

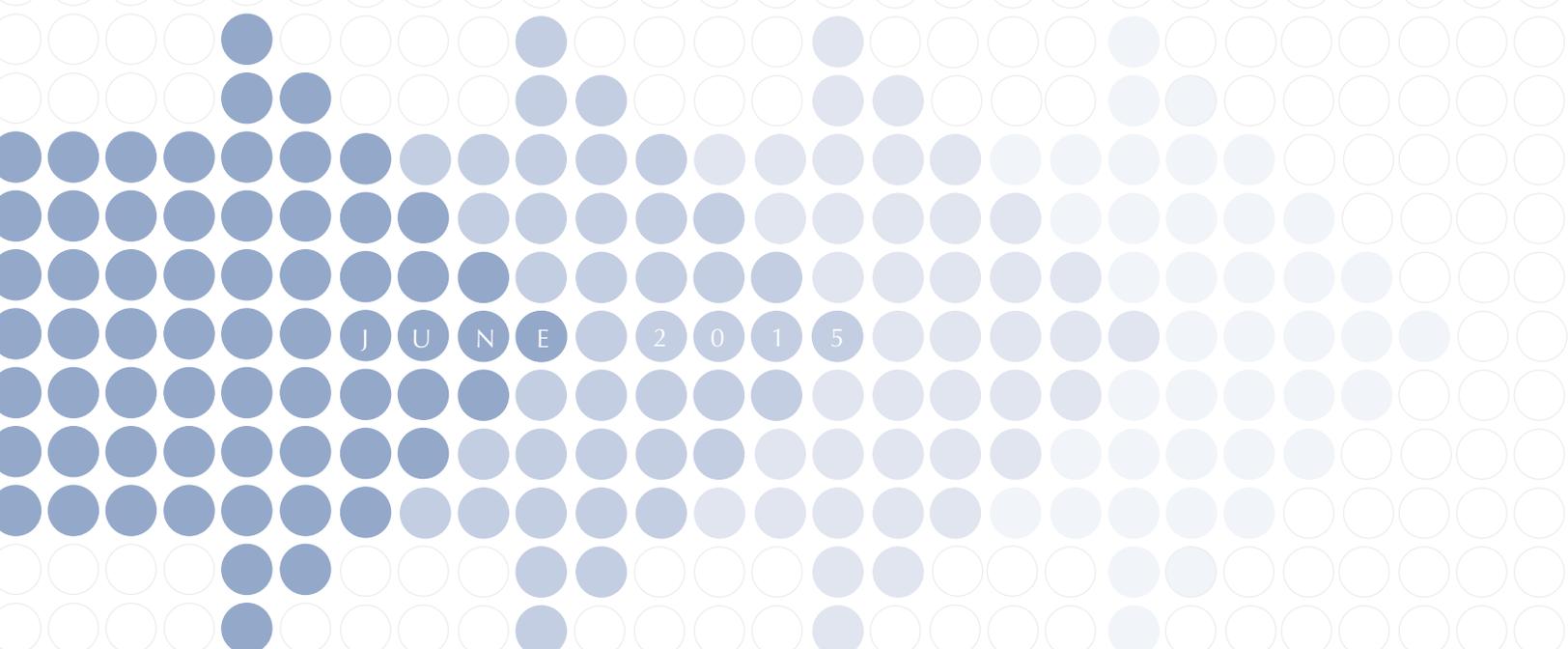


# 2015 THE KAUFFMAN INDEX startup activity

NATIONAL TRENDS

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J U N E 2 0 1 5



Explore the interactive data at  
[www.kauffmanindex.org](http://www.kauffmanindex.org)

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# Foreword

by Dane Stangler, Vice President of  
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Entrepreneurship is one of the most important activities of modern economic life. The creation and growth of new companies, as well as the closure and shrinkage of existing companies, are at the heart of “economic dynamism.” Many of the statistics tracked closely by economists, policymakers, investors, and others—such as unemployment, wage growth, and productivity—are driven by entrepreneurial activity.

Yet the measurement of entrepreneurship has consistently lagged behind these other “leading indicators.” In part, this is due to the diversity of the phenomenon we call “entrepreneurship.” It includes the venture-backed startups of Silicon Valley as well as the new restaurant down the street; for many, entrepreneurship includes independent franchise owners and those who might take over and transform a century-old bank.

But why should measurement matter with respect to entrepreneurship? The American economy has been consistently entrepreneurial for more than 200 years in the absence of solid data for tracking that entrepreneurial activity—what difference will better entrepreneurship data make? There are three main reasons that come to mind.

First, as Zachary Karabell laid out in his book, *The Leading Indicators*, there are serious limitations to the current set of economic statistics on which we all rely to track the economy. Second, entrepreneurship will grow in importance as technological progress forces change in different economic structures: new, young, and growing companies will assume an even more prominent role in economic dynamism. Third, as the saying goes, you can’t manage what you don’t measure. Even though entrepreneurial activity is not necessarily something that can be strictly “managed,” improvements in entrepreneurship data allow for improvements in public and private decision-making. This includes federal economic policy, university courses and programs, state and local spending priorities, and individual choices.

Data innovations from the Census Bureau and others in the last decade have allowed economists to reveal that new and young firms are the principal

sources of net job creation in the United States. Previously, as a result of mis-measurement, it was assumed that either small or big companies played this role. The magnitude of the mindset shift that this prompted—from an exclusive focus on firm size to an appreciation of the importance of firm age—is hard to overestimate. Further work with these datasets, including by Federal Reserve researchers, has generated insight into the role that new and young firms play in wage growth and career dynamics for young workers. The Kauffman Foundation has been a proud partner in these efforts.

The impact of data innovations is not restricted to public datasets. In recent years, companies like Crunchbase, Mattermark, and AngelList have demonstrated the importance of private data and the impact it can have for investors and entrepreneurs and others.

Measurement matters, and further improvements in entrepreneurship data will continue to shape public policy, private decision-making, and other areas.

This is why the Kauffman Foundation has put so much effort into improving one of our signature products, the Kauffman Index of Entrepreneurship. Readers will find more detail about this effort in the pages that follow. Kauffman researchers Arnobio Morelix, E.J. Reedy, and Josh Russell have worked diligently with economist Robert Fairlie and others to produce this report and the reports that will follow later this year.

Numbers, of course, are only as good as they’re used. For this reason, the Kauffman Foundation continues to devote considerable resources to innovations in data collection, data access, and data use. We are working closely with the Census Bureau and other government agencies on the new Annual Survey of Entrepreneurs (ASE), which is an effort to expand the quinquennial Survey of Business Owners. The first results from the new ASE will be available in 2016.

What a society measures is an indication of what that society values. Entrepreneurship in all its forms will continue to be essential to rising standards of living and expanding economic opportunity. Innovations and improvements in entrepreneurship data will allow us to do a better job in pursuit of those objectives.

# Introducing the New Kauffman Index

How can I actually measure the entrepreneurial activity in my region?

This is a question we at the Kauffman Foundation often hear from economic and policy leaders. As cities around the globe rally to foster entrepreneurship, the challenge of how to consistently measure and benchmark progress remains largely unanswered.

While anecdotal evidence abounds, most ecosystems struggle to answer straightforward, yet often elusive, questions: How many new startups does our city or state have? How much are our ventures growing? How many of our businesses are surviving?

To begin to answer these questions and address this challenge, we introduce the new Kauffman Index of Entrepreneurship, the first and largest index tracking entrepreneurship across city, state, and national levels for the United States. In this release, we introduce the Kauffman Index: Startup Activity—the first of various research installments under the umbrella of the new Kauffman Index of Entrepreneurship.

For the past ten years, the original Kauffman Index—authored by Robert W. Fairlie—has been an early indicator for entrepreneurship in the United States, used by entrepreneurs and policymakers, from the federal to state and local levels. The Kauffman Index also has been one of the most requested and far-reaching entrepreneurship indicators in the United States and, arguably, the world.

In the policy world, the Index has been referenced in multiple testimonies to the U.S. Senate and House of Representatives, by U.S. Embassies and Consulates across various countries—including nations like Spain, Ukraine, and United Kingdom—by multiple federal agencies, by state governments and governors from fifteen states—from Arizona to New York—and by the White House’s office of the President of the United States. On the academic side, more than 200 research papers quote the Kauffman Index. In media circles, the Kauffman Index has been highlighted in more than 100 media channels, including most major publications like *The New York Times*, *The Wall Street Journal*, *TIME*, *CNN*, the *Financial Times*, and *Harvard Business Review*.

Originally, the Kauffman Index tracked one of the earliest measures of business creation: When and how many people first start working for themselves, becoming entrepreneurs. Now, we are expanding it to include other dimensions of entrepreneurship.

The new and expanded Kauffman Index of Entrepreneurship 2015 remains focused primarily on

entrepreneurial outcomes, as opposed to inputs. That means we are more concerned with actual results of entrepreneurial activity—things like new companies and growth rates.

The Kauffman Index: Startup Activity algorithm presented in this report takes into account three variables:

- Rate of New Entrepreneurs
- Opportunity Share of New Entrepreneurs
- Startup Density

Future installments of the Kauffman Index to be released later this year also take into consideration, among other variables:

- Venture Growth
- Density of Scale-Ups
- Survival Rates
- Percent of Business Owners in the Population

And, with the Kauffman Index of Entrepreneurship 2015, all these data will be presented at three geographic levels:

- National
- State
- Metropolitan—covering the forty largest U.S. metropolitan areas by population

Wherever possible, the Kauffman Index also presents demographic characteristics of the business owners examined in different contexts.

The new Kauffman Index of Entrepreneurship is based on extensive entrepreneurship research, and our algorithm attempts to present a balanced perspective on how to measure entrepreneurship. Nonetheless, entrepreneurship is a complex phenomenon, and we expect to further build out and enhance the Index in the coming years, particularly as new data become available from the Annual Survey of Entrepreneurs, a forthcoming project from a major public-private partnership between the U.S. Census Bureau and the Kauffman Foundation.

The Kauffman Index 2015 series will include two more reports that follow the Startup Activity report, one on “main street” businesses and one on growth ventures, and a final report that synthesizes all three reports into one view of U.S. business activity for the year.

To help state and local leaders access the data relevant to their locales, the Index will offer enhanced, customizable data visualization, benchmarking tools, and detailed reports diving into the trends of different ecosystems across the United States.

We hope that you can use what we developed here to learn more about and foster your own entrepreneurial ecosystem.

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# The Startup Activity Index rose for the first time in five years in 2015, experiencing the largest year-over-year increase from the past two decades.

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## Executive Summary

The Kauffman Index: Startup Activity is a novel early indicator of new business creation in the United States, integrating several high-quality sources of timely entrepreneurship information into one composite indicator of startup activity. The Index captures business activity in all industries, and is based on both a nationally representative sample size of more than a half million observations each year and on the universe of all employer businesses in the United States. This allows us to look at both entrepreneurs and the startups they create.

This report presents trends in startup activity over the past two decades for the United States, as well as for all the fifty states and the forty largest U.S. metropolitan areas. Trends in startup activity also are reported at the national level for specific demographic groups for some of the Index components, when available. Broad-based entrepreneurship in America appears to be slowly crawling its way out of the depths it has been stuck in since 2010.

Startup activity rose in 2015, reversing a five-year downward trend in the United States, giving rise to hope for a revival of entrepreneurship. However, the return remains tepid and well below historical trends, as shown in Figure 1 on page 9. A principle driver of this year's uptick is the growth of male opportunity entrepreneurship, accompanied by the continued strength of immigrant entrepreneurship. Males were hit particularly hard during the Great Recession.

### National Trends in Startup Activity

#### Startup Activity Index

- The Startup Activity Index rose in 2015—reversing a downward trend that started in 2010—experiencing the largest year-over-year increase from the past two decades.

#### Rate of New Entrepreneurs

- Looking inside the components of the Startup Activity Index, the Rate of New Entrepreneurs in the United States increased about 10 percent, from 280 out of 100,000 adults in the 2014 Startup Activity Index to 310 out of 100,000 adults in the 2015 Index. The

Rate of New Entrepreneurs of 0.31 percent translates into approximately 530,000 new business owners each month during the year.

#### Opportunity Share of New Entrepreneurs

- Trends in the Opportunity Share of New Entrepreneurs—another component of the Startup Activity Index—indicate that the United States continues on the road to recovery from the Great Recession. In the most recent year, approximately eight out of every ten new entrepreneurs were not previously unemployed, while two out of every ten new entrepreneurs started their businesses coming directly out of unemployment. This continues an upward trend seen since the 2013 Index and is approaching historical norms.

#### Startup Density

- Startup Density—the third component of the Index—rose moderately in the United States in the 2015 Startup Activity Index, from 128.8 startups per 100,000 people to 130.6 startups per 100,000. After falling sharply for four consecutive years, this is the second year in a row that Startup Density has risen in the United States, although it remains well below typical historical rates.

### National Trends in Entrepreneurial Demographics

#### Gender of New Entrepreneurs—Male and Female Entrepreneurs

- Most new entrepreneurs were male in the 2015 Index, with male entrepreneurs making up 63.2 percent of all new entrepreneurs. More of these new male entrepreneurs were opportunity entrepreneurs in the 2015 Index than in the 2014 Index, up from just 72.4 percent in the 2014 Index to 75.2 percent in the 2015 Index.
- Since the 1997 Index, the share of new entrepreneurs who were females has fallen from 43.7 percent to 36.8 percent. This number is close to the two-decade low of 36.3 percent female entrepreneurs reached in the 2008 Index. Female new entrepreneurs have a higher likelihood of being opportunity entrepreneurs than do their male counterparts, with 84.1 percent of

the new female entrepreneurs in the 2015 Index not coming from unemployment.

#### **Educational Background of New Entrepreneurs**

- New entrepreneurs in the United States continue to come from many different educational backgrounds. However, since the 1997 Index, the share of new entrepreneurs who were college graduates has increased from 23.7 percent to 33.0 percent. This makes entrepreneurs with college degrees the biggest educational category of new entrepreneurs in the United States.

#### **Age of New Entrepreneurs**

- The age of new entrepreneurs in the United States is basically split evenly in the 2015 Index. However, younger entrepreneurs (ages twenty to thirty-four) have been on the decline, down from 34.3 percent of all new entrepreneurs in the 1997 Index to 24.7 percent in the 2015 Index.
- The aging of the U.S. population, combined with the increasing Rate of New Entrepreneurs among individuals aged fifty-five to sixty-four, have shifted this group from making up 14.8 percent of new entrepreneurs in the 1997 Index to 25.8 percent of all new entrepreneurs in the 2015 Index.
- Older entrepreneurs continued to have the highest share of opportunity entrepreneurship in the 2015 Index, even though the share of these new older entrepreneurs coming directly from unemployment has gone up since the Great Recession.

#### **Nativity of New Entrepreneurs—Immigrant and Native Entrepreneurs**

- Immigrant entrepreneurs now account for 28.5 percent of all new entrepreneurs in the United States, up from just 13.3 percent in the 1997 Index. This is close to the two-decade high of 29.5 percent in the 2011 Index, reflecting the United States' increasing population of immigrants but also the much higher Rate of New Entrepreneurs among immigrants.
- Immigrants continue to be almost twice as likely as the native-born to become entrepreneurs, with the Rate of New Entrepreneurs being 0.52 percent for immigrants, as opposed to 0.27 percent for the native-born.

#### **Veteran Status of New Entrepreneurs**

- New veteran entrepreneurs continue to be a smaller part of the U.S. entrepreneurial population, mostly reflecting a falling population of veterans, not a declining Rate of New Entrepreneurs among veterans.

#### **Ethnicity of New Entrepreneurs**

- New entrepreneurs in the United States are becoming increasingly diverse, with more than 40 percent of new entrepreneurs being comprised of African American, Latino, Asian, or other non-white entrepreneurs in the 2015 Index. Most of this rise has been seen in Latino and Asian new entrepreneurs, who now account for 22.1 percent and 6.8 percent of new entrepreneurs in the 2015 Index, respectively, up from 10.0 percent and 3.4 percent in the 1997 Index.

## **Introduction**

The Kauffman Index: Startup Activity presents a novel index measure of a broad range of startup activity in the United States—across national, state, and metropolitan area levels. The index captures startup activity along three dimensions. First, it captures the Rate of New Entrepreneurs in the economy—the percentage of adults becoming entrepreneurs in a given month. Second, it captures the Opportunity Share of New Entrepreneurs, the percentage of new entrepreneurs driven primarily by “opportunity entrepreneurship” as opposed to “necessity entrepreneurship.” Third, it captures Startup Density, the rate at which businesses with employees are created in the economy. The combination of these three distinct and important dimensions of new business creation provides a broad view of startup activity in the country, across national, state, and metropolitan-area levels.

The Kauffman Index: Startup Activity is an early indicator of new business creation in the United States. Capturing new entrepreneurs in their first month and new employer businesses in their first year, the Index provides the earliest documentation of new business development across the country. The Startup Activity Index captures all types of business activity and is based on nationally representative sample sizes of more than a half million observations each year or administrative data covering the universe of employer business entities. The separate components of the Index also provide evidence on potentially different trends in business creation created by “opportunity” business creation relative to unemployment-related (“necessity”) business creation over the business cycle. The Startup Activity Index improves over other possible measures of entrepreneurship because of its timeliness, dynamic nature, exclusion of “casual” businesses, and inclusion of all types of business activity, regardless of industry.

# The Components of the Kauffman Index: Startup Activity

The Kauffman Index: Startup Activity provides a broad index measure of business startup activity in the United States. It is an equally weighted index of three normalized measures of startup activity.<sup>1</sup> The three component measures of the Startup Activity Index are:

- i) The Rate of New Entrepreneurs in the economy, calculated as the percentage of adults becoming entrepreneurs in a given month.
- ii) The Opportunity Share of New Entrepreneurs, calculated as the percentage of new entrepreneurs driven primarily by “opportunity” vs. “necessity.”
- iii) The Startup Density of a region, measured as the number of new employer businesses normalized by population.

Before presenting trends in the Startup Activity Index, we briefly discuss each component measure (see Methodology and Framework for more details).

First, the Rate of New Entrepreneurs captures the percentage of the adult, non-business-owner population that starts a business each *month*. This component was formerly known as the Kauffman Index of Entrepreneurial Activity and was presented in a series of reports over



## Rate of New Entrepreneurs

- Early and broad measure of business ownership.
- Measures the percent of the U.S. adult population that became entrepreneurs, on average, in a given month.
- Includes entrepreneurs with incorporated or unincorporated businesses, with or without employees.
- Data based on the Current Population Survey, jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the Rate of New Entrepreneurs was 0.35 percent for Colorado in the 2015 Index. That means that, on average, 350 people out of 100,000 adults became entrepreneurs in Colorado in each month.

# KAUFFMAN INDEX: startupactivity



1. We normalize each of three measures by subtracting the mean and dividing by the standard deviation for that measure (i.e., create a z-score for each variable). This creates a comparable scale for including the three measures in the Startup Activity Index. We use annual estimates from 1996 to the latest year available (2012 or 2014) to calculate the mean and standard deviations for each component measure (see Methodology and Framework for more details).



## Opportunity Share of New Entrepreneurs

- Proxy indicator of the percent of new entrepreneurs starting businesses because they saw market opportunities.
- Measures the percentage of new entrepreneurs who were not unemployed before starting their businesses (e.g., have been previously working for another organization or studying in school).
- This indicator is important for two reasons: 1) Entrepreneurs who were previously unemployed seem to be more likely to start businesses with lower growth potential, out of necessity. Thus, the Opportunity Share of New Entrepreneurs serves as a broad proxy for growth prospects. 2) This measure helps us understand changes in the Rate of New Entrepreneurs motivated by weak job markets, such as the one we had after the recent Great Recession. If the Rate of New Entrepreneurs goes up but the Opportunity Share of New Entrepreneurs is low, we can see that many new entrepreneurs are starting businesses coming out of unemployment, and arguably started their companies largely out of necessity.
- Data based on the Current Population Survey jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the United States Opportunity Share of New Entrepreneurs was 79.57 percent in the 2015 Index. That means that approximately eight out of every ten new entrepreneurs in this year started their businesses coming out of another job, school, or other labor market states. Meanwhile, two out of ten started their businesses directly coming out of unemployment.

more than a decade (Fairlie 2014).<sup>2</sup> The Rate of New Entrepreneurs as measured here captures *all* new business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non-employers.<sup>3</sup> The Rate of New Entrepreneurs is calculated from matched data from the Current Population Survey (CPS), a monthly survey conducted by the U.S. Bureau of the Census and the Bureau of Labor Statistics.

Another component measure of the Startup Activity Index is the percentage of new entrepreneurs driven by “opportunity entrepreneurship” as opposed to “necessity entrepreneurship.” The Rate of New Entrepreneurs includes businesses of all types, and thus cannot cleanly disaggregate between the creation of high-growth-potential businesses and individuals starting businesses because of limited job opportunities.<sup>4</sup> One approximate method for disentangling these two types of startups is to examine the share of new entrepreneurs coming out of unemployment compared to the share of the new entrepreneurs coming out of wage and salary work, school, or other labor market statuses (Fairlie 2014). Individuals starting businesses out of unemployment might be more inclined to start those businesses out of necessity than opportunity (although many of those businesses could eventually be very successful).

The third component of the Startup Activity Index is a measure of the rate of creation of businesses with employees. These employer businesses are generally larger and have higher growth potential than non-employer businesses do. Startup Density is defined as the number of newly established employer businesses to the total population (in 100,000s). The number of newly created employer businesses is from the U.S. Census Business Dynamics Statistics (BDS) and is taken from the universe of businesses with payroll tax records in the United States, as recorded by the Internal Revenue Service. Although new businesses with employees represent only a small share of all new businesses, they represent an important group for job creation and economic growth in the economy.

In this report, we present national estimates of the Startup Activity Index first. We then present trends in each of the three component measures of the Index. Some of the component measures provide information that allows for a presentation of trends by demographic groups.

2. See “Kauffman Index of Entrepreneurial Activity, 1996–2012” (Fairlie 2013) and <http://www.kauffman.org/research-and-policy/kauffman-index-of-entrepreneurial-activity.aspx> for previous reports.

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. <http://www.census.gov/econ/nonemployer/index.html>.

4. See Fairlie (2011), “Entrepreneurship, Economic Conditions, and the Great Recession,” *Journal of Economics and Management Strategy* for more evidence and discussion.

## Startup Density



- Number of startup firms by total population.
- Startup businesses here are defined as employer firms less than one year old employing at least one person besides the owner. All industries are included on this measure.
- Measures the number of new employer startup businesses normalized by the population of an area. Because companies captured by this indicator have employees, they tend to be at a more advanced stage than are the companies in the Rate of New Entrepreneurs measure.
- Data based on the U.S. Census’s Business Dynamics Statistics.
- What the number means:
  - For example, the 2015 Index Startup Density for the New York metropolitan area was 197.3 by 100,000 population. That means that, for every 100,000 people living in the New York metro area, there were 197.3 employer startup firms that were less than one year old in this year.

## National Trends in Startup Activity

The Kauffman Index: Startup Activity calculates a broad index measure of business startup activity across the years. Figure 1 and Table 1 present results. The Startup Activity Index rose in 2015, reversing a downward trend that started in 2010 in the middle of the Great Recession. Over the past two decades, the Startup Activity

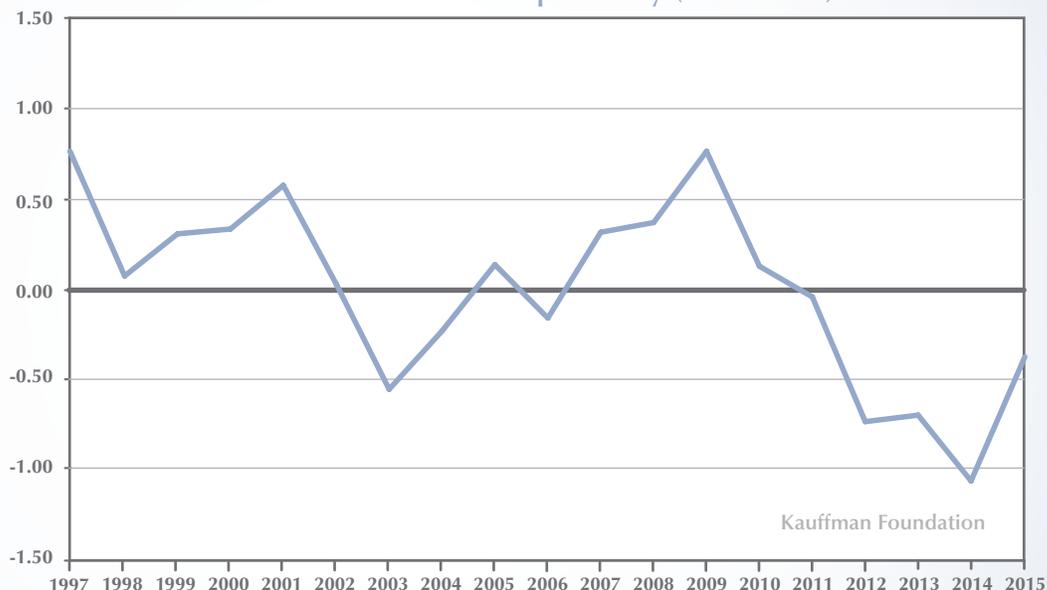
Index has generally followed the business cycle. The index rose during the “Roaring Nineties” and during the expansionary period prior to the Great Recession. The increase in the Startup Activity Index from 2014 to 2015 also was very large—it represents the largest year-over-year increase over the past two decades.

Startup activity rose in 2015, which might be a good signal for job creation, innovation, and economic advancement. We next discuss trends in each of the three component measures of the Startup Activity Index.

The Startup Activity Index rose in 2015, reversing a downward trend that started in 2010 in the middle of the Great Recession.

Figure 1

Kauffman Index: Startup Activity (1997–2015)



SOURCE: Authors’ calculations using the CPS, BDS, and BEA. For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).



## National Trends in Rate of New Entrepreneurs

This section discusses trends in the Rate of New Entrepreneurs. The Rate of New Entrepreneurs measures the percentage of the adult, non-business-owner population that starts a business each *month*. It captures *all* new business owners, including those who own incorporated or unincorporated businesses, and those who are employers or non-employers. The Rate of New Entrepreneurs was previously reported in the Kauffman Index of Entrepreneurial Activity, and, in this release, we update results from previous reports (e.g., Fairlie 2014). Table 1 and Figure 1A present results. In 2014, an average of 0.31 percent of the adult population, or 310 out of 100,000 adults, created a new business each month.<sup>5</sup> This business-creation rate translates into more than 500,000 adults becoming entrepreneurs in each month during the year. In 2014, the Rate of New Entrepreneurs reversed a downward trend over the past few years. The Rate of New Entrepreneurs increased from 0.28 percent of the adult

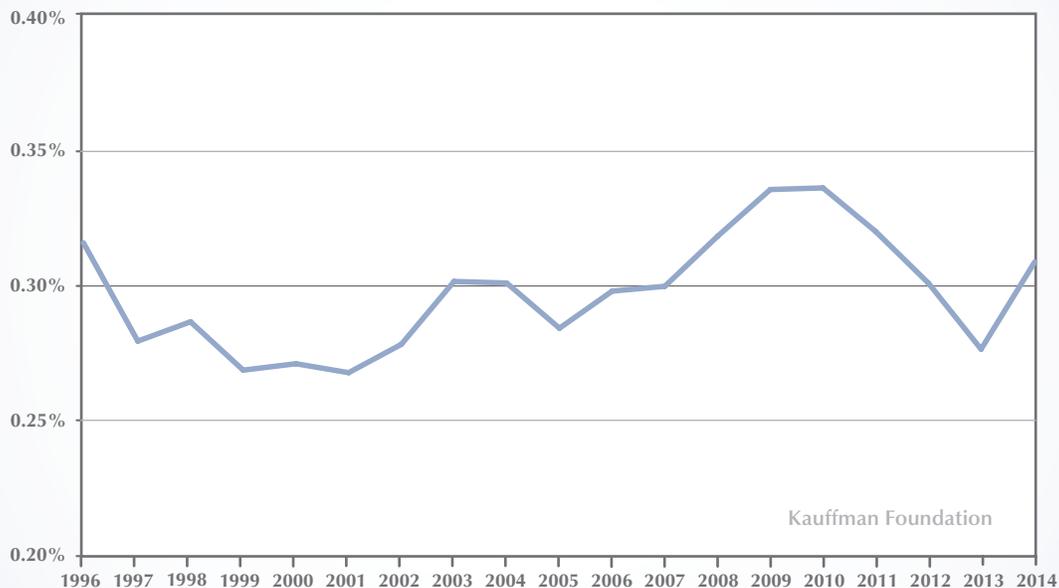
population (280 out of 100,000) in 2013 to 0.31 percent (310 out of 100,000) in 2014.

### Rate of New Entrepreneurs by Demographic Groups

The detailed demographic information available in the CPS and large sample sizes allows for the estimation of separate business-creation rates by gender, race, immigrant status, age, and level of education. This represents an advantage of the individual-level CPS data because large, nationally representative business-level datasets typically provide either no or very limited demographic information on the owner. The Rate of New Entrepreneurs increased for men from 2013 to 2014, reversing a downward trend that started in 2011 (Table 2 and Figure 2 report results). For women, there was no change in the Rate of New Entrepreneurs from 2013 to 2014. Overall, men are substantially more likely to start businesses each month than are women, which holds in all reported years. In 2014, the male Rate of New Entrepreneurs was 0.41 percent, compared with the female Rate of New Entrepreneurs of 0.22 percent.



Figure 1A  
Rate of New Entrepreneurs (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

5. 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.

Figure 2  
Rate of New Entrepreneurs by Gender (1996–2014)

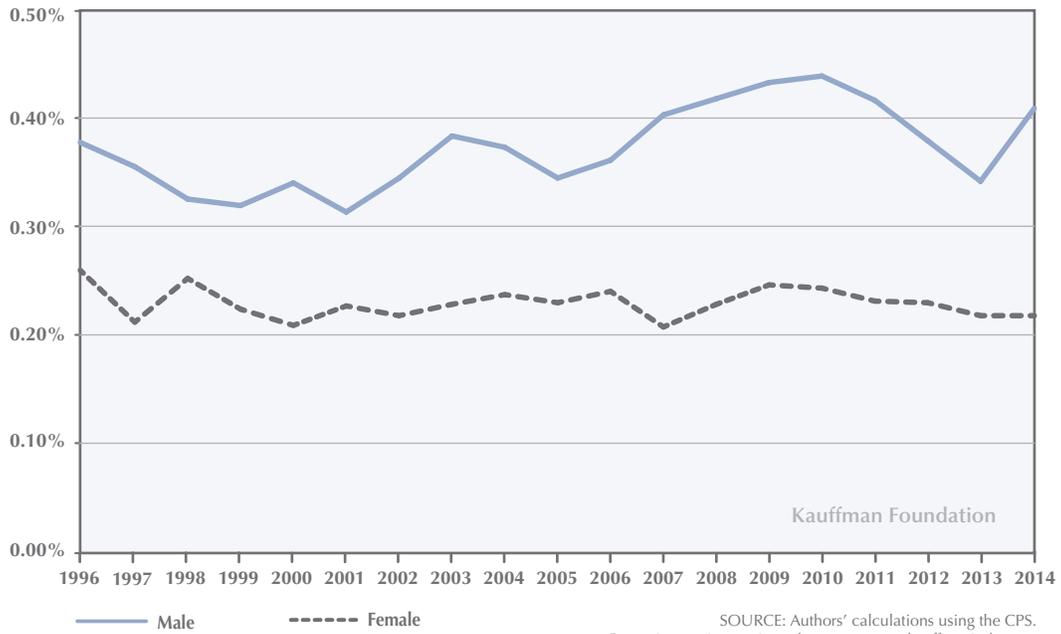
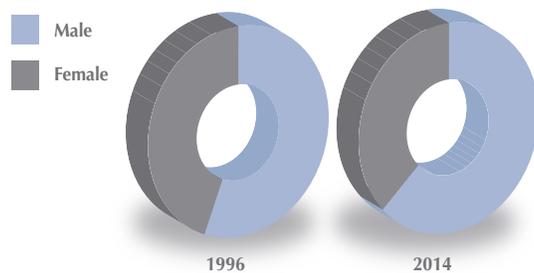


Figure 2A  
Changes in Composition of New Entrepreneurs by Gender (1996, 2014)



SOURCE: Authors' calculations using the CPS.      Kauffman Foundation

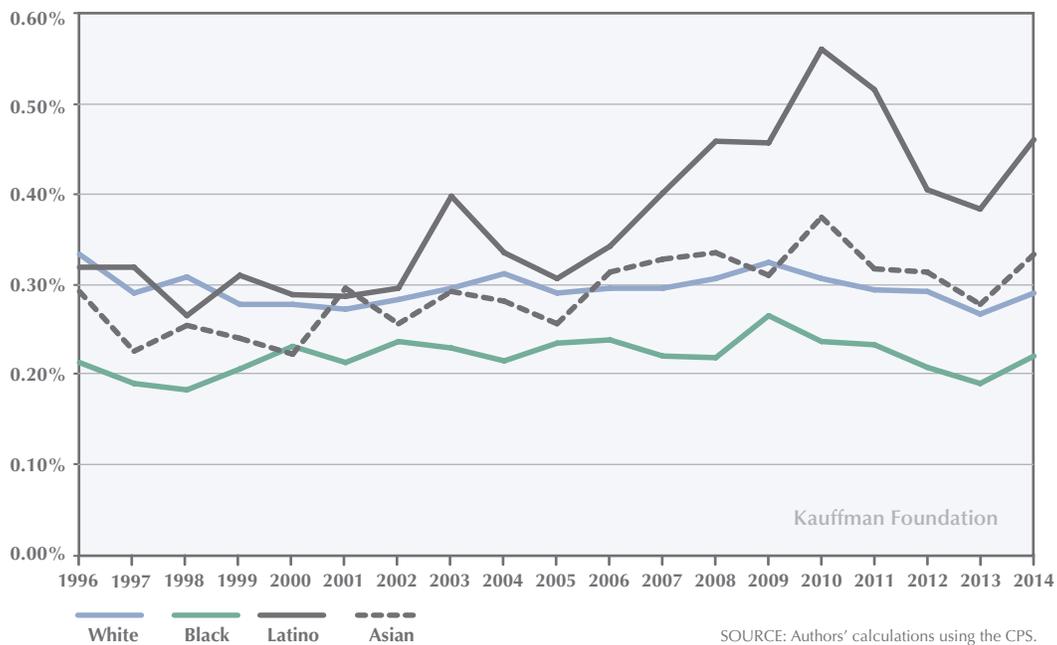
Gender	1996	2014
Male	56.3%	63.2%
Female	43.7%	36.8%

All racial and ethnic groups experienced increases in the Rate of New Entrepreneurs between 2013 and 2014. Table 3 and Figure 3 report estimates of total new entrepreneurs' rate by race and ethnicity. The Rate of New Entrepreneurs is highest among Latinos and Asians and lowest among African Americans.

Reflecting the longer-term trends showing rising Latino rates of entrepreneurship and a growing share

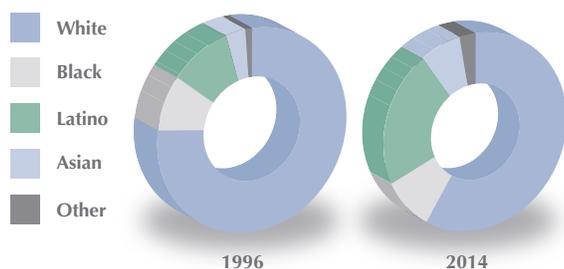
of the total U.S. population, the Latino share of all new entrepreneurs rose from 10.0 percent in 1996 to 22.1 percent in 2014. Figure 3A reports estimates of the share of new entrepreneurs by race from 1996 to 2014. The Asian share of new entrepreneurs also rose substantially from 1996 to 2014. The White share of new entrepreneurs declined over the past eighteen years, whereas the black share increased slightly.

Figure 3  
Rate of New Entrepreneurs by Race (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

Figure 3A  
Changes in Composition of New Entrepreneurs by Race (1996, 2014)

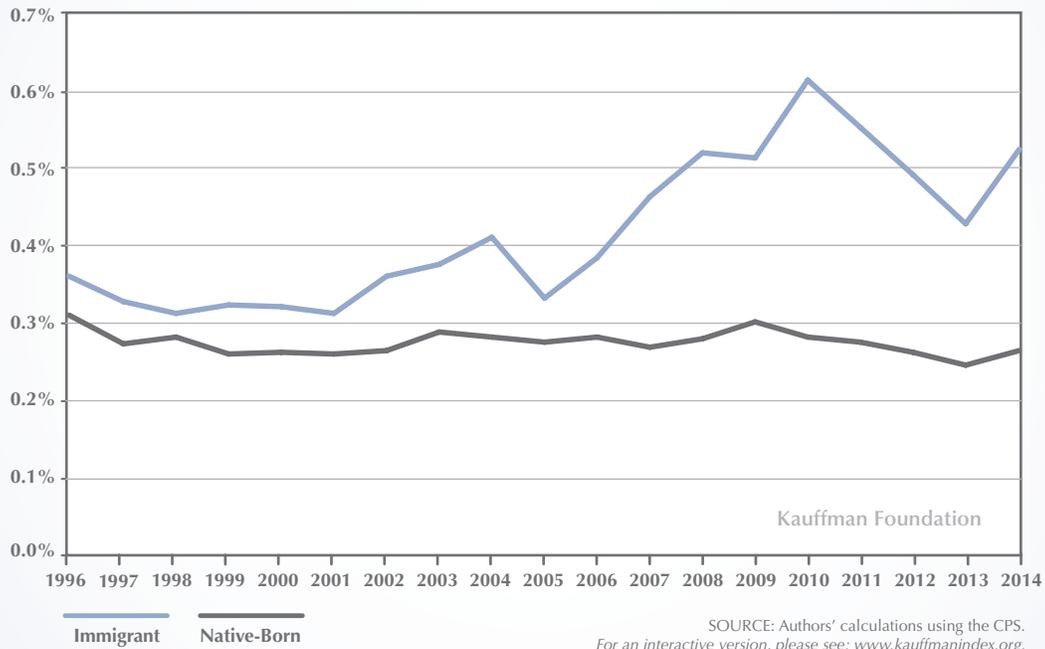


SOURCE: Authors' calculations using the CPS.

Kauffman Foundation

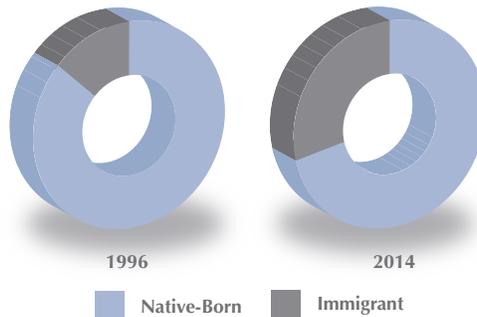
Race	1996	2014
White	77.1%	59.1%
Black	8.4%	9.2%
Latino	10.0%	22.1%
Asian	3.4%	6.8%
Other	1.0%	2.7%

Figure 4  
Rate of New Entrepreneurs by Nativity (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

Figure 4A  
Changes in Composition of New Entrepreneurs by Nativity (1996, 2014)



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Nativity	1996	2014
Native-Born	86.7%	71.5%
Immigrant	13.3%	28.5%

The Rate of New Entrepreneurs increased for immigrants in 2014. Table 4 and Figure 4 report estimates of the Rate of New Entrepreneurs by nativity. The Rate of New Entrepreneurs among immigrants of 0.52 percent is substantially higher than that for the native-born of 0.27 percent. A growing immigrant population and rising

entrepreneurship rate contributed to a rising share of new entrepreneurs that are immigrant. Figure 4A reports estimates of the share of new entrepreneurs by nativity. Immigrant entrepreneurs represent nearly 30 percent of all new entrepreneurs in 2014, which is up substantially from 13.3 percent in 1996.

Table 5 and Figure 5 report estimates of the Rate of New Entrepreneurs by age group. All of the age groups experienced increases in the Rate of New Entrepreneurs except the forty-five to fifty-four age group, which experienced no change in 2014. The Rate of New Entrepreneurs is the lowest among the youngest

group. Figure 5A reports estimates of the share of new entrepreneurs by age group. An aging population has led to a rising share of new entrepreneurs in the age fifty-five to sixty-four group. This group represented 14.8 percent of new entrepreneurs in 1996, whereas it represented 25.8 percent of new entrepreneurs in 2014.

Figure 5  
Rate of New Entrepreneurs by Age (1996–2014)

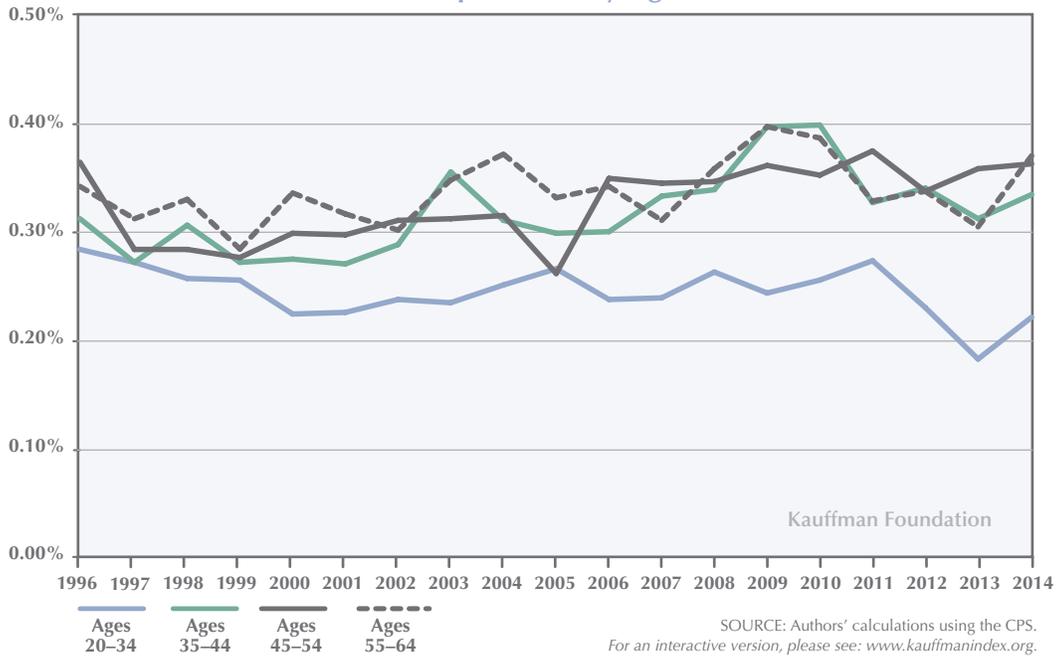
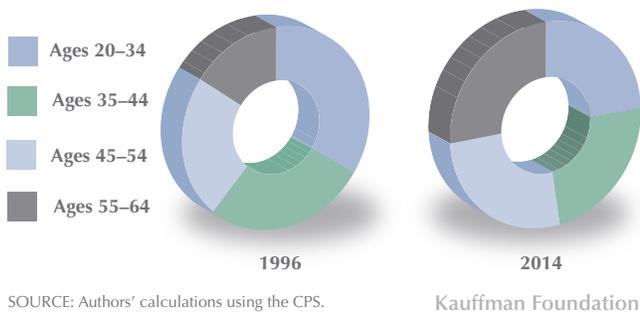


Figure 5A  
Changes in Composition of New Entrepreneurs by Age (1996, 2014)



Age	1996	2014
Ages 20–34	34.3%	24.7%
Ages 35–44	27.4%	22.9%
Ages 45–54	23.5%	26.6%
Ages 55–64	14.8%	25.8%

The Rate of New Entrepreneurs increased for individuals with college educations and high school educations. Table 6 and Figure 6 report estimates by education level. Among high school dropouts and those with some college, the Rate of New Entrepreneurs did

not change in 2014. The Rate of New Entrepreneurs is highest among the least-educated group, but this partially reflects a high level of “necessity entrepreneurship” for this group, arguably driven by more-limited labor market opportunities.

Figure 6  
Rate of New Entrepreneurs by Education (1996–2014)

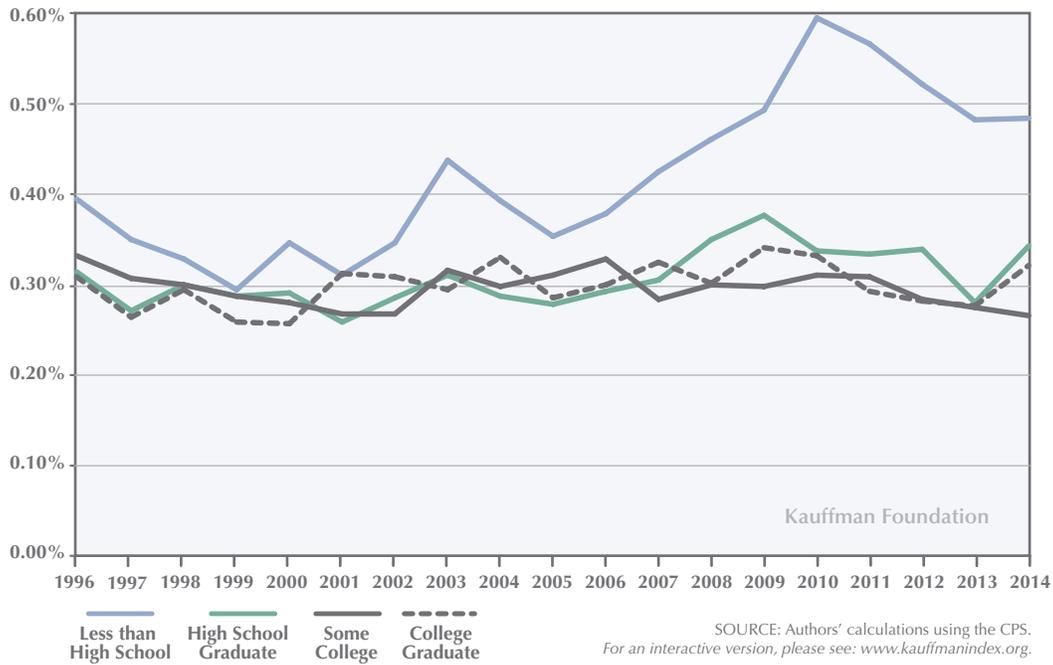
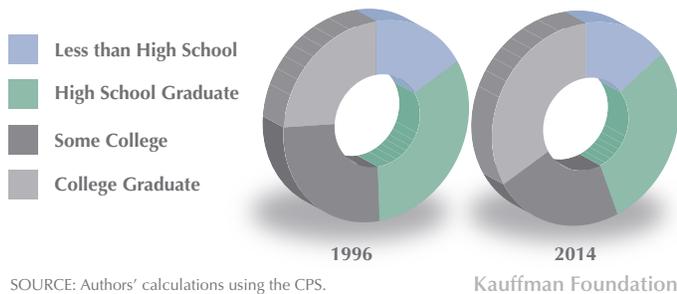


Figure 6A  
Changes in Composition of New Entrepreneurs by Education (1996, 2014)



Race	1996	2014
Less than High School	17.2%	15.1%
High School Graduate	32.3%	29.5%
Some College	26.8%	22.5%
College Graduate	23.7%	33.0%
Other	1.0%	2.7%

Table 7 and Figure 7 report estimates of the Rate of New Entrepreneurs by veteran status. In 2014, the Rate of New Entrepreneurs was 0.31 percent for veterans, which was the same as the non-veteran rate. The share of all new entrepreneurs represented by veterans was

12.3 percent in 1996. This share steadily declined to 5.6 percent by 2014 (see Figure 7A). Most of the decline in the veteran share of new entrepreneurs over the past two decades was due to the declining share of veterans in the U.S. working-age population.<sup>6</sup>

Figure 7  
Rate of New Entrepreneurs by Veteran Status (1996–2014)

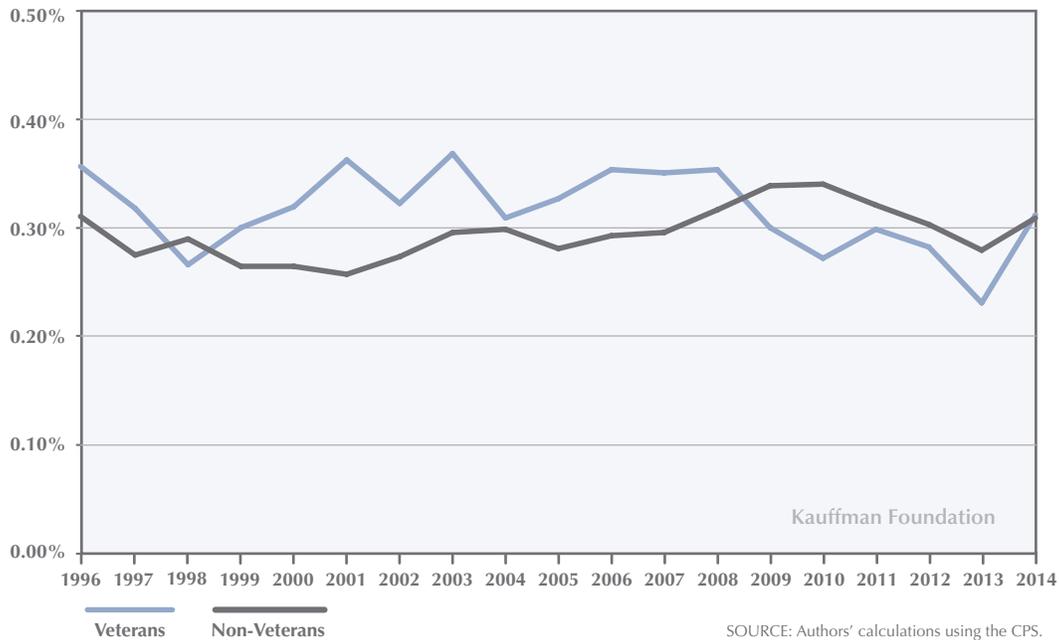
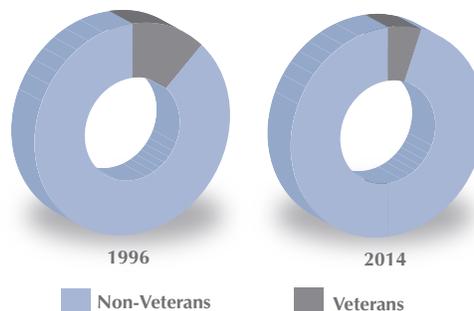


Figure 7A  
Changes in Composition of New Entrepreneurs  
by Veteran Status (1996, 2014)



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Veteran Status	1996	2014
Veterans	12.5%	5.6%
Non-Veterans	87.5%	94.4%

6. See Fairlie (2012), "Kauffman Index of Entrepreneurial Activity by Veteran Status, 1996–2011," [http://www.kauffman.org/uploadedFiles/DownloadableResources/2012%20KIEA\\_VET\\_FINAL.pdf](http://www.kauffman.org/uploadedFiles/DownloadableResources/2012%20KIEA_VET_FINAL.pdf) for more details.



## National Trends in Opportunity Share of New Entrepreneurs

With this measure of new entrepreneurs that includes entrepreneurs and businesses of *all* types, it is impossible to cleanly disaggregate between the creation of high-growth-potential businesses and individuals starting businesses because of limited job opportunities. To identify separate startup motivations, the share of new entrepreneurs coming out of unemployment is compared to the share of the new entrepreneurs coming out of wage and salary work, school, or other labor market statuses. Individuals starting businesses out of unemployment might be more inclined to start those businesses out of necessity than opportunity. The distinction is not perfect because many successful businesses are created by people who have lost their jobs and are unemployed, but the distinction offers at least some suggestive evidence on the influence of economic conditions on overall business creation.

The Rate of New Entrepreneurs coming from individuals who are not unemployed and not looking for a job (i.e., “opportunity” entrepreneurship) was substantially higher than at the end of the Great Recession. In 2014, 79.6 percent of the total number of new entrepreneurs was from those who were not unemployed and not looking for a job. This share increased from 2013 and is now substantially higher than it was in 2009 at the end of the recession. Figure 1B displays trends in the Opportunity Share of New Entrepreneurs from 1996 to 2014 (Table 1). Over the past two decades, the share of new entrepreneurs engaging in “opportunity” entrepreneurship increased when economic conditions were improving and decreased when economic conditions were worsening. The largest share of “opportunity” entrepreneurship occurred at the height of the “Roaring Nineties,” and the smallest share was in 2009 at the end of the Great Recession. The share of opportunity business creation also decreased in the recession of the early 2000s and increased in the following growth period in the mid-2000s. It is important to note, however, that, although the motivation for starting businesses when economic conditions are weak and unemployment rates are high may differ from those created in stronger economic conditions, many of these businesses may eventually be very successful.<sup>7</sup>

Figure 1B  
Opportunity Share of New Entrepreneurs (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).



7. For example, the majority of Fortune 500 companies were started during recessions or bear markets. See Stangler, Dane. 2009. *The Economic Future just Happened*, Kansas City: Ewing Marion Kauffman Foundation, <http://www.kauffman.org/uploadedFiles/the-economic-future-just-happened.pdf>

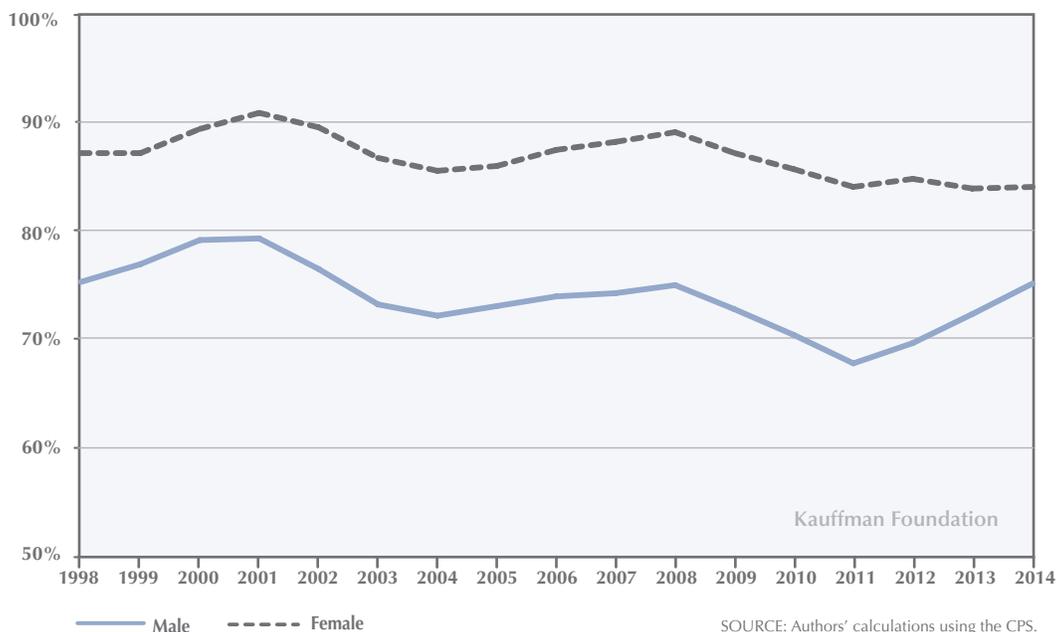
### Opportunity Share of New Entrepreneurs by Demographic Groups

We also examine trends in the opportunity share of new entrepreneurs by demographic groups. Three-year moving averages are reported to increase precision of estimates. The opportunity share of new entrepreneurs increased for men from 2013 to 2014, continuing an upward trend for the past few years as the economy has improved (Figure 2B reports estimates). Interestingly, the opportunity share of entrepreneurship is lower for men than for women, although some of the gap closed during the recent economic recovery.

All racial and ethnic groups experienced increases in the opportunity share of new entrepreneurs between 2013 and 2014, continuing trends over the past few years. Figure 3B reports estimates of total new entrepreneurs' rate by race and ethnicity. The Rate of New Entrepreneurs is highest among Asians and lowest among African Americans and Latinos.

The opportunity share increased for immigrants in 2014. Figure 4B reports estimates of the opportunity share of new entrepreneurs by nativity. The opportunity share of entrepreneurship for immigrants is roughly similar to natives.

Figure 2B  
Opportunity Entrepreneurship Share (Three-Year Moving Average) by Gender (1998–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

Figure 3B  
 Opportunity Entrepreneurship Share (Three-Year Moving Average) by Race (1998–2014)

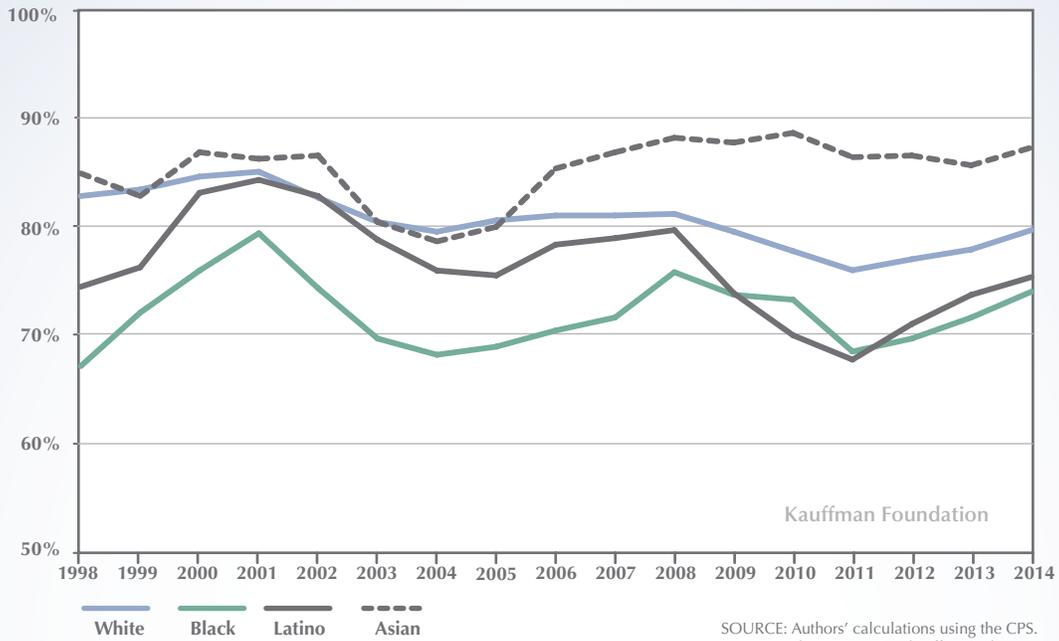


Figure 4B  
 Opportunity Entrepreneurship Share (Three-Year Moving Average) by Nativity (1998–2014)

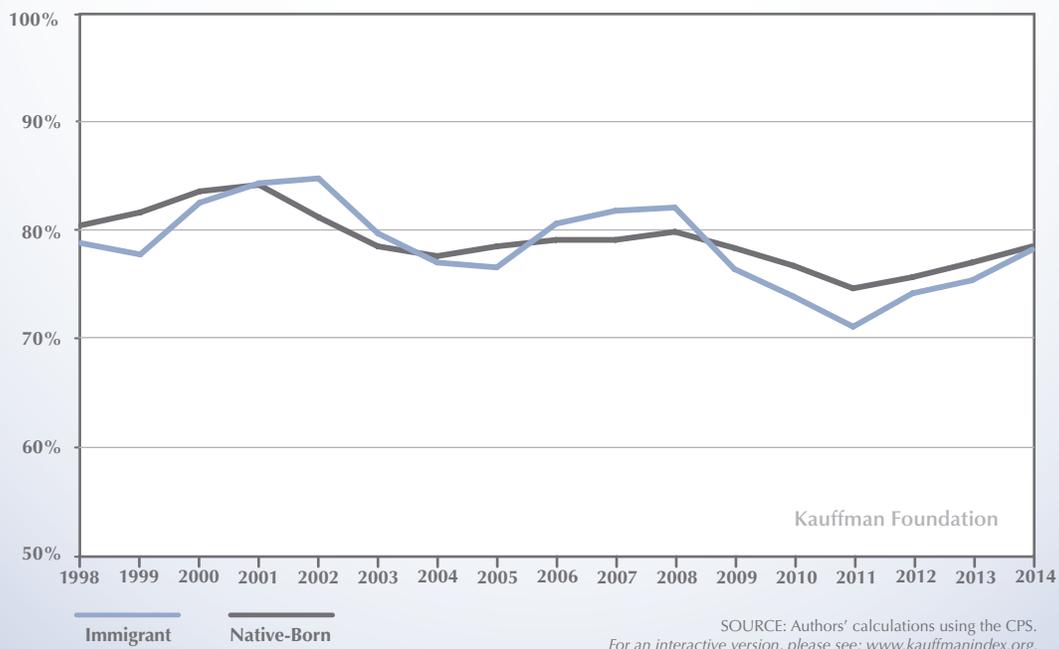


Figure 5B reports estimates of the opportunity share of new entrepreneurs by age group. All of the age groups experienced increases in the opportunity share in 2014, continuing the upward trend since the Great Recession. The opportunity share is the highest among the oldest age group and lowest among the youngest age group.

The opportunity share of new entrepreneurs increased for all education groups. Figure 6B reports estimates by education level. The opportunity share of entrepreneurship increases with education level: high school dropouts have the lowest opportunity share and college graduates have the highest opportunity share.

Figure 5B  
Opportunity Entrepreneurship Share (Three-Year Moving Average) by Age (1998–2014)

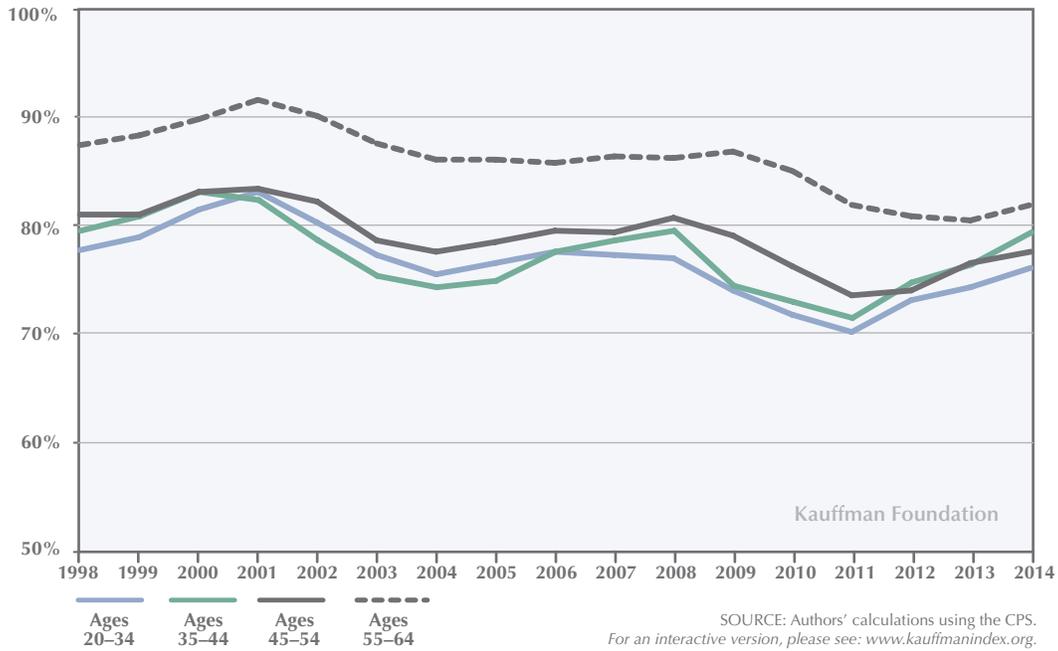


Figure 6B  
Opportunity Entrepreneurship Share (Three-Year Moving Average) by Education (1998–2014)

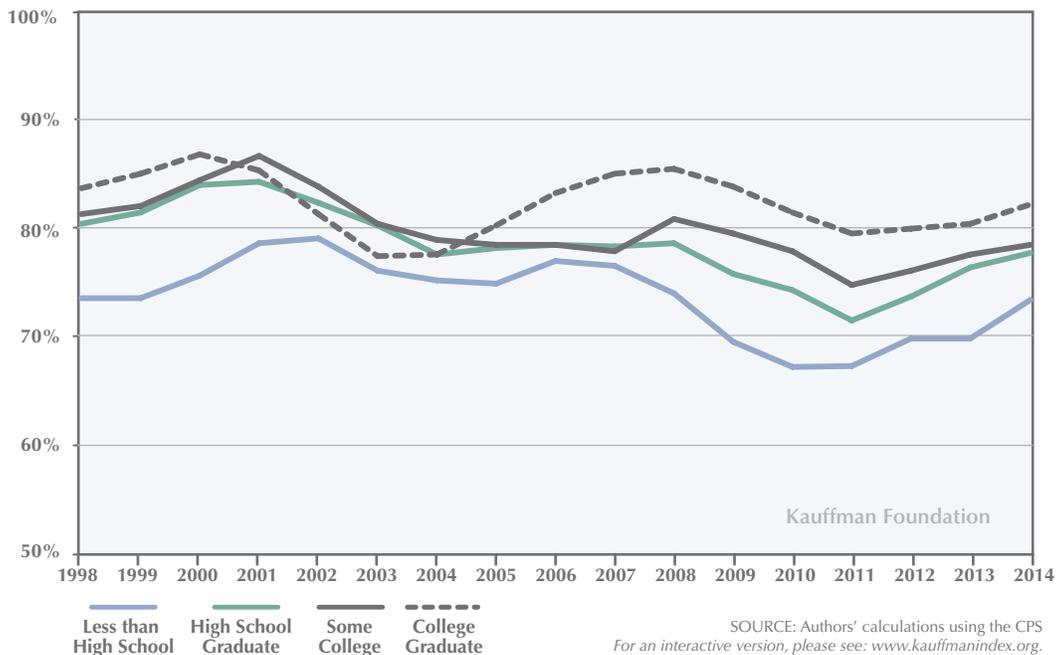
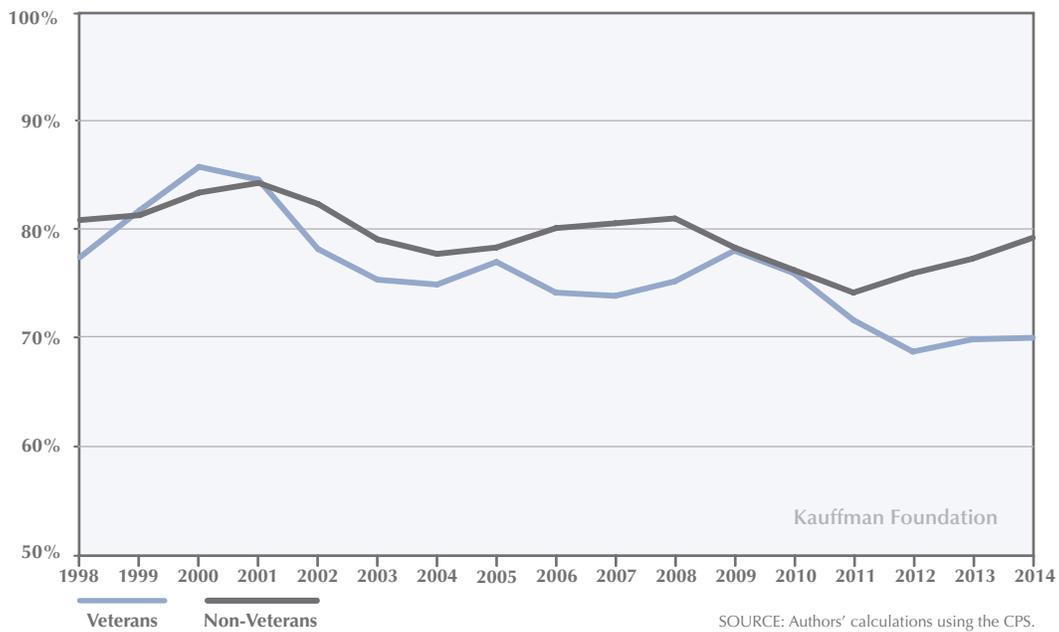


Figure 7B reports estimates of the opportunity share of new entrepreneurs by veteran status. The opportunity

share of entrepreneurship increased in 2014 among veterans, but remained lower than for non-veterans.

Figure 7B

### Opportunity Entrepreneurship Share (Three-Year Moving Average) by Veteran Status (1998–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).



## National Trends in Startup Density

Focusing on Startup Density, Figure 1C and Table 1 report results for trends in the employer business-creation rate. Startup Density is the ratio of the number of new employer businesses divided by the total population (in 100,000s). Here, we define startups as firms employing at least one person that are less than one year old. This is a yearly measure calculated from the U.S. Census Business Dynamics Statistics for firm data and the Bureau of Economic Analysis for population data.

We present this indicator going back from 1977 to 2012, the latest year for which the data are available. This measure differs from the Rate of New Entrepreneurs in two key ways: 1) the Rate of New Entrepreneurs is a measure based on individuals—the entrepreneurs themselves. As such, it tracks individuals starting new businesses rather than tracking new businesses. 2) It is a very early and broad measure of Startup Activity, including

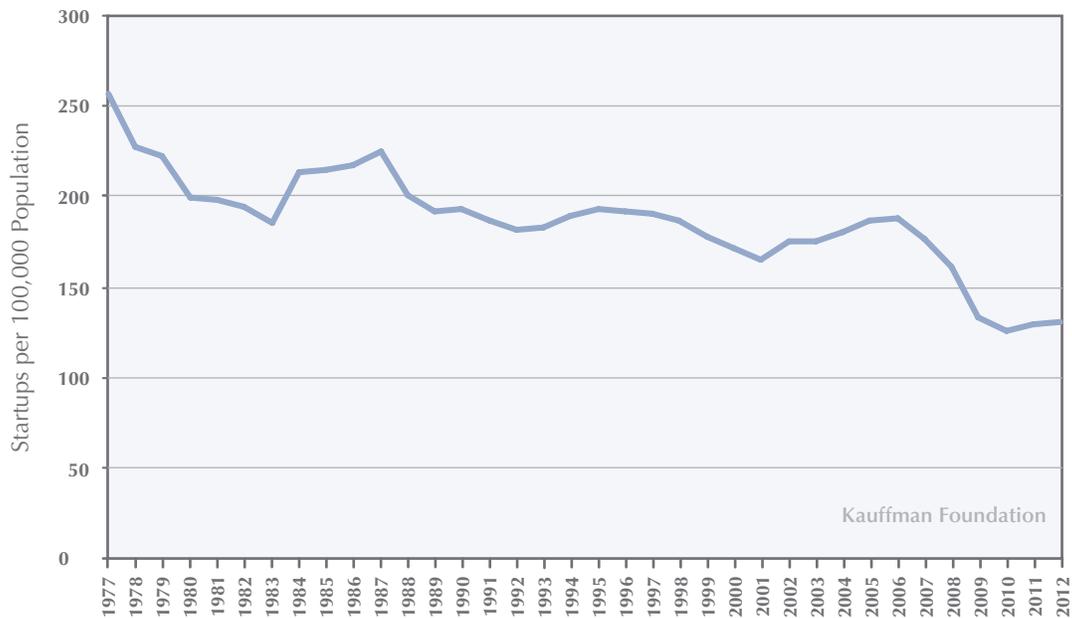
all entrepreneurs, regardless of how many people their businesses employ, if any, and it includes self-employed entrepreneurs. Startup Density only includes businesses employing at least one person—thus being a slightly more mature measure of Startup Activity.

Both researchers and entrepreneurs have suggested density as a key indicator of vibrancy in entrepreneurial ecosystems, and there is high variation on this indicator across metropolitan areas in the United States. (Stangler and Bell-Masterson 2015 and Feld 2012).

The Startup Density was 130.6 in the most recent year with data available, which represents 410,001 new employer businesses created that year. The Startup Density increased from 128.8 (or 128.8 out of 100,000 people) to 130.6 (or 130.6 out of 100,000 people) in the Startup Activity Index calculations from 2014 to 2015. After several years of declining rates, the Startup Density reversed its course and has increased over the past two years. Over a longer period, the Startup Density increased in the years leading up to the Great Recession and dropped sharply in the recession and aftermath.

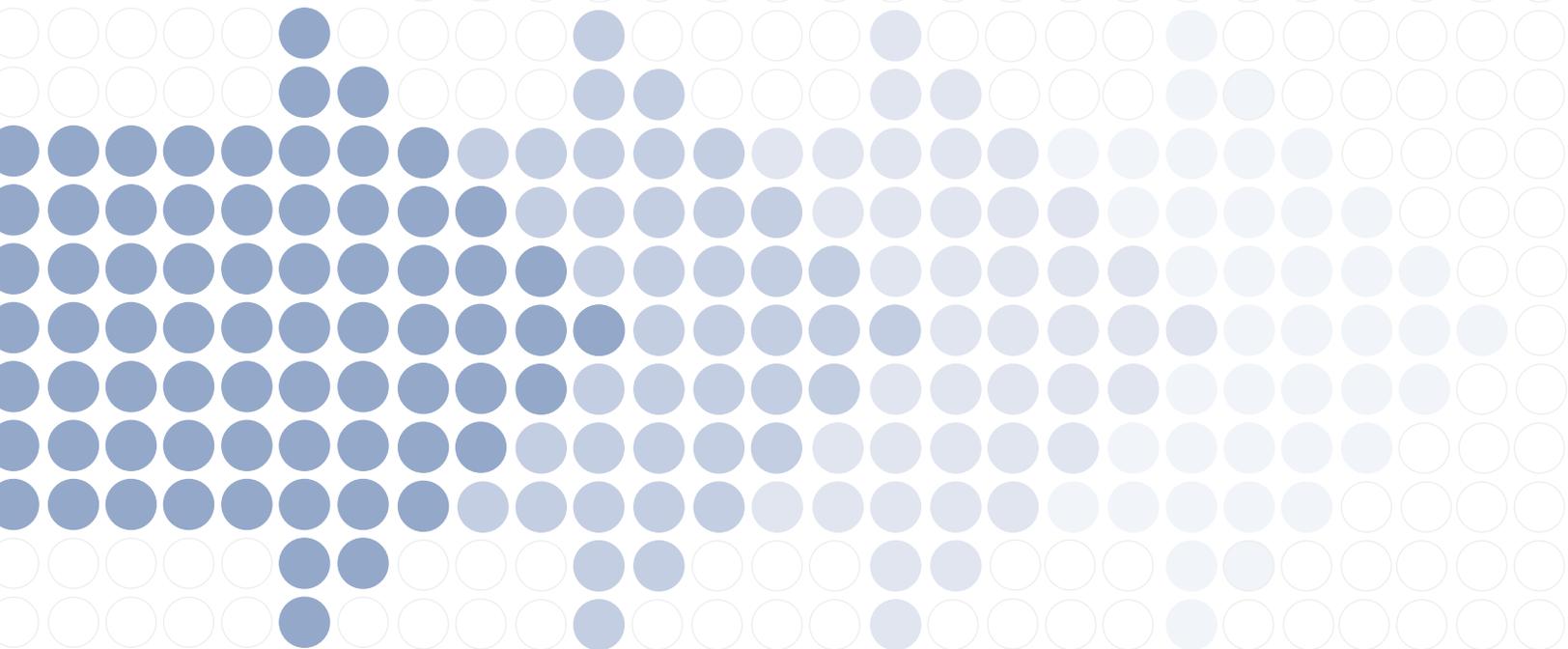


Figure 1C  
Startup Density (1977–2012)



Source: Authors' calculations using BDS and BEA data.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

# Appendix: National Data, Entrepreneurial Demographic Profiles, and Charts



# NATIONAL PROFILE

United States of America

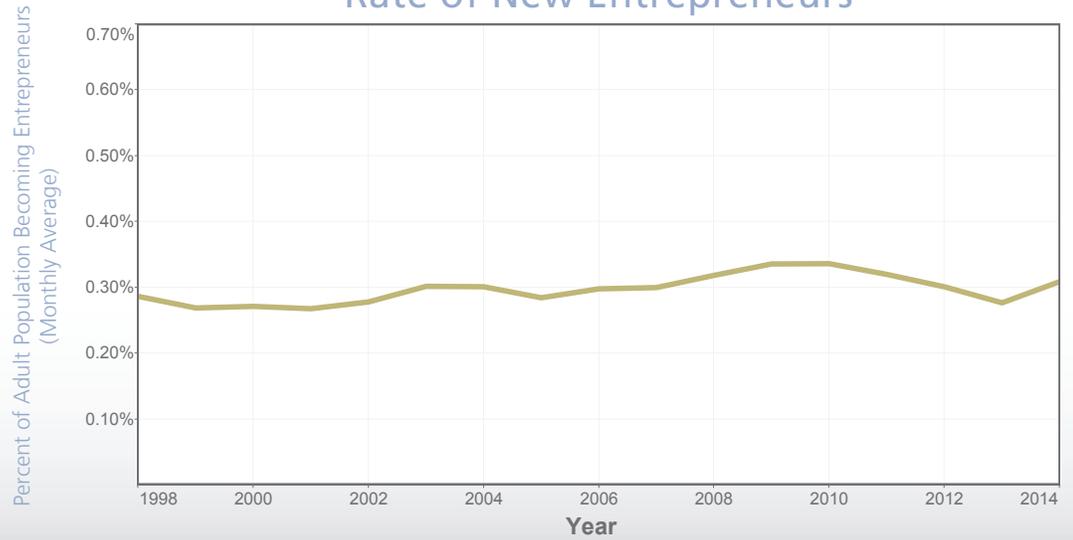
## Rate of New Entrepreneurs

2015 Component	2014 Component
<b>0.31%</b>	<b>0.28%</b>

Early and broad measure of business ownership. Measures the percent of the adult population of an area that became entrepreneurs in a given month.

Source: Author calculations from CPS. Yearly measure.

## Rate of New Entrepreneurs



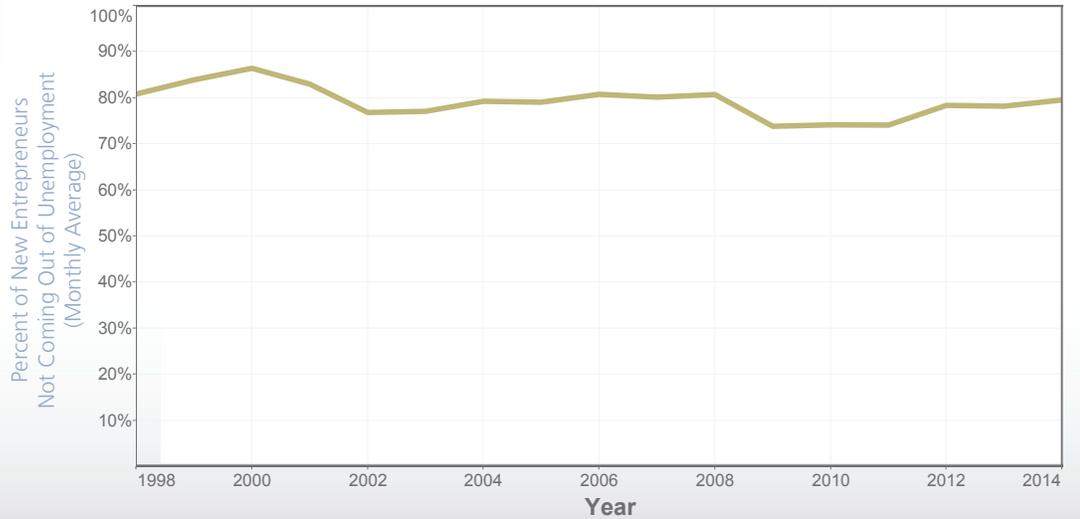
## Opportunity Share of New Entrepreneurs

2015 Component	2014 Component
<b>79.6%</b>	<b>78.2%</b>

Broad indicator of the percent of new entrepreneurs starting businesses because they saw market opportunities. Measures the percent of new entrepreneurs who were not unemployed before starting their businesses.

Source: Author calculations from CPS. Yearly measure.

## Opportunity Share of New Entrepreneurs



## Startup Density

2015 Component	2014 Component
<b>130.6</b>	<b>128.8</b>

Number of startup firms per 100,000 resident population. Startup businesses here are defined as firms less than one-year old employing at least one person besides the owner.

Source: Author calculations from BDS/BEA. Yearly measure.

## Startup Density

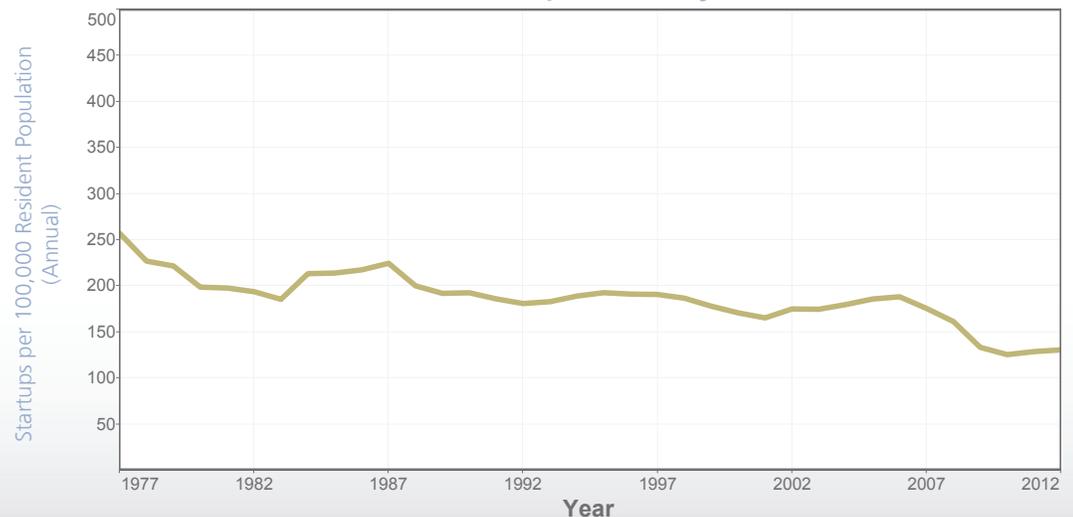
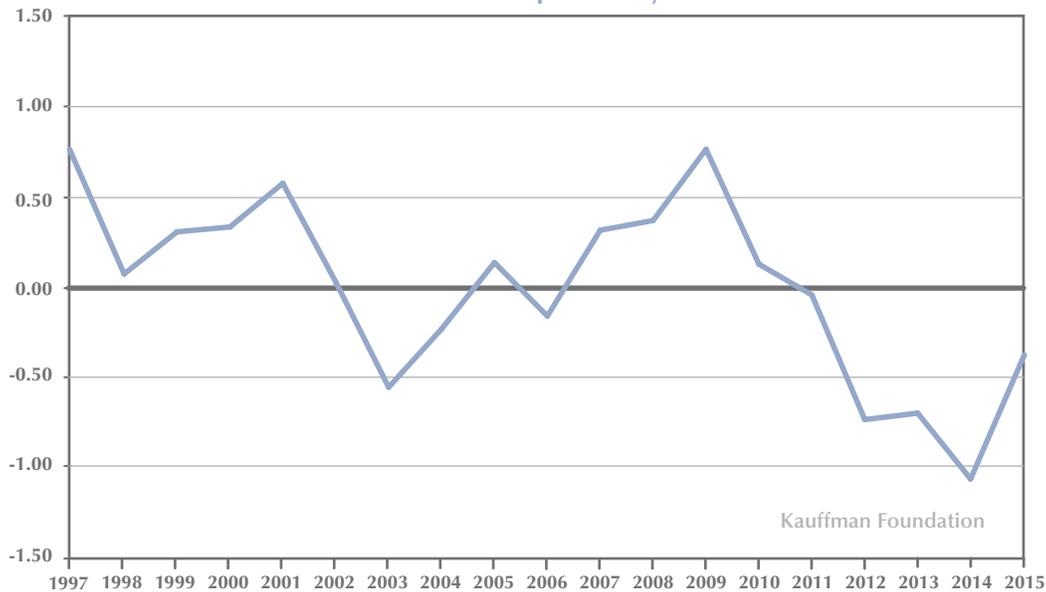


TABLE 1  
**Kauffman Index: Startup Activity (1997–2015)**

		Startup Index Component Measures					
		Rate of New Entrepreneurs		Opportunity Share of New Entrepreneurs		Startup Density	
Year	Startup Activity Index	Rate	N	Share	N	Rate	Pop (1000s)
1997	0.77	0.32%	529,228	81.11%	1,692	189.0	263,126
1998	0.08	0.28%	531,337	79.54%	1,570	192.7	266,278
1999	0.31	0.29%	532,543	80.84%	1,631	191.2	269,394
2000	0.34	0.27%	532,231	83.92%	1,467	190.7	272,647
2001	0.58	0.27%	532,382	86.43%	1,537	186.7	275,854
2002	0.04	0.27%	561,573	82.99%	1,507	178.0	279,040
2003	-0.55	0.28%	624,303	76.84%	1,747	170.8	282,162
2004	-0.23	0.30%	614,589	77.09%	1,854	165.3	284,969
2005	0.14	0.30%	603,171	79.27%	1,833	175.0	287,625
2006	-0.16	0.28%	598,177	79.07%	1,767	174.7	290,108
2007	0.31	0.30%	592,917	80.79%	1,790	179.8	292,805
2008	0.37	0.30%	585,487	80.16%	1,738	185.8	295,517
2009	0.76	0.32%	585,677	80.74%	1,786	188.3	298,380
2010	0.13	0.34%	591,699	73.84%	1,937	175.6	301,231
2011	-0.04	0.34%	593,271	74.16%	1,920	161.4	304,094
2012	-0.72	0.32%	586,146	74.10%	1,825	133.4	306,772
2013	-0.70	0.30%	580,953	78.39%	1,780	125.5	309,326
2014	-1.06	0.28%	572,600	78.20%	1,609	128.8	311,583
2015	-0.37	0.31%	569,101	79.57%	1,734	130.6	313,874

Notes: (1) Estimates calculated by authors using the Current Population Survey, the Business Dynamics Statistics and population data from the Bureau of Economic Analysis (2) The Rate of New Entrepreneurs is the percentage of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

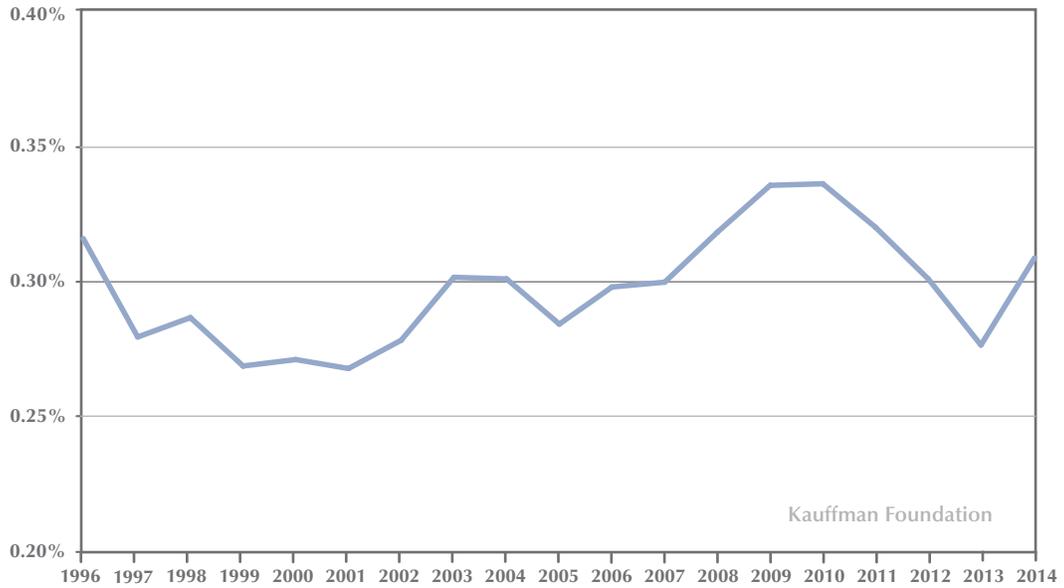
Figure 1  
**Kauffman Index: Startup Activity (1997–2015)**



SOURCE: Authors' calculations using the CPS, BDS, and BEA.  
 For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).



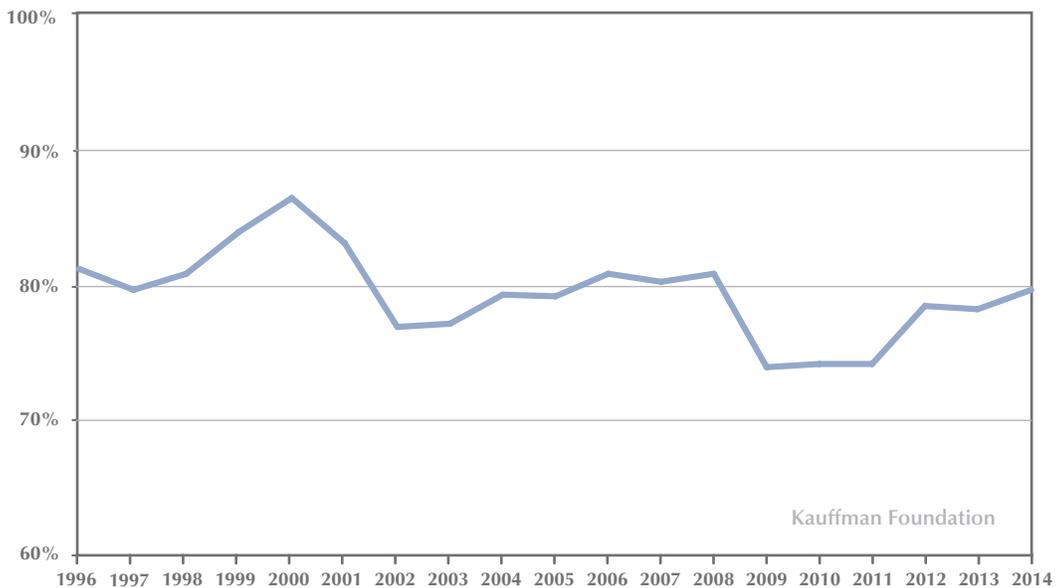
Figure 1A  
Rate of New Entrepreneurs (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

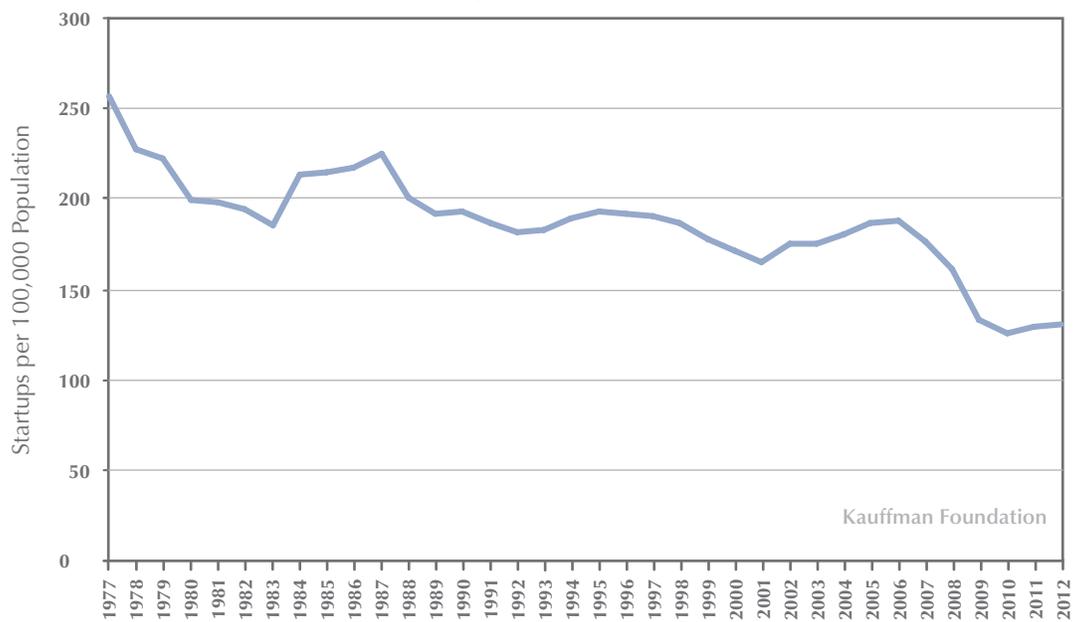


Figure 1B  
Opportunity Share of New Entrepreneurs (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

Figure 1C  
Startup Density (1977–2012)



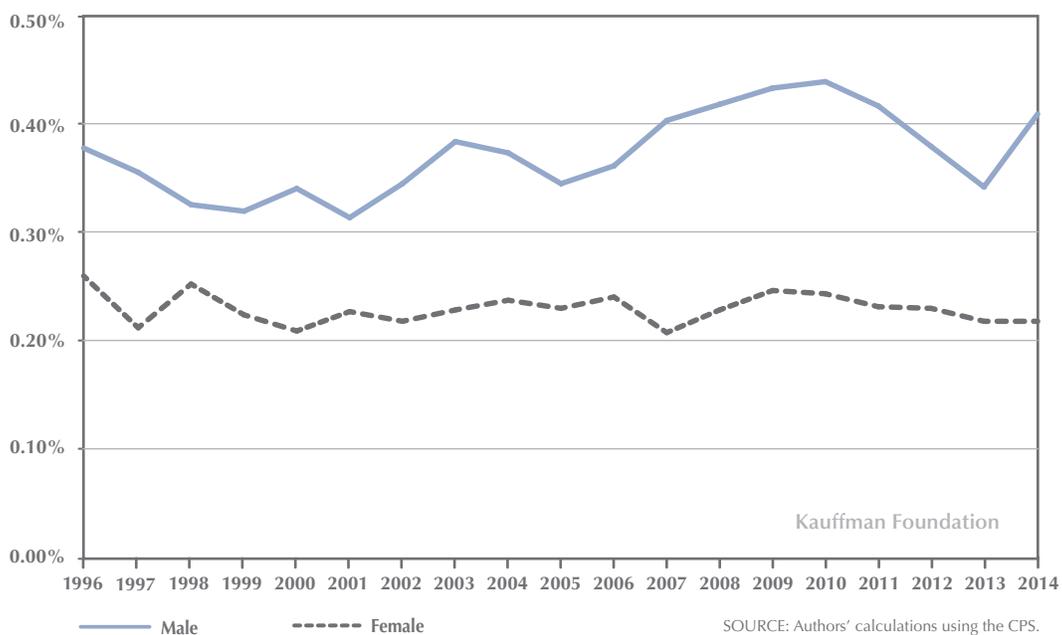
Source: Authors' calculations using BDS and BEA data.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

TABLE 2  
Rate of New Entrepreneurs by Gender (1996–2014)

Year	Male		Female		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.38%	242,558	0.26%	286,670	0.32%	529,228
1997	0.36%	244,856	0.21%	286,481	0.28%	531,337
1998	0.32%	245,941	0.25%	286,602	0.29%	532,543
1999	0.32%	245,815	0.22%	286,416	0.27%	532,231
2000	0.34%	247,027	0.21%	285,355	0.27%	532,382
2001	0.31%	260,936	0.23%	300,637	0.27%	561,573
2002	0.35%	289,130	0.22%	335,173	0.28%	624,303
2003	0.38%	284,487	0.23%	330,102	0.30%	614,589
2004	0.37%	279,600	0.24%	323,571	0.30%	603,171
2005	0.35%	277,131	0.23%	321,046	0.28%	598,177
2006	0.36%	275,538	0.24%	317,379	0.30%	592,917
2007	0.40%	271,413	0.21%	314,074	0.30%	585,487
2008	0.42%	272,789	0.23%	312,888	0.32%	585,677
2009	0.43%	276,445	0.25%	315,254	0.34%	591,699
2010	0.44%	277,387	0.24%	315,884	0.34%	593,271
2011	0.42%	273,887	0.23%	312,259	0.32%	586,146
2012	0.38%	272,246	0.23%	308,707	0.30%	580,953
2013	0.34%	268,540	0.22%	304,060	0.28%	572,600
2014	0.41%	266,891	0.22%	302,210	0.31%	569,101

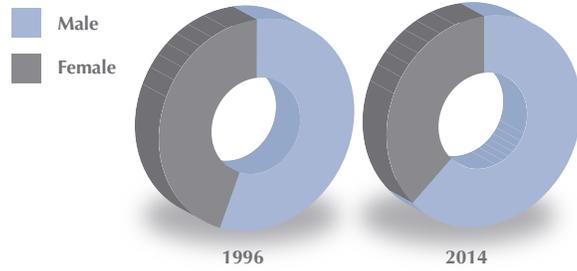
Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 2  
Rate of New Entrepreneurs by Gender (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

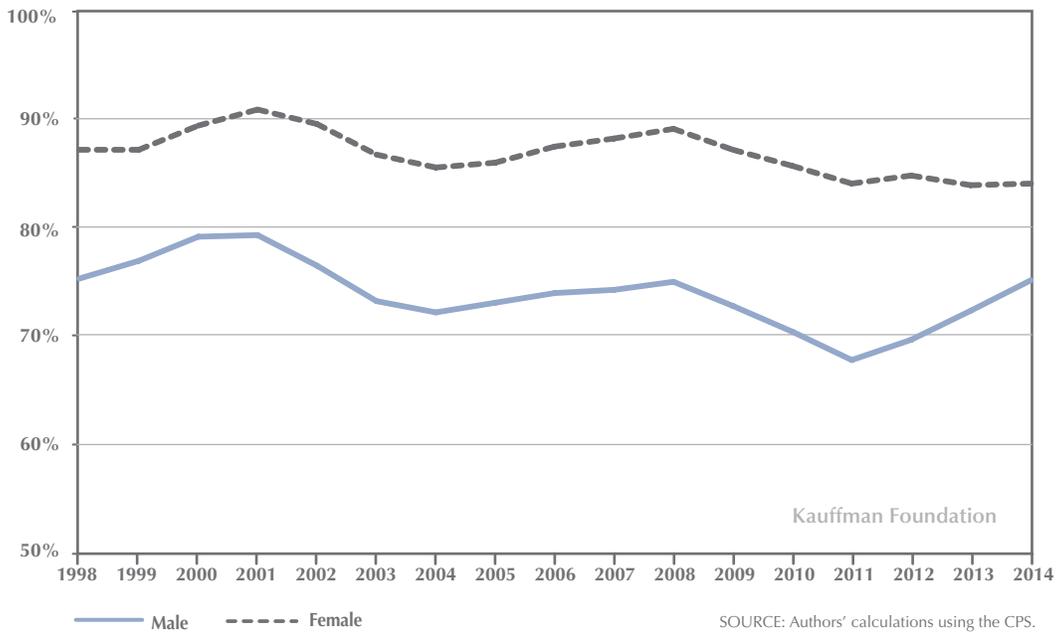
Figure 2A  
**Changes in Composition of New Entrepreneurs by Gender (1996, 2014)**



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Gender	1996	2014
Male	56.3%	63.2%
Female	43.7%	36.8%

Figure 2B  
**Opportunity Entrepreneurship Share (Three-Year Moving Average) by Gender (1998–2014)**



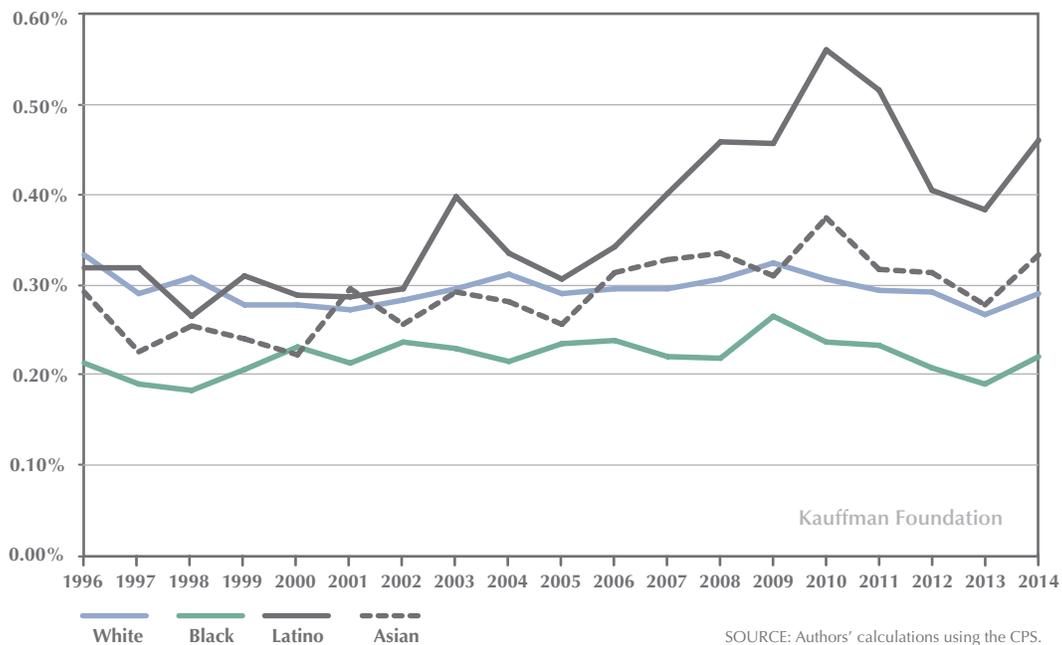
SOURCE: Authors' calculations using the CPS.  
 For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org)

TABLE 3  
Rate of New Entrepreneurs by Race (1996–2014)

Year	White		Black		Latino		Asian		Total	
	Rate of New Entrepreneurs	Sample Size								
1996	0.33%	403,882	0.21%	54,582	0.32%	43,663	0.29%	20,344	0.32%	529,228
1997	0.29%	402,742	0.19%	55,372	0.32%	45,460	0.23%	20,729	0.28%	531,337
1998	0.31%	402,851	0.18%	54,726	0.27%	46,886	0.25%	21,137	0.29%	532,543
1999	0.28%	401,523	0.21%	54,183	0.31%	48,682	0.24%	21,139	0.27%	532,231
2000	0.28%	395,793	0.23%	55,089	0.29%	52,274	0.22%	21,892	0.27%	532,382
2001	0.27%	418,654	0.21%	57,667	0.29%	53,780	0.30%	23,603	0.27%	561,573
2002	0.28%	469,788	0.24%	61,598	0.30%	57,638	0.26%	26,534	0.28%	624,303
2003	0.30%	456,940	0.23%	58,699	0.40%	59,441	0.29%	23,889	0.30%	614,589
2004	0.31%	444,473	0.22%	56,789	0.34%	59,238	0.28%	24,310	0.30%	603,171
2005	0.29%	438,870	0.23%	55,069	0.31%	60,526	0.26%	25,541	0.28%	598,177
2006	0.30%	429,197	0.24%	55,675	0.34%	64,085	0.31%	26,555	0.30%	592,917
2007	0.30%	422,208	0.22%	56,392	0.40%	63,617	0.33%	26,882	0.30%	585,487
2008	0.31%	420,349	0.22%	56,405	0.46%	64,786	0.34%	28,066	0.32%	585,677
2009	0.33%	423,378	0.27%	57,564	0.46%	65,514	0.31%	28,961	0.34%	591,699
2010	0.31%	418,536	0.24%	60,550	0.56%	67,853	0.37%	30,243	0.34%	593,271
2011	0.29%	411,118	0.23%	59,939	0.52%	67,695	0.32%	31,456	0.32%	586,146
2012	0.29%	405,044	0.21%	58,800	0.40%	68,637	0.31%	32,688	0.30%	580,953
2013	0.27%	396,399	0.19%	58,700	0.38%	69,291	0.28%	32,693	0.28%	572,600
2014	0.29%	390,776	0.22%	59,010	0.46%	70,034	0.33%	33,114	0.31%	569,101

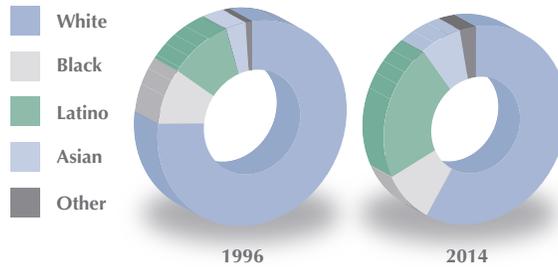
Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) Race and Spanish 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.

Figure 3  
Rate of New Entrepreneurs by Race (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

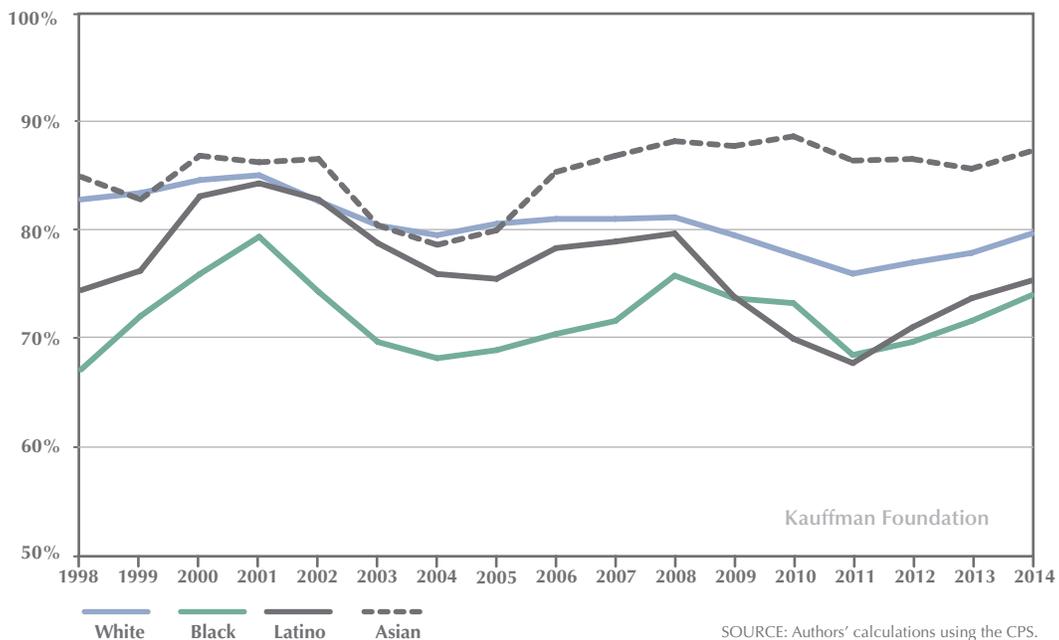
Figure 3A  
**Changes in Composition of New Entrepreneurs by Race (1996, 2014)**



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Race	1996	2014
White	77.1%	59.1%
Black	8.4%	9.2%
Latino	10.0%	22.1%
Asian	3.4%	6.8%
Other	1.0%	2.7%

Figure 3B  
**Opportunity Entrepreneurship Share (Three-Year Moving Average) by Race (1998–2014)**



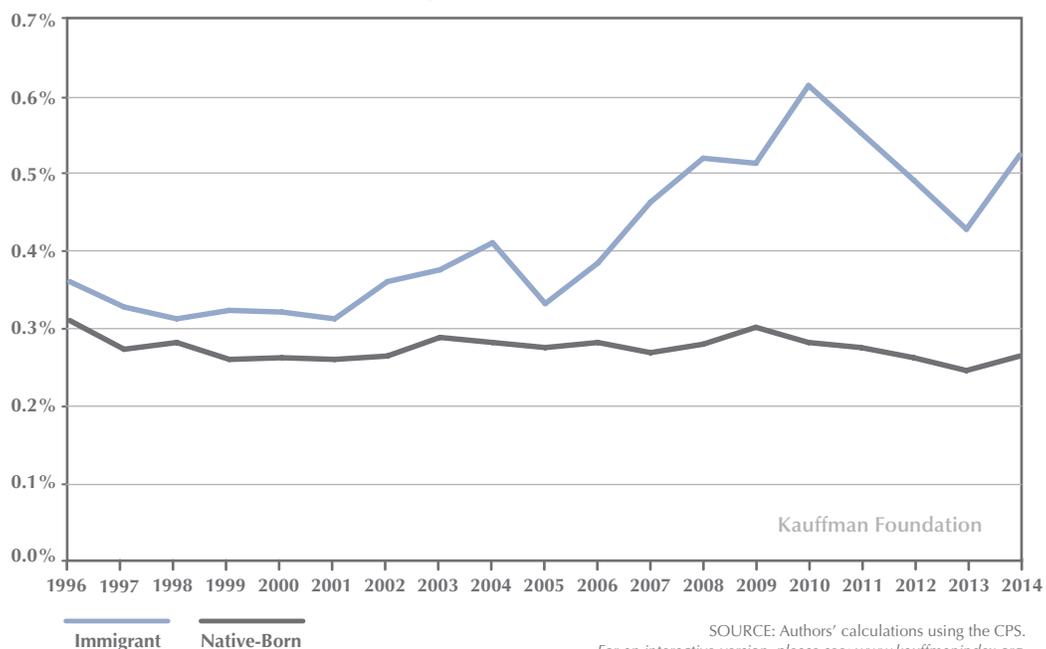
SOURCE: Authors' calculations using the CPS.  
 For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

TABLE 4  
Rate of New Entrepreneurs by Nativity (1996–2014)

Year	Native-Born		Immigrant		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.31%	473,602	0.36%	55,626	0.32%	529,228
1997	0.27%	473,536	0.33%	57,801	0.28%	531,337
1998	0.28%	472,728	0.31%	59,815	0.29%	532,543
1999	0.26%	471,772	0.32%	60,459	0.27%	532,231
2000	0.26%	467,393	0.32%	64,989	0.27%	532,382
2001	0.26%	493,029	0.31%	68,544	0.27%	561,573
2002	0.26%	550,023	0.36%	74,280	0.28%	624,303
2003	0.29%	540,397	0.38%	74,192	0.30%	614,589
2004	0.28%	529,234	0.41%	73,937	0.30%	603,171
2005	0.28%	523,221	0.33%	74,956	0.28%	598,177
2006	0.28%	514,691	0.38%	78,226	0.30%	592,917
2007	0.27%	507,469	0.46%	78,018	0.30%	585,487
2008	0.28%	507,088	0.52%	78,589	0.32%	585,677
2009	0.30%	511,798	0.51%	79,901	0.34%	591,699
2010	0.28%	510,631	0.62%	82,640	0.34%	593,271
2011	0.27%	503,500	0.55%	82,646	0.32%	586,146
2012	0.26%	498,127	0.49%	82,826	0.30%	580,953
2013	0.25%	491,045	0.43%	81,555	0.28%	572,600
2014	0.27%	487,845	0.52%	81,256	0.31%	569,101

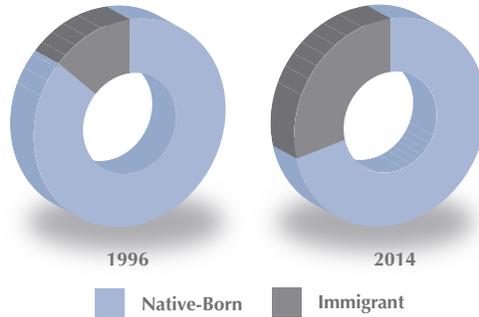
Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded

Figure 4  
Rate of New Entrepreneurs by Nativity (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

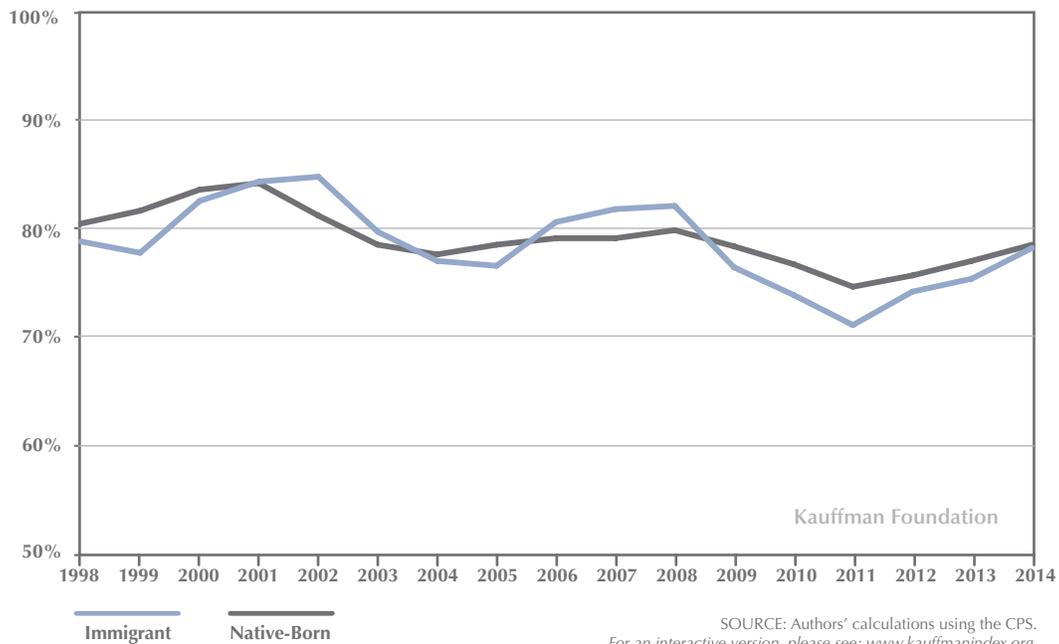
Figure 4A  
**Changes in Composition of New Entrepreneurs by Nativity (1996, 2014)**



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Nativity	1996	2014
Native-Born	86.7%	71.5%
Immigrant	13.3%	28.5%

Figure 4B  
**Opportunity Entrepreneurship Share (Three-Year Moving Average) by Nativity (1998–2014)**



SOURCE: Authors' calculations using the CPS.  
 For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

TABLE 5  
Rate of New Entrepreneurs by Age (1996–2014)

Year	Ages 20–34		Ages 35–44		Ages 45–54		Ages 55–64		Total	
	Rate of New Entrepreneurs	Sample Size								
1996	0.28%	192,739	0.31%	147,675	0.36%	112,694	0.34%	76,120	0.32%	529,228
1997	0.27%	190,207	0.27%	149,052	0.28%	115,190	0.31%	76,888	0.28%	531,337
1998	0.26%	186,045	0.31%	147,940	0.28%	119,157	0.33%	79,401	0.29%	532,543
1999	0.26%	180,272	0.27%	146,690	0.28%	123,372	0.28%	81,897	0.27%	532,231
2000	0.22%	179,317	0.27%	145,298	0.30%	125,782	0.34%	81,985	0.27%	532,382
2001	0.23%	185,723	0.27%	151,137	0.30%	136,921	0.32%	87,792	0.27%	561,573
2002	0.24%	203,885	0.29%	165,523	0.31%	153,253	0.30%	101,642	0.28%	624,303
2003	0.23%	198,319	0.36%	158,558	0.31%	152,456	0.35%	105,256	0.30%	614,589
2004	0.25%	193,789	0.31%	150,627	0.31%	150,797	0.37%	107,958	0.30%	603,171
2005	0.27%	190,816	0.30%	148,231	0.26%	149,204	0.33%	109,926	0.28%	598,177
2006	0.24%	187,554	0.30%	143,677	0.35%	149,395	0.34%	112,291	0.30%	592,917
2007	0.24%	184,293	0.33%	138,172	0.35%	147,129	0.31%	115,893	0.30%	585,487
2008	0.26%	184,773	0.34%	134,605	0.35%	147,508	0.36%	118,791	0.32%	585,677
2009	0.24%	187,073	0.40%	133,289	0.36%	149,073	0.40%	122,264	0.34%	591,699
2010	0.26%	190,232	0.40%	130,670	0.35%	147,479	0.39%	124,890	0.34%	593,271
2011	0.27%	188,276	0.33%	127,160	0.37%	142,498	0.33%	128,212	0.32%	586,146
2012	0.23%	186,889	0.34%	125,285	0.34%	139,858	0.34%	128,921	0.30%	580,953
2013	0.18%	183,389	0.31%	122,475	0.36%	136,815	0.31%	129,921	0.28%	572,600
2014	0.22%	183,187	0.33%	121,100	0.36%	133,520	0.37%	131,294	0.31%	569,101

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The Rate of New Entrepreneurs is the percent of individuals who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 5  
Rate of New Entrepreneurs by Age (1996–2014)

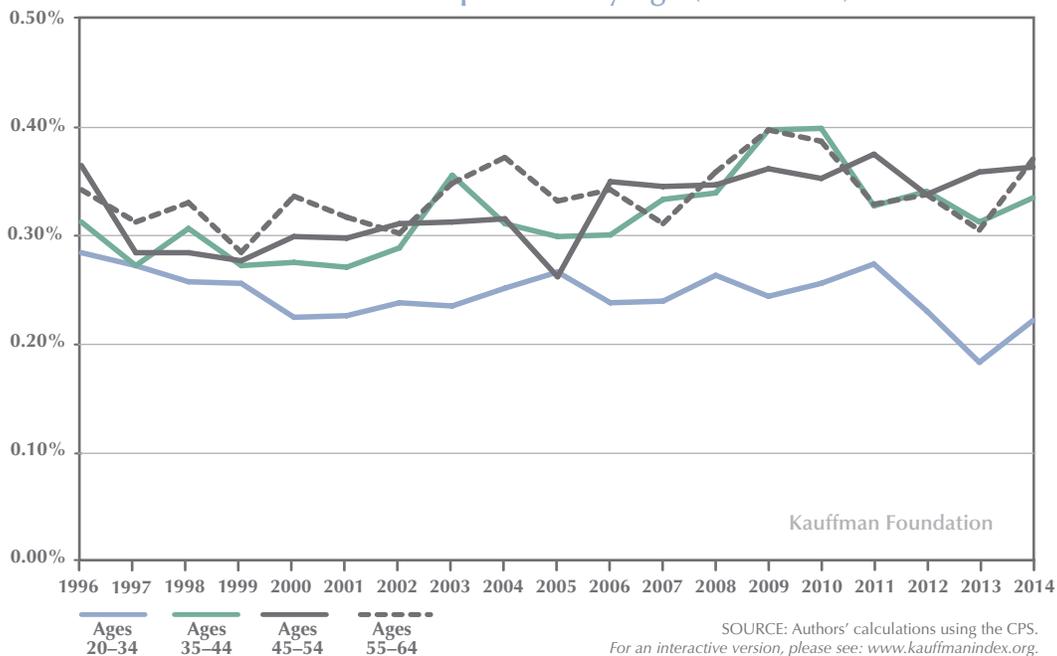
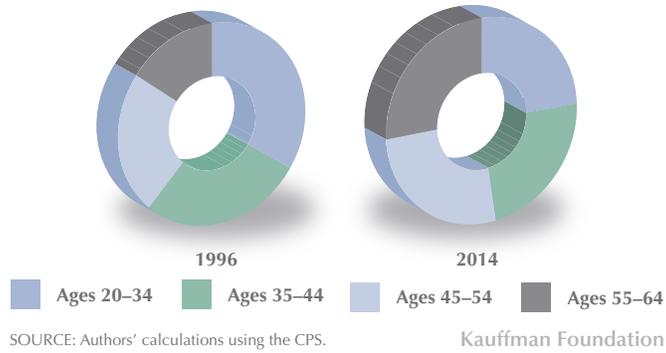


Figure 5A  
 Changes in Composition of New Entrepreneurs by Age (1996, 2014)



Age	1996	2014
Ages 20–34	34.3%	24.7%
Ages 35–44	27.4%	22.9%
Ages 45–54	23.5%	26.6%
Ages 55–64	14.8%	25.8%

Figure 5B  
 Opportunity Entrepreneurship Share (Three-Year Moving Average) by Age (1998–2014)

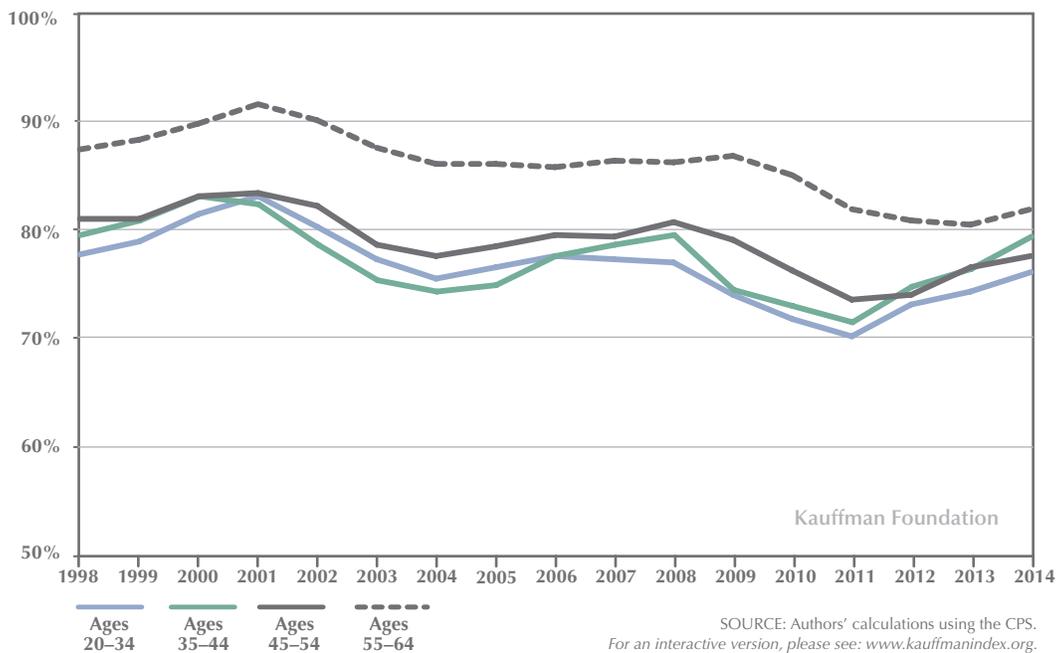


TABLE 6  
Rate of New Entrepreneurs by Education (1996–2014)

Year	Less than High School		High School Graduate		Some College		College Graduate		Total (Ages 25–64)	
	Rate of New Entrepreneurs	Sample Size								
1996	0.39%	63,973	0.31%	161,957	0.33%	125,972	0.31%	120,909	0.33%	472,811
1997	0.35%	62,812	0.27%	162,044	0.31%	126,575	0.26%	123,773	0.29%	475,204
1998	0.33%	61,102	0.30%	160,914	0.30%	126,835	0.29%	128,029	0.30%	476,880
1999	0.29%	58,714	0.29%	158,802	0.29%	128,248	0.26%	131,365	0.28%	477,129
2000	0.35%	57,870	0.29%	155,833	0.28%	129,809	0.26%	132,277	0.29%	475,789
2001	0.31%	59,371	0.26%	162,522	0.27%	138,448	0.31%	142,028	0.28%	502,369
2002	0.35%	63,517	0.29%	179,749	0.27%	154,165	0.31%	161,915	0.29%	559,346
2003	0.44%	61,420	0.31%	175,723	0.32%	151,212	0.29%	161,424	0.32%	549,779
2004	0.39%	60,080	0.29%	170,319	0.30%	149,067	0.33%	160,011	0.32%	539,477
2005	0.35%	59,521	0.28%	166,882	0.31%	147,893	0.29%	160,300	0.30%	534,596
2006	0.38%	58,458	0.29%	163,418	0.33%	147,465	0.30%	160,874	0.31%	530,215
2007	0.42%	55,263	0.30%	159,167	0.28%	146,362	0.33%	163,613	0.32%	524,405
2008	0.46%	53,823	0.35%	157,119	0.30%	147,531	0.30%	166,280	0.33%	524,753
2009	0.49%	53,791	0.38%	158,573	0.30%	149,708	0.34%	168,737	0.36%	530,809
2010	0.59%	53,366	0.34%	157,939	0.31%	149,218	0.33%	170,832	0.36%	531,355
2011	0.57%	51,934	0.33%	154,501	0.31%	147,693	0.29%	171,581	0.34%	525,709
2012	0.52%	49,911	0.34%	149,790	0.28%	147,249	0.28%	173,884	0.32%	520,834
2013	0.48%	48,059	0.28%	146,623	0.27%	144,977	0.28%	174,294	0.30%	513,953
2014	0.48%	47,308	0.34%	145,159	0.27%	143,859	0.32%	174,363	0.33%	510,689

Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The Rate of New Entrepreneurs is the percent of individuals (ages twenty-five to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Figure 6  
Rate of New Entrepreneurs by Education (1996–2014)

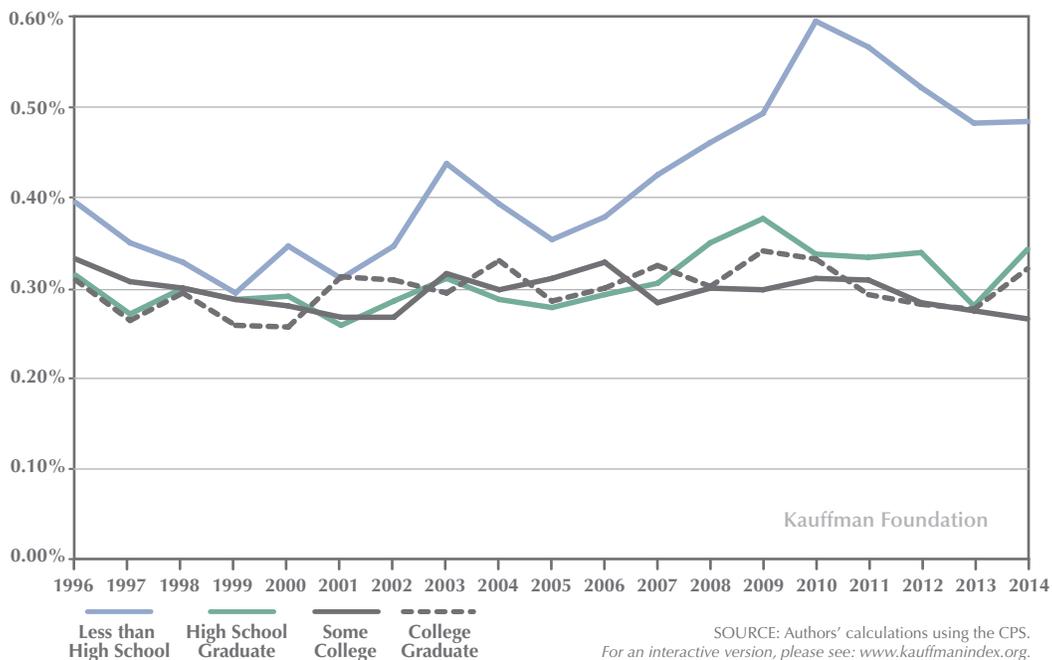
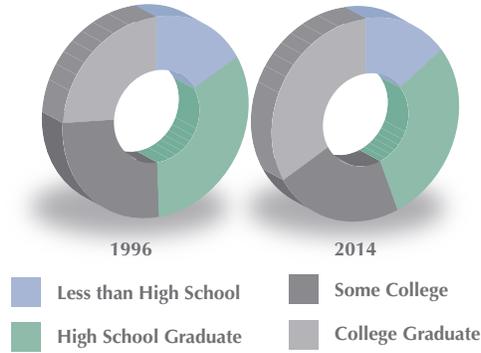


Figure 6A  
 Changes in Composition of New  
 Entrepreneurs by Education  
 (1996, 2014)



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Race	1996	2014
Less than High School	17.2%	15.1%
High School Graduate	32.3%	29.5%
Some College	26.8%	22.5%
College Graduate	23.7%	33.0%
Other	1.0%	2.7%

Figure 6B  
 Opportunity Entrepreneurship Share (Three-Year Moving Average) by Education (1998–2014)

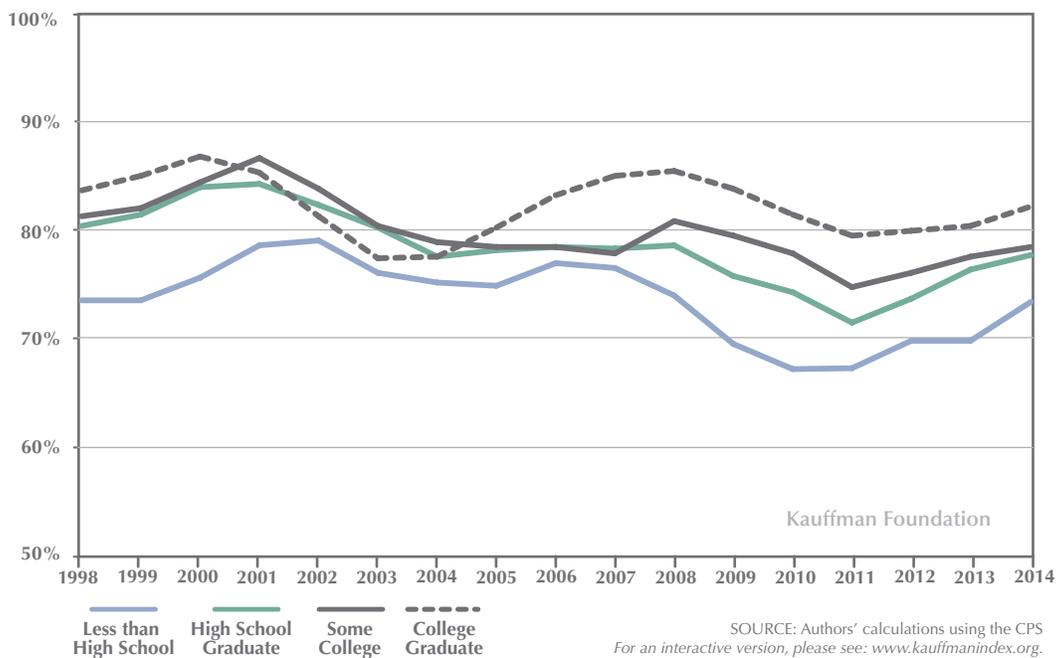
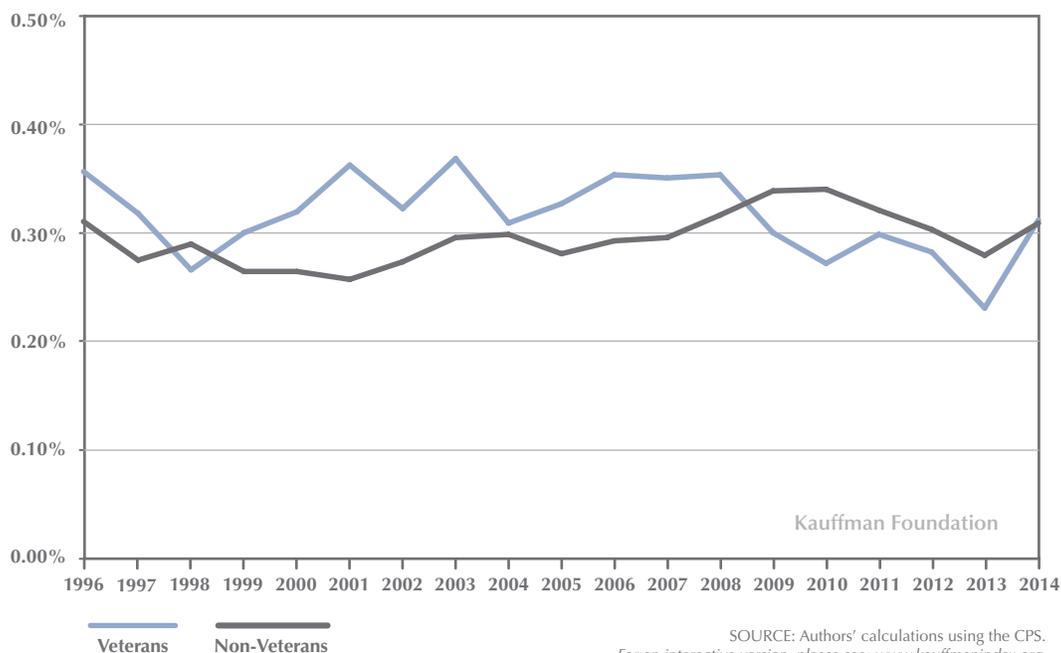


TABLE 7  
Rate of New Entrepreneurs by Veteran Status (1996–2014)

Year	Veterans		Non-Veteran		Total	
	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size	Rate of New Entrepreneurs	Sample Size
1996	0.36%	59,454	0.31%	467,880	0.32%	529,228
1997	0.32%	57,661	0.27%	471,315	0.28%	531,337
1998	0.27%	56,183	0.29%	473,580	0.29%	532,543
1999	0.30%	54,994	0.26%	473,878	0.27%	532,231
2000	0.32%	52,260	0.26%	475,578	0.27%	532,382
2001	0.36%	53,094	0.26%	502,976	0.27%	561,573
2002	0.32%	57,781	0.27%	558,890	0.28%	624,303
2003	0.37%	54,866	0.30%	550,940	0.30%	614,589
2004	0.31%	52,510	0.30%	541,182	0.30%	603,171
2005	0.33%	50,674	0.28%	541,198	0.28%	598,177
2006	0.35%	48,872	0.29%	544,045	0.30%	592,917
2007	0.35%	46,839	0.30%	538,648	0.30%	585,487
2008	0.35%	45,393	0.32%	540,284	0.32%	585,677
2009	0.30%	44,114	0.34%	547,585	0.34%	591,699
2010	0.27%	42,163	0.34%	551,108	0.34%	593,271
2011	0.30%	40,396	0.32%	545,750	0.32%	586,146
2012	0.28%	37,481	0.30%	543,472	0.30%	580,953
2013	0.23%	35,124	0.28%	537,476	0.28%	572,600
2014	0.31%	33,123	0.31%	535,978	0.31%	569,101

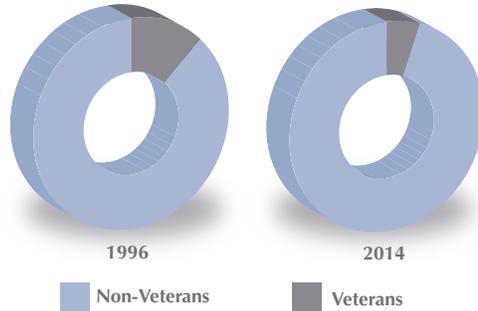
Notes: (1) Estimates calculated by authors using the Current Population Survey. (2) The entrepreneurship index is the percent of individuals (ages twenty to sixty-four) who do not own a business in the first survey month that start a business in the following month with fifteen or more hours worked. (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.

Figure 7  
Rate of New Entrepreneurs by Veteran Status (1996–2014)



SOURCE: Authors' calculations using the CPS.  
For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

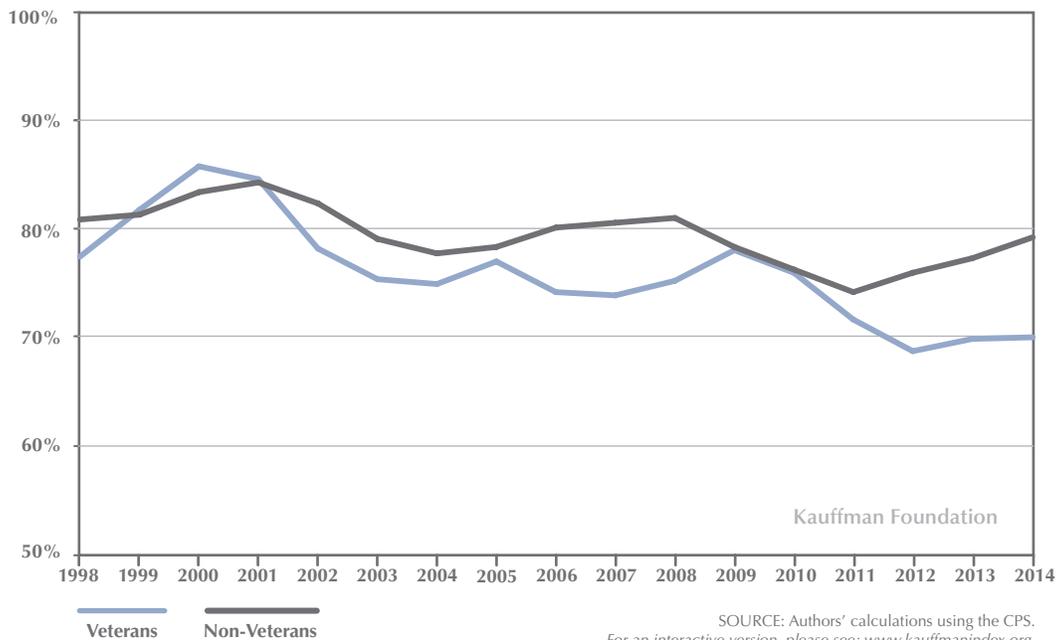
Figure 7A  
 Changes in Composition of New Entrepreneurs  
 by Veteran Status (1996, 2014)



SOURCE: Authors' calculations using the CPS. Kauffman Foundation

Veteran Status	1996	2014
Veterans	12.5%	5.6%
Non-Veterans	87.5%	94.4%

Figure 7B  
 Opportunity Entrepreneurship Share (Three-Year Moving Average) by Veteran Status (1998–2014)



SOURCE: Authors' calculations using the CPS.  
 For an interactive version, please see: [www.kauffmanindex.org](http://www.kauffmanindex.org).

## Methodology and Framework

In this part of the report, we discuss the methodology and framework for the Kauffman Index: Startup Activity reports across all geographic levels: national, state, and metropolitan area.

### Definitions of Startup Activity Index Components

The Kauffman Index: Startup Activity is calculated based on three components: Rate of New Entrepreneurs, Opportunity Share of New Entrepreneurs, and Startup Density. In this section, we will share detailed definitions of each one of these components.

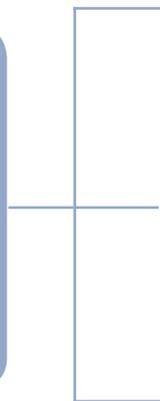


#### Component A: Rate of Entrepreneurs

Component A of the Kauffman Index: Startup Activity comes from the Current Population Survey (CPS) and is calculated by author Rob Fairlie. 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 (formerly known as the Kauffman Index of Entrepreneurial Activity), all individuals who do not own a business as their main job are identified in the first survey month. By matching CPS files, it is then determined whether these individuals own a business as their main job with fifteen or more usual hours worked in the following survey month. Reducing the likelihood of reporting spurious changes in business ownership status from month to month, survey-takers ask individuals whether they currently have the same main job as 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 one 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



Rate of New Entrepreneurs



Opportunity Share of New Entrepreneurs



Startup Density



### Rate of New Entrepreneurs

- Early and broad measure of business ownership.
- Measures the percent of the U.S. adult population that became entrepreneurs, on average, in a given month.
- Includes entrepreneurs with incorporated or unincorporated businesses, with or without employees.
- Data based on the Current Population Survey, jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the Rate of New Entrepreneurs was 0.35 percent for Colorado in the 2015 Index. That means that, on average, 350 people out of 100,000 adults became entrepreneurs in Colorado in each month.

owners work fifteen or more hours per week in the second month is imposed to rule out part-time business owners and very small business activities. It may, therefore, result in an understatement of the percent of individuals creating any type of business.

The Rate of New Entrepreneurs also excludes individuals who owned a business and worked fewer than fifteen hours in the first survey month. Thus, the Rate of New Entrepreneurs does not capture business owners who increased their hours from less than fifteen per week in one month to fifteen or more hours per week in the second month. In addition, the Rate of New Entrepreneurs does not capture when these business owners changed from non-business owners to business owners with less than fifteen hours worked. These individuals are excluded from the sample but may have been at the earliest stages of starting a business. More information concerning the definition is provided in Fairlie (2006).

The Rate of New Entrepreneurs component of the Startup Activity Index also may overstate entrepreneurship rates in certain respects because of small changes in how individuals report their work status. Longstanding business owners who also have salaried positions may, for example, report that they are not business owners as their main jobs in a particular month because their wage/salary jobs had more hours in that month. If the individuals then switched to having more hours in business ownership the following month, it would appear that a new business had been created.

For the definition of the Rate of New Entrepreneurs discussed 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. These observations were included in the first Kauffman Index report (Fairlie 2005). See Fairlie (2006) for a complete discussion of the issues and comparisons between unadjusted and adjusted Rate of New Entrepreneurs.

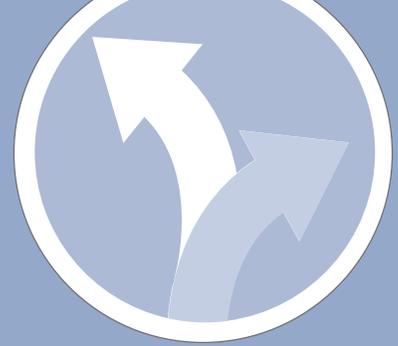
The CPS sample was designed to produce national and state estimates of the unemployment rate and additional labor force characteristics of the civilian, non-institutional population ages sixteen and older. The total national sample size is drawn to ensure a high level of precision for the monthly national unemployment rate. For each of the fifty 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 (Polivka 2000). 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. The CPS also can be used to calculate metropolitan area estimates, but only for the largest metropolitan areas in the United States. For example, the Bureau of Labor Statistics reports annual labor-force participation and unemployment rates for the largest fifty-four MSAs.<sup>8</sup> We focus on the forty largest MSAs in our analysis and calculate moving averages when needed to ensure adequate precision in all reported estimates.

### *Component B: Opportunity Share of New Entrepreneurs*



Building from the same data used for component A, 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

8. See [http://www.bls.gov/opub/gp/pdf/gp13\\_27.pdf](http://www.bls.gov/opub/gp/pdf/gp13_27.pdf) for Bureau of Labor Statistics use of the CPS at the metropolitan-area level.



## Opportunity Share of New Entrepreneurs

- Proxy indicator of the percent of new entrepreneurs starting businesses because they saw market opportunities.
- Measures the percentage of new entrepreneurs who were not unemployed before starting their businesses (e.g., have been previously working for another organization or studying in school).
- This indicator is important for two reasons: 1) Entrepreneurs who were previously unemployed seem to be more likely to start businesses with lower growth potential, out of necessity. Thus, the Opportunity Share of New Entrepreneurs serves as a broad proxy for growth prospects. 2) This measure helps us understand changes in the Rate of New Entrepreneurs motivated by weak job markets, such as the one we had after the recent Great Recession. If the Rate of New Entrepreneurs goes up but the Opportunity Share of New Entrepreneurs is low, we can see that many new entrepreneurs are starting businesses coming out of unemployment, and arguably started their companies largely out of necessity.
- Data based on the Current Population Survey jointly produced by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.
- What the number means:
  - For example, the United States Opportunity Share of New Entrepreneurs was 79.57 percent in the 2015 Index. That means that approximately eight out of every ten new entrepreneurs in this year started their businesses coming out of another job, school, or other labor market states. Meanwhile, two out of ten started their businesses directly coming out of unemployment.

statuses. Alternatively, individuals can start businesses coming out of unemployment. The initial labor market status is defined in the first survey month. Rate of New Entrepreneurs is measured in the second (or following) survey month.

### Component C: Startup Density



The Startup Density component of the Kauffman Index: Startup Activity uses U.S. Census Bureau data from the Business Dynamics Statistics, and it measures the number of new employer firms normalized

by the population of a given area. We define startups here as employer firms that are younger than one year old, and we divide the number of startups in a region by every 100,000 people living in the area to arrive at the Startup Density measure. Our definition here is largely based on the entrepreneurship density measure suggested by our Kauffman Foundation colleagues Stangler and Bell-Masterson (2015) in their *Measuring an Entrepreneurial Ecosystem* paper.

### Calculating the Startup Activity Index

The Kauffman Index: Startup Activity provides a broad index measure of business startup activity in the United States. It is an equally weighted index of three normalized measures of startup activity. The three component measures of the Startup Activity Index are: i) the Rate of New Entrepreneurs among the U.S. adult population, ii) the Opportunity Share of New Entrepreneurs, which captures the percentage of new entrepreneurs primarily driven by “opportunity” vs. by “necessity,” and iii) the

Startup Density (new employer businesses less than one year old, normalized by population).

Each of these three measures is normalized by subtracting the mean and dividing by the standard deviation for that measure (i.e., creating a z-score for each variable).<sup>9</sup> This creates a comparable scale for including the three measures in the Startup Activity Index. We use national annual estimates from 1996 to the latest year available (2014) to calculate the mean and standard deviation for each of the CPS-based components. Similarly, we use national annual numbers from 1994 to the latest year available (2012) to calculate the mean and standard deviation for the BDS-based component of the Index. The same normalization method is used for all three geographical levels—national, state, and metropolitan area—for comparability and consistency over time.

The components we use for the national-level Startup Activity Index are all annual numbers. The Rate of New Entrepreneurs covers years from 1996 to the latest year available (2014). The Opportunity Share of New Entrepreneurs covers years from 1996 to the latest year available (2014). The Startup Density covers years from 1994 to the latest year available (2012).

The Rate of New Entrepreneurs and the Opportunity Share of New Entrepreneurs components of the state-level Startup Activity Index are calculated on three-year moving averages with the same yearly coverage as the national level numbers. The reason we do three-year moving averages on the sample-based CPS measures is to reduce sampling issues. Because these are three-year moving averages with annual estimates starting in 1996, the first

## Startup Density



- Number of startup firms by total population.
- Startup businesses here are defined as employer firms less than one year old employing at least one person besides the owner. All industries are included on this measure.
- Measures the number of new employer startup businesses normalized by the population of an area. Because companies captured by this indicator have employees, they tend to be at a more advanced stage than are the companies in the Rate of New Entrepreneurs measure.
- Data based on the U.S. Census’s Business Dynamics Statistics.
- What the number means:
  - For example, the 2015 Index Startup Density for the New York metropolitan area was 197.3 by 100,000 population. That means that, for every 100,000 people living in the New York metro area, there were 197.3 employer startup firms that were less than one year old in this year.

9. This is one of the normalization methods recommended by the OECD and the Joint Research Centre from the European Commission in the *Handbook on Constructing Composite Indicators* (2008).

year for which three-year moving averages are available is 1998. The Startup Density component of the Index is presented yearly, from 1994 to the latest year available (2012).

For the metropolitan-area level Startup Activity Index, we present the Rate of New Entrepreneurs component on a three-year moving average from 2008 to the latest year available (2014). Because these are three-year moving averages, annual estimates are first calculated in 2006. The Opportunity Share of New Entrepreneurs component of the Startup Activity Index is presented on five-year moving averages, starting in 2010 and going up to the latest year available (2014). Annual estimates used to calculate the moving average start in 2006. Again, the reason behind presenting moving averages is to reduce sampling issues. The Startup Density component of the Index is presented yearly, from 1994 to the latest year available (2012).

## Data Sources and Component Measures

### Data Sources

In this section, we discuss the underlying data sources used to calculate each of the components of the Startup Activity Index.

#### *Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs*

To calculate the Rate of New Entrepreneurs and the Opportunity Share of New Entrepreneurs, the underlying dataset used is the basic monthly files of the Current Population Survey. These surveys, conducted monthly by the U.S. Bureau of the Census 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 the Rate of New Entrepreneurs. Combining the monthly files creates a sample size of roughly 700,000 adults ages twenty to sixty-four each year.

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. After removing all non-unique matches, the underlying CPS data are checked extensively for coding errors and other problems.

Monthly match rates generally are between 94 percent and 96 percent (see Fairlie 2005). 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 (see Fairlie 2005).

#### *Startup Density*

We use two types of datasets to calculate Startup Density: a firm-level dataset and a population dataset.

For the firm-level dataset, we use the U.S. Census Business Dynamics Statistics (BDS), which is constructed using administrative payroll tax records from the Internal Revenue Service (IRS). The BDS data present, among other things, numbers of firms tabulated by age and by geography (national, state, and metropolitan area). We make use of that data to calculate the raw number of employer firms younger than one year old by different geographical levels. We then normalize this number by population to arrive at the Startup Density of an area. To calculate population, we use data from Bureau of Economic Analysis (BEA).

Matching BDS state and national numbers to BEA population data is a non-issue, because the definitions of the geographical areas are the same. However, this is slightly different for metropolitan areas. Because metropolitan area definitions may vary across datasets, we used the Office of Management and Budget (OMB) definitions for metropolitan areas from December 2009 to calculate Startup Density. This is the definition of metros used on the BDS dataset, and it means that, to calculate population using the BEA, we aggregated population data from the county level up to the metropolitan level.

We match the forty largest metropolitan areas in the United States by population using the OMB 2009 definition of metros and the BEA population data to their counterparts in the CPS dataset. This was the most appropriate aggregation method because neither the CPS nor the BDS dataset provides county-level data. To diminish issues of changing metro definitions, we only present the top forty metropolitan areas in the United States—in which shifts in county composition are less likely to cause big shifts in total population or business

activity—and only use CPS data for metros in the most recent years, from 2006 to the most recent year available (2014). The metropolitan area codes listed on the CPS have perfect matches to metropolitan area codes on BDS except for two metro areas: Boston-Cambridge-Quincy, MA-NH and Providence-New Bedford-Fall River, RI-MA.

## Standard Errors and Confidence Intervals

### *Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs*

The analysis of Rate of New Entrepreneurs by state includes confidence intervals that indicate confidence bands of approximately 0.15 percent around the Rate of New Entrepreneurs. While larger states have smaller confidence bands, the smallest states have larger confidence bands of approximately 0.20 percent. Oversampling in the CPS ensures that these small states have sample sizes of at least 5,000 observations and, therefore, provides a minimum level of precision.

The standard errors used to create the confidence intervals reported here may understate the true variability in the state estimates. Both stratification of the sample and the raking procedure (post-stratification) will reduce the variance of CPS estimates (Polivka 2000 and Train, Cahoon, and Maken 1978). On the other hand, the CPS clustering (i.e., nearby houses on the same block and multiple household members) leads to a larger sampling variance than would have been obtained from simple random sampling. It appears as though the latter effect dominates in the CPS, and treating the CPS as random generally understates standard errors (Polivka 2000). National unemployment rate estimates indicate that treating the CPS as a random sample leads to an understatement of the variance of the unemployment rate by 23 percent. Another problem associated with the estimates reported here is that multiple observations (up to three) may occur for the same individual.

All of the reported confidence intervals should be considered approximate, as the actual confidence intervals may be slightly larger. The complete correction for the standard errors and confidence intervals involves obtaining confidential replicate weights from the BLS and employing sophisticated statistical procedures. Corrections for the possibility of multiple observations per person, which may create the largest bias in standard errors, are made using statistical survey procedures for all reported

confidence intervals. It is important to note, however, that the estimates of the Rate of New Entrepreneurs are not subject to any of these problems. By using the sample weights provided by the CPS, all estimates of the Rate of New Entrepreneurs are correct.

## Startup Density

Because the BDS is based on administrative data covering the overall employer business population, sampling concerns like standard errors and confidence intervals are irrelevant. Nonetheless, nonsampling errors could still occur. These could be caused, for example, by data entry issues with the IRS payroll tax records or by businesses submitting incorrect employment data to the IRS. However, these are probably randomly distributed and are unlikely to cause significant biases in the data.<sup>10</sup> Please see Jarmin and Miranda (2002) for a complete discussion of potential complications on the dataset caused by changes in the administrative data on which the BDS is based.

## Advantages over Other Possible Measures of Entrepreneurship

The Kauffman Index: Startup Activity has several advantages over other possible measures of entrepreneurship based on household or business-level data. We chose to use two distinct datasets: one based on individuals (CPS) and another one based on businesses (BDS). This allows us to study both entrepreneurs and the startups they create. These datasets have complementary strengths that make this Index a robust measure of startup activity.

## Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs

The Rate of New Entrepreneurs and Opportunity Share of New Entrepreneurs components of the Startup Activity Index are based on the CPS, and this dataset provides four prominent advantages as an early and broad measure of startup activity. First, the CPS data are available only a couple of months after the end of the year, whereas even relatively timely data such as the American Community Survey (ACS) take more than a year to be released. Second, these components of

10. Based on "Reliability of the Data" section of the Business Dynamics Statistics Overview page. <http://www.census.gov/ces/dataproducts/bds/overview.html#reliability>.

the Startup Activity Index include all types of business activities (employers, non-employers, unincorporated and incorporated businesses), but do not include small-scale side business activities such as consulting and casual businesses (because only the main job activity is recorded, and the individual must devote fifteen or more hours a week to working in the business). Third, the panel data created from matching consecutive months of the CPS allow for a dynamic measure of entrepreneurship, whereas most datasets only allow for a static measure of business ownership (e.g., ACS). Fourth, the CPS data include detailed information on demographic characteristics of the owner, whereas most business-level datasets contain no information on the owner (e.g., employer and non-employer data).

It is worth mentioning that the differences between the CPS components of the Kauffman Index also differ from another entrepreneurship measure that may, on a first glance, look similar: the Global Entrepreneurship Monitor's Total early-stage Entrepreneurial Activity (TEA). The TEA captures the percentage of the age eighteen to sixty-four population who currently are nascent entrepreneurs (i.e., individuals who are actively involved in setting up a business) or who are currently owner-managers of new businesses (i.e., businesses with no payments to owners or employees for more than forty-two months). The nascent entrepreneurs captured in the TEA who are still in the startup phase of business creation are not necessarily captured in the Kauffman Index Rate of New Entrepreneurs because they may not be working on the new business for fifteen hours or more per week. The CPS components of the Kauffman Index also differ from the TEA in that, because they are based on panel data, they capture entrepreneurship at the point in time when the business is created. In addition, the GEM measures in the United States use a much smaller sample, allowing for significant estimation challenges.

## Startup Density

The Startup Density component of the Startup Activity Index, based on the BDS, presents four main advantages compared to other business-level datasets. First, it is based on administrative data covering the overall employer business population. As such, it has no potential sampling issues. Second, it has detailed coverage across all levels of geography, including metropolitan areas. Third, it provides firm-level data, rather than just establishment-level data. This is an important feature because new establishments may show another location of an existing firm, rather than an actual new business. Fourth, it provides detailed age breakdown of firms, allowing us to clearly identify new and young firms.

A dataset that is similar to the BDS data we use is the Business Employment Dynamics product from the Bureau of Labor Statistics. We chose not to use it for this report because of two distinct advantages we see the BDS having over the BED. First, the BDS tracks firm-level data, as opposed to the establishment-level data tracked by the BED. Second, the BDS has data available at the metropolitan level, while the BED does not.

Because the BED tracks establishments rather than firms, the numbers from the BDS are different than the ones on the BED. Nonetheless, the trends on the two datasets move largely in tandem, and usually point in the same direction.

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