share of new entrepreneurs was 84.4 percent. This represents a substantial increase from 2014 and is now more than 10 percentage points higher than it was in 2009 at the end of the Great Recession. However, the opportunity share of new entrepreneurs did decrease slightly from 2016, when it was 86.3 percent. Figure 2 displays trends in the opportunity share of new entrepreneurs from 1996 to 2017.

FIGURE 2 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (1996–2017)



Source: Estimates calculated from the Current Population Survey.

The opportunity share of new entrepreneurs was largest in the 1990s, and the smallest share was observed in 2009, at the end of the Great Recession.

7. See Fairlie and Fossen (2017).

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

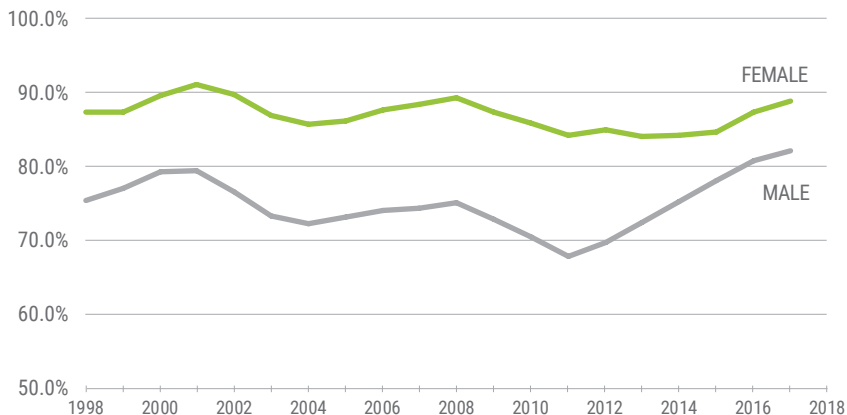
TRENDS IN THE OPPORTUNITY SHARE OF NEW ENTREPRENEURS

We also examined trends in the opportunity share of new entrepreneurs by demographic groups. Three-year moving averages are reported to increase the precision of estimates.⁹

The opportunity share of new entrepreneurs increased for both men and women from 2016 to 2017, continuing an upward trend over the past few years as the economy has improved (Figure 2.1 reports estimates).

The opportunity share of new entrepreneurs is lower for men than for women, although some of this gap closed during the recent economic recovery. The opportunity share of new entrepreneurs for women seems to be more stable than that for men.

FIGURE 2.1 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (3-YEAR MOVING AVERAGE) BY SEX (1998–2017)

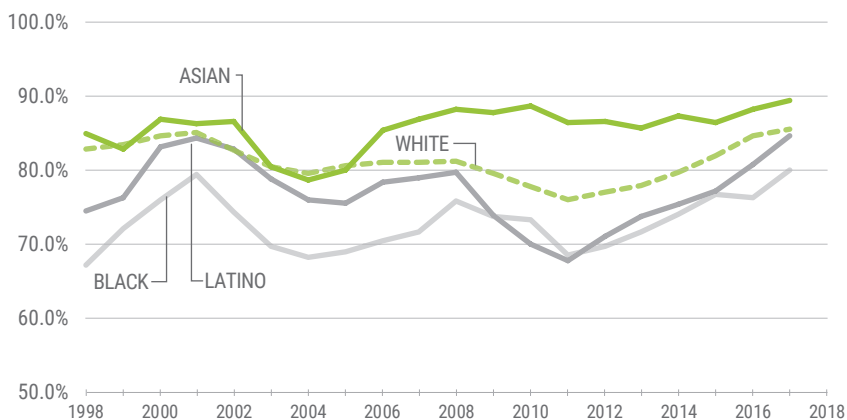


Source: Estimates calculated from the Current Population Survey.

The opportunity share of new entrepreneurs for women seems to be more stable than that for men.

All racial and ethnic groups experienced increases in the opportunity share of new entrepreneurs in 2017, continuing upward trends over the past few years. Figure 2.2 reports estimates of the opportunity share of new entrepreneurs by race and ethnicity. This indicator is highest among Asians and lowest among African Americans in 2017, a trend that has continued since 2012.

FIGURE 2.2 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (3-YEAR MOVING AVERAGE) BY RACE AND ETHNICITY (1998–2017)

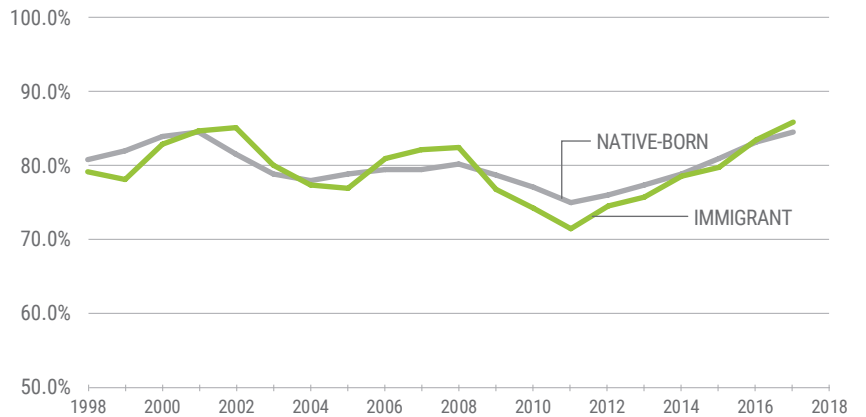


Source: Estimates calculated from the Current Population Survey.

9. It is important to note that a three-year moving average can increase (or decrease) even when the measure for the latest year decreases (or increases) from the previous year. This occurs when the measure for the new year replaces a lower value for the first year in the three-year moving average (e.g., the moving average for the series 1,5,3 is 3, but when it updates to 5,3,2 the moving average increases to 3.3.)

The opportunity share of new entrepreneurs increased for immigrants in 2017 and is roughly similar to that of native-born Americans. Figure 2.3 reports estimates of the opportunity share of new entrepreneurs by nativity.

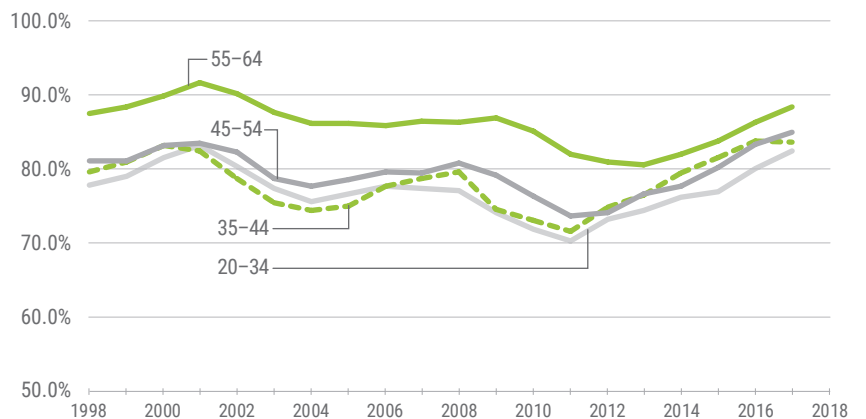
FIGURE 2.3 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (3-YEAR MOVING AVERAGE) BY NATIVITY (1998–2017)



Source: Estimates calculated from the Current Population Survey.

Figure 2.4 reports opportunity share of new entrepreneurs by age group. All of the age groups experienced increases in this indicator in 2017, continuing the upward trend since the Great Recession. The indicator is highest among the oldest age group and lowest among the youngest age group in 2017.

FIGURE 2.4 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (3-YEAR MOVING AVERAGE) BY AGE (1998–2017)



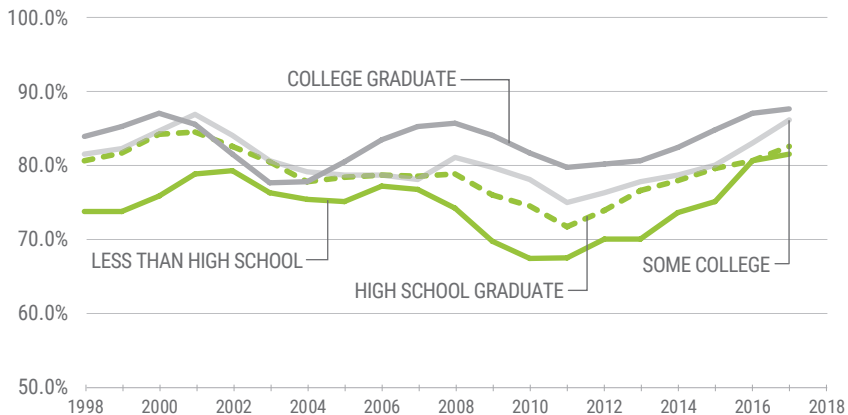
Source: Estimates calculated from the Current Population Survey.

All of the age groups experienced increases in this indicator in 2017, continuing the upward trend since the Great Recession.

The opportunity share of new entrepreneurs increased for all education groups, and this indicator increases with education level: high school dropouts have the lowest opportunity share of new entrepreneurs, and college graduates have the highest opportunity share of new entrepreneurs in 2017. Figure 2.5 reports estimates of this indicator by education level.

High school dropouts have the lowest opportunity share of new entrepreneurs, and college graduates have the highest opportunity share of new entrepreneurs in 2017.

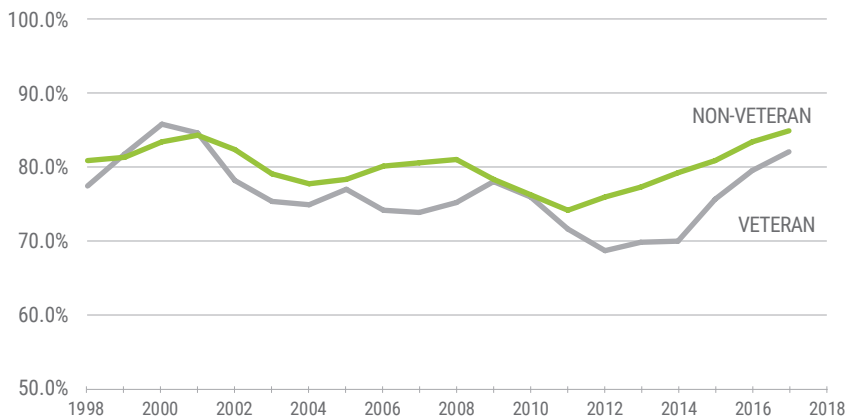
FIGURE 2.5 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (3-YEAR MOVING AVERAGE) BY EDUCATION (1998–2017)



Source: Estimates calculated from the Current Population Survey.

Figure 2.6 reports estimates of the opportunity share of new entrepreneurs by veteran status. The opportunity share of new entrepreneurs increased in 2017 among veterans, but it remained lower than that for non-veterans.

FIGURE 2.6 OPPORTUNITY SHARE OF NEW ENTREPRENEURS (3-YEAR MOVING AVERAGE) BY VETERAN STATUS (1998–2017)



Source: Estimates calculated from the Current Population Survey.



STARTUP EARLY JOB CREATION DEFINED

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. 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.

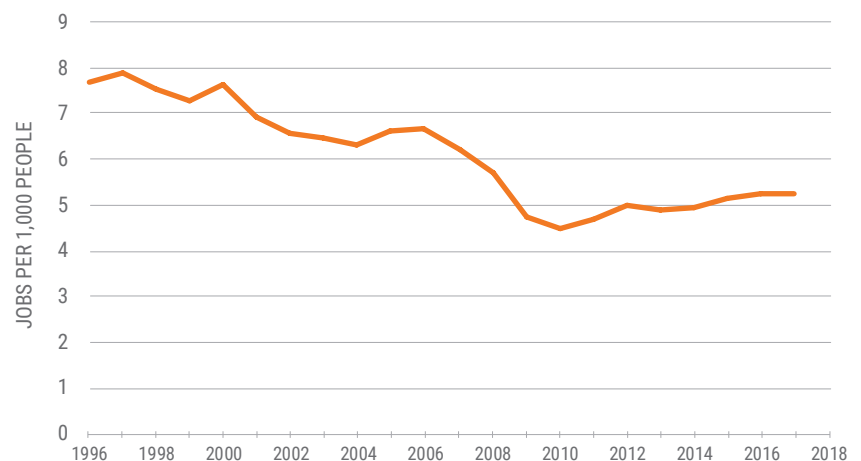
STARTUP EARLY JOB CREATION

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

Startup early job creation increased in 2017. Figure 3 presents the indicator from 1996 to 2017. The number of jobs created by startups in their first year increased from 5.23 per 1,000 people in 2016 to 5.27 per 1,000 people in 2017. This increase is promising, as the 2017 rate represents the highest level since 2008 and continues the general upward trend since 2012. However, levels remain substantially lower in recent years than they were prior to the Great Recession and especially during the 1990s. For comparison, this indicator peaked at 7.87 in 1999, and has since declined by almost a third.

FIGURE 3 STARTUP EARLY JOB CREATION (1996–2017)



Source: Calculated from the Business Employment Dynamics.

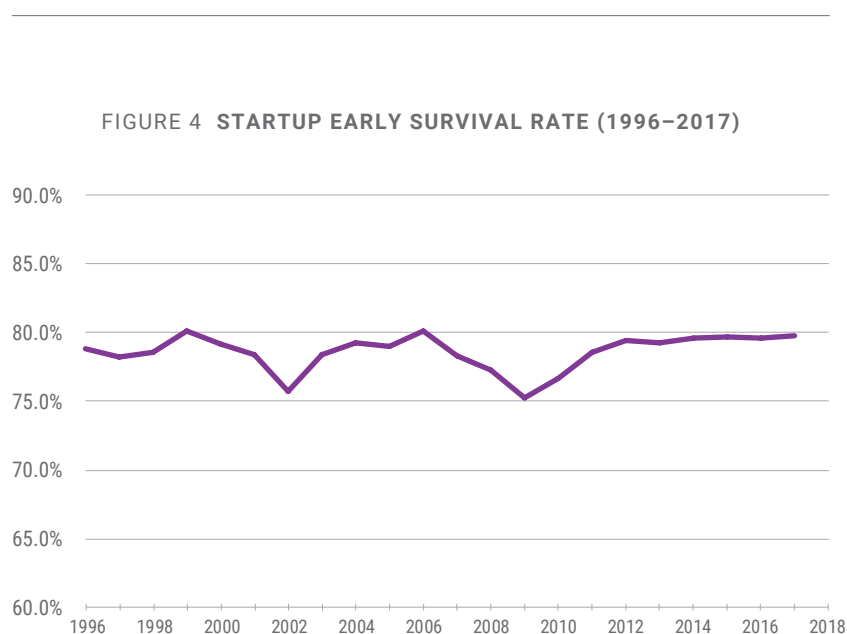
The number of jobs created by startups in their first year increased from 5.23 per 1,000 people in 2016 to 5.27 per 1,000 people in 2017.

STARTUP EARLY SURVIVAL RATE

TRENDS IN STARTUP EARLY SURVIVAL RATE

The startup early survival rate remained essentially unchanged from 2016 to 2017. Figure 4 presents the startup early survival rate from 1996 to 2017.

The startup early survival rate has increased from 75.2 percent in 2009 when it hit a low point due to the Great Recession to 79.78 percent in 2017. Since 2012, the startup early survival rate has remained relatively constant at between 79 and 80 percent.



Source: Calculated from the Business Employment Dynamics.

The startup early survival rate has increased from 75.2 percent in 2009 when it hit a low point due to the Great Recession to 79.78 percent in 2017.

10. 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.



KAUFFMAN
INDICATORS *of*
ENTREPRENEURSHIP

STARTUP EARLY SURVIVAL RATE DEFINED

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 Business Employment Dynamics (BED).

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.¹⁰

Kauffman Early-Stage Entrepreneurship (KESE) Index

Using the four key indicators, we create the KESE Index, a summary index that reflects entrepreneurial activity, broadly defined. It is an equally weighted index of the four normalized indicators of entrepreneurship activity:¹¹

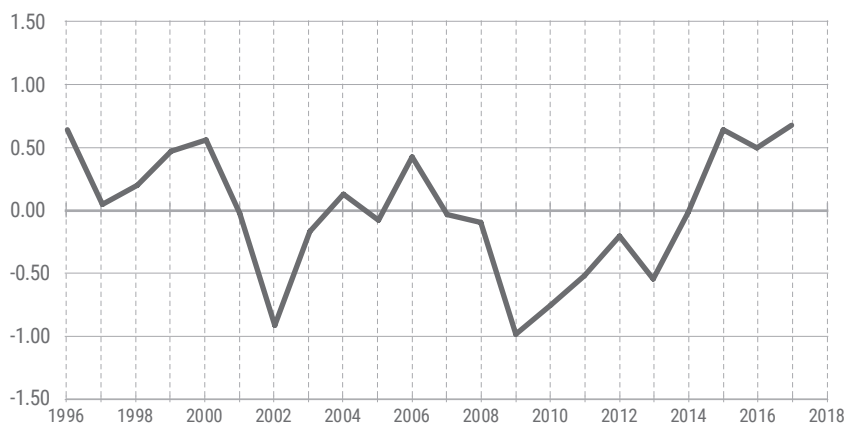
- 1) **Rate of new entrepreneurs:** the percentage of adults becoming entrepreneurs in a given month.
- 2) **Opportunity share of new entrepreneurs:** the percentage of new entrepreneurs driven primarily by opportunity rather than necessity.
- 3) **Startup early job creation:** the total number of jobs 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.

National Trends in the KESE Index

Figure 5 and Table 5 present the KESE from 1996-2017.¹²

The KESE 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. The KESE Index 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.

FIGURE 5 KAUFFMAN EARLY-STAGE ENTREPRENEURSHIP (KESE) INDEX (1996–2017)



Source: Calculated from CPS and BED data.

TABLE 5 KESE 1996–2017	
YEAR	INDEX SCORE
1996	0.6414
1997	0.0501
1998	0.2029
1999	0.4721
2000	0.5554
2001	-0.0234
2002	-0.9100
2003	-0.1614
2004	0.1323
2005	-0.0719
2006	0.4258
2007	-0.0334
2008	-0.0911
2009	-0.9772
2010	-0.7421
2011	-0.5156
2012	-0.2042
2013	-0.5420
2014	-0.0159
2015	0.6370
2016	0.4951
2017	0.6760

The KESE is an equally weighted index of the four normalized indicators of entrepreneurship activity.

11. 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).

12. Complete information about the methodology behind the calculations of the KESE Index is available in the methodology section of this report.

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.¹³ 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,¹⁴ 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

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

14. 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.¹⁵ 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.¹⁶ 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.¹⁷ 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

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

16. 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/CNP160V>

17. See Polivka (2000).

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.

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 presented as the Kauffman Index of Entrepreneurial Activity from 2000 to 2014.¹⁸ 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 reported as the Opportunity Share in the Kauffman Index of Entrepreneurial Activity from 2008 to 2014.¹⁹ 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 were based on data from the U.S. Census Bureau, Business Dynamics Statistics (BDS) series. This shift allows for more timely reporting of this indicator.

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.²⁰ 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.

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

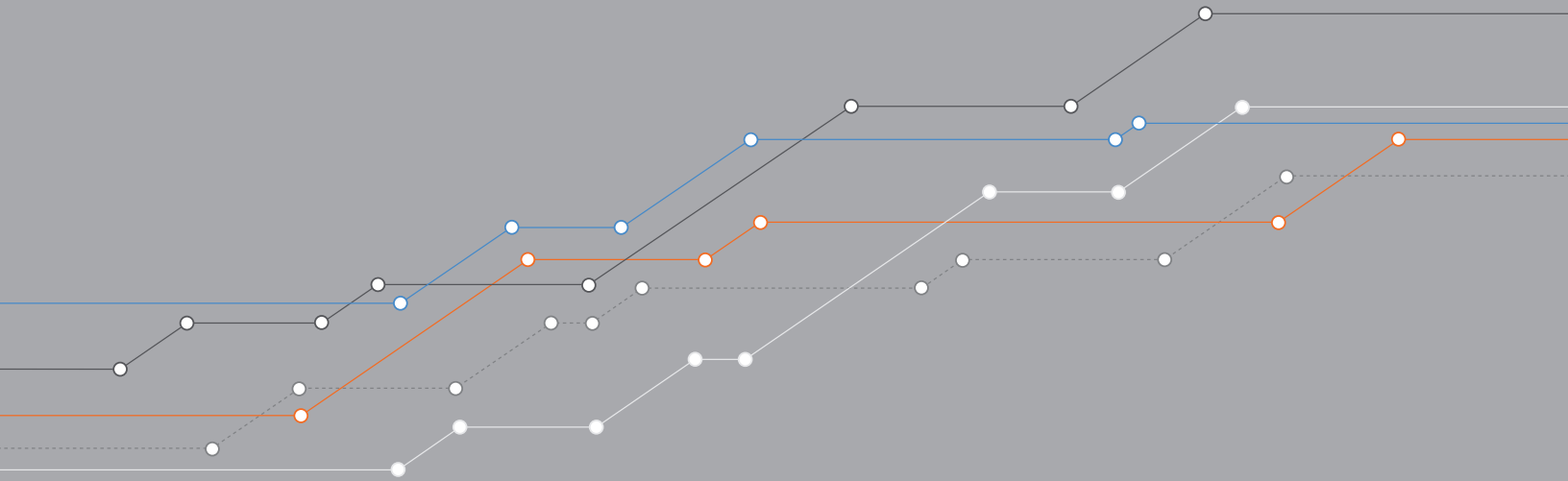
19. Older versions of the Kauffman Index reports are available online: <https://www.kauffman.org/historical-kauffman-index/reports>.

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

NOTES



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