KAUFFMAN INDEX OF

entrepreneurial
activity

1996–2011

Robert W. Fairlie | March 2012

KAUFFMAN

The Foundation of Entrepreneurship

Robert W. Fairlie is a
Professor of Economics at
the University of California,
Santa Cruz.

TABLE OF CONTENTS

executive summary

The Kauffman Index of Entrepreneurial Activity is a leading indicator of new business creation in the United States. Capturing new business owners in their first month of significant business activity, this measure provides the earliest documentation of new business development across the country. The percentage of the adult, non-business-owner population that starts a business each month is measured using data from the Current Population Survey (CPS). In addition to this overall rate of entrepreneurial activity, separate estimates for specific demographic groups, states, and select metropolitan statistical areas (MSAs) are presented. The Index provides the only national measure of business creation by specific demographic groups.

New 2011 data allow for an update to previous reports, with consideration of trends in the rates of entrepreneurial activity over the sixteen-year period between 1996 and 2011. The Kauffman Index reveals important shifts in the national level of entrepreneurial activity and shifts in the demographic and geographic composition of new entrepreneurs across the country. Key findings for 2011 include:

2

- The rate of business creation declined from 340 out of 100,000 adults in 2010 to 320 out of 100,000 adults in 2011, which represents a drop of 5.9 percent. This 0.32 business-creation rate translates into approximately 543,000 new businesses being created each month during the year.

- Although the entrepreneurship rate declined in 2011, it remained more than 5 percent higher than before the recession started. Over the past decade and a half, the business creation rate fluctuated within the range of 0.27 percent to 0.31 percent, but then rose above this level in the past four years. A separate measure also calculated in the report shows that, from 2007 to 2010, the quarterly employer establishment birth rate dropped from 0.13 percent to 0.11 percent. These opposing trends may be due to the Great Recession pushing many individuals into business ownership because of high rates of unemployment. These individuals probably were more likely to start sole proprietorships and other non-employer firms instead of more costly employer firms.

- Both men and women experienced slightly declining rates of entrepreneurial activity in 2011.

- The entrepreneurial activity rate among Latinos decreased from 0.56 percent in 2010 to 0.52 percent in 2011, but remained at a high level relative to previous years and other demographic groups. The Asian entrepreneurial activity rate also decreased in 2011 (from 0.37 percent to 0.32 percent).

- Immigrants were more than twice as likely as were the native-born to start businesses each month in 2011. The immigrant rate of entrepreneurial activity decreased from 0.62 percent in 2010 to 0.55 percent in 2011. The native-born rate declined from 0.28 percent in 2010 to 0.27 percent in 2011.

- The aged 20–34 and aged 45–54 groups experienced increases in entrepreneurial activity from 2010 to 2011, whereas the aged 35–44 and aged 55–64 groups experienced decreases in rates.

- Over the past sixteen years, Latinos, Asians, and immigrants experienced rising shares of all new entrepreneurs, partly because of rising rates of entrepreneurship, but also because of increasing populations. The oldest age group (ages 55–64) also experienced a rising share of all new entrepreneurs, mainly because it represents an increasing share of the population.

- Although the entrepreneurship rate declined for high school dropouts from 2010 to 2011 (0.59 percent to 0.57 percent), the rate remained much higher than the pre-recession level, which may be due to lingering high unemployment rates pushing many individuals into business ownership or changing patterns of outsourcing less-skilled workers.

- The construction industry had the highest rate of entrepreneurial activity of all major industry groups in 2011 (1.68 percent). The second-highest rate of entrepreneurial activity was in the services industry (0.42 percent).

- From 2010 to 2011, entrepreneurial activity rates decreased in all regions of the country except the Northeast, which experienced a slight increase in rates. Entrepreneurship rates are highest in the West and lowest in the Midwest.

- The states with the highest rates of entrepreneurial activity were Arizona (520 per 100,000 adults), Texas (440 per 100,000 adults), California (440 per 100,000 adults), Colorado (420 per 100,000 adults), and Alaska (410 per 100,000 adults). The states with the lowest rates of entrepreneurial activity were West Virginia (150 per 100,000 adults), Pennsylvania (160 per 100,000 adults), Hawaii (180 per 100,000 adults), Illinois (200 per 100,000 adults), Indiana (200 per 100,000 adults), and Virginia (200 per 100,000 adults).

- The states experiencing the largest increases in entrepreneurial activity rates over the past decade were Nevada (0.23 percentage points), Georgia (0.18 percentage points), Massachusetts (0.16 percentage points), Tennessee (0.15 percentage points), California (0.13 percentage points), Louisiana (0.12 percentage points), and Florida (0.12 percentage points). States that experienced the largest decreases in entrepreneurial activity rates were Wyoming (-0.17 percentage points) and New Mexico (-0.13 percentage points).

- Among the fifteen largest MSAs in the United States, the highest entrepreneurial activity rate in 2011 was in Los Angeles (580 per 100,000 adults). The large MSAs with the lowest rates of entrepreneurial activity were Chicago (180 per 100,000 adults) and Detroit (180 per 100,000 adults).

3

Introduction

The Kauffman Index of Entrepreneurial Activity measures the rate of business creation at the individual owner level. Presenting the percentage of the adult, non-business-owner population that starts a business each *month*, the Kauffman Index captures all new business owners, including those who own incorporated or unincorporated businesses and those who are employers or non-employers.[1] The Kauffman Index 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. This report updates previous accounts of the Kauffman Index, incorporating new data from 2011.

To create the Kauffman Index, all individuals between ages twenty and sixty-four who do not own a business as their main job are identified in the initial survey month. By matching CPS files for the subsequent month to create a two-month survey pair, it is then determined if these individuals own a business as their main job with fifteen or more usual hours worked per week in the following survey month. These monthly entrepreneurial activity rates then are averaged to calculate an average monthly estimate for each year. More details about the datasets and measures used, and where to access the microdata for research are provided in previous reports and in the Appendix.[2] The Kauffman Index of Entrepreneurial Activity improves over other possible measures of entrepreneurship because of its timeliness, dynamic nature, inclusion of all types of business activity, exclusion of "casual" businesses, and information on owner demographics.

4

The Kauffman Index of Entrepreneurial Activity measures the rate of business creation at the individual owner level.

Trends in Entrepreneurial Activity

In 2011, an average of 0.32 percent of the adult population, or 320 out of 100,000 adults, created a new business each month.[3] This business-creation rate translates into approximately 543,000 new businesses being created each month during the year. The average number of existing self-employed business owners in 2011 was 11.5 million, representing 6.3 percent of the adult population. The entrepreneurial activity rate declined from last year and returned to the rate in 2008, which may be due to improving economic conditions over the past year. The official end of the recession was June 2009, but the national unemployment rate remained near 10 percent for most of 2010 and was only consistently below 9 percent at the end of 2011.[4]

Although the entrepreneurship rate declined in 2011, it remained higher than before the recession started (officially dated December 2007). In 2006 and 2007, the entrepreneurship rate was 0.29 and 0.30 percent, respectively. Over the past decade and a half, the business creation rate fluctuated within the range of 0.27 percent to 0.31 percent, but then rose above this level in the past four years. Figure 1 and Table 1 report average monthly estimates of the Kauffman Index by year from 1996 to 2011.[5] Although there are likely to be separate patterns in business creation below the surface, with both high-potential businesses starting and people being forced into self-employed business ownership because of lack of other job opportunities, unfortunately it is impossible to cleanly disaggregate these two types of business creation.

Figure 1

Kauffman Index of Entrepreneurial Activity
(1996–2011)
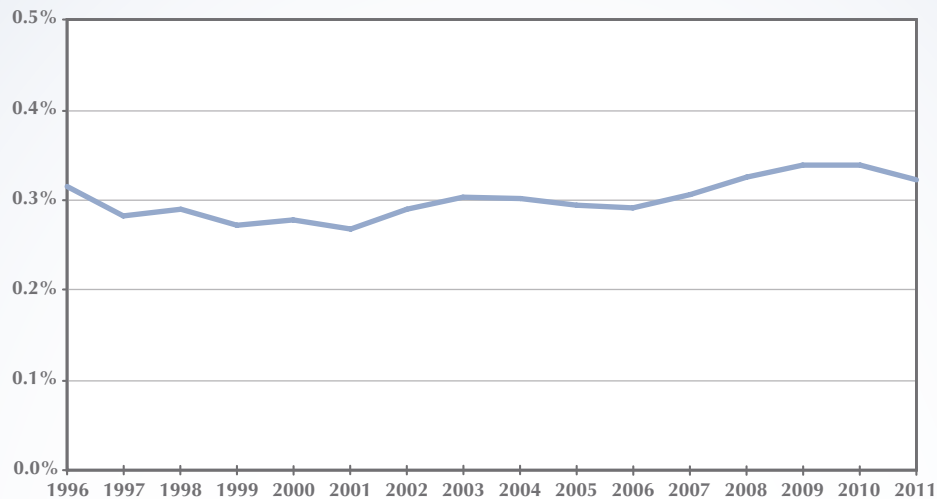
SOURCE: Robert W. Fairlie, University of California,
Santa Cruz, using the Current Population Survey.

TABLE 1
Kauffman Index of Entrepreneurial Activity
(1996–2011)

Year	MALE		FEMALE		TOTAL	
	Index	Sample Size	Index	Sample Size	Index	Sample Size
1996	0.37%	243,368	0.26%	287,639	0.31%	531,007
1997	0.35%	244,863	0.22%	286,266	0.28%	531,129
1998	0.33%	245,820	0.25%	286,476	0.29%	532,296
1999	0.32%	246,225	0.22%	286,765	0.27%	532,990
2000	0.34%	246,522	0.21%	284,901	0.27%	531,423
2001	0.31%	264,693	0.23%	304,765	0.26%	569,458
2002	0.36%	288,595	0.22%	334,562	0.29%	623,157
2003	0.38%	284,391	0.22%	330,166	0.30%	614,557
2004	0.37%	279,373	0.24%	323,314	0.30%	602,687
2005	0.35%	276,836	0.24%	320,362	0.29%	597,198
2006	0.35%	274,825	0.23%	316,781	0.29%	591,606
2007	0.41%	271,807	0.20%	314,441	0.30%	586,248
2008	0.42%	272,218	0.24%	312,167	0.32%	584,385
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

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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.

Visit www.kauffman.org/kiea to download the data files.

Kauffman Index of Entrepreneurial Activity (1996–2011) and Employer Establishment Birth Rate (1996–2011 Q2)
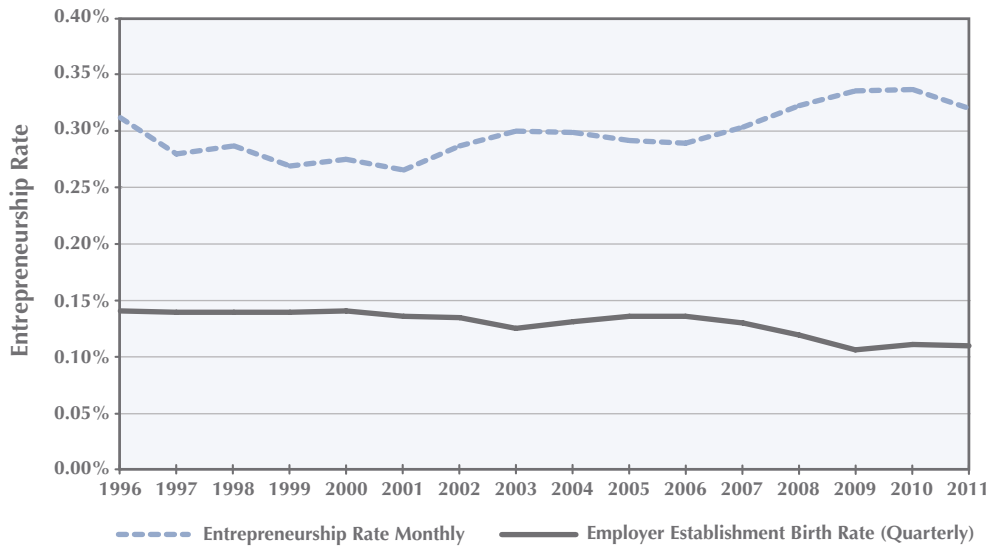
SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the CPS and BLS.
NOTE: 2011 Employer Establishment Birth Rate only includes Q1 and Q2

6

The drop in entrepreneurship rates in 2011 differs from an essentially flat pattern in employer business creation from 2010 to 2011. Figure 1B reports average quarterly estimates of employer establishment birth rates in addition to the average monthly estimates of the Kauffman Index by year from 1996 to 2011. The employer establishment birth rate is the ratio of the average quarterly number of establishment births divided by the average number of non-business owners. The number of establishment births is from the Business Employer Dynamics (BED) compiled by the U.S. Bureau of Labor Statistics (BLS), and the number of non-business owners is estimated using cross-sectional CPS data. The employer establishment birth rate was 0.11 percent or 11 out of 100,000 people per quarter in 2011 (only the first quarter of data was available for 2011 at the time of this report). This rate translates into an average of 183,000 employer establishment births per quarter in 2011. This number and rate of business creation

is substantially smaller than the number and rate of business creation from the Kauffman Index, especially after taking into account that the KIEA is a monthly rate. The large difference is primarily because the employer establishment birth rate only captures new establishments with employees, indicating that they represent only a small share of all new businesses.

From 2007 to 2010, the quarterly employer establishment birth rate dropped from 0.13 percent to 0.11 percent.[6] Over this same period of time, the monthly entrepreneurship activity rate increased from 0.30 percent to 0.34 percent. These opposing trends may be due to the Great Recession pushing many individuals into business ownership because of high rates of unemployment.[7] These individuals were probably more likely to start sole proprietorships and other non-employer firms instead of more costly employer firms. From 2010 to 2011, however, the employer establishment birth rate was flat while the entrepreneurship rate declined.[8]

Figure 2

Kauffman Index of Entrepreneurial Activity by Gender (1996–2011)

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.
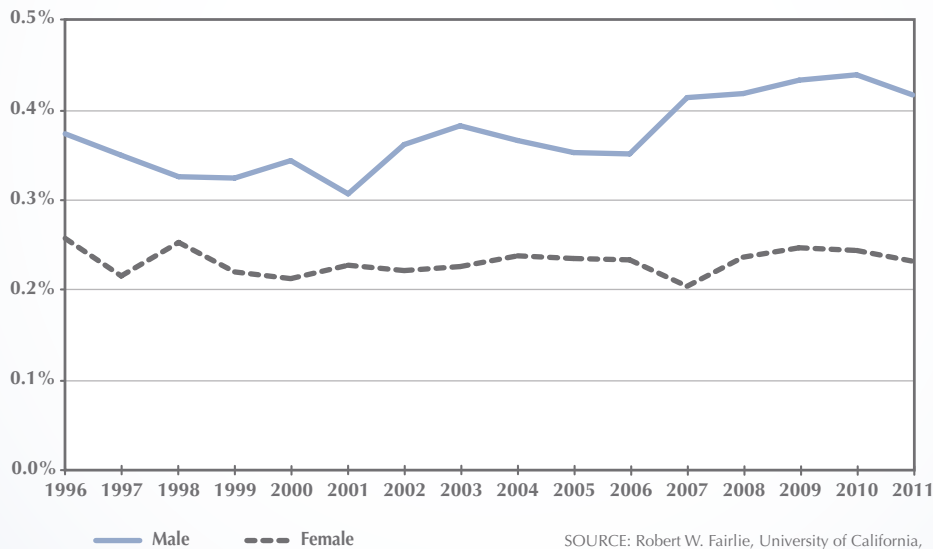
ENTREPRENEURIAL ACTIVITY BY DEMOGRAPHIC GROUPS

The detailed demographic information available in the CPS and large sample sizes allow for the estimation of separate indices by gender, race, immigrant status, age, and 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. Entrepreneurial activity decreased for both men and women from 2010 to 2011. For men, the entrepreneurial activity rate decreased from 0.44 percent in 2010 to 0.42 percent in 2011, reversing an upward trend over the past few years. The entrepreneurship rate decreased from 0.24 percent to 0.23 percent for women. Figure 2 and Table 1 report estimates of the Kauffman Index by gender from 1996 to 2011. Overall, men are substantially more likely to start businesses each month than are women. The average rate of entrepreneurial activity for men over the sixteen-year period was 0.37

percent. The average rate for women was lower at 0.23 percent.

All racial and ethnic groups experienced declines in entrepreneurial activity rates between 2010 and 2011. Figure 3 and Table 2 report estimates of the Kauffman Index by race and ethnicity. The Asian rate of business creation decreased from 0.37 percent in 2010 to 0.32 percent in 2011, and the Latino rate of business creation decreased from 0.56 percent in 2010 to 0.52 percent in 2011. These two groups experienced the largest declines in entrepreneurship rates. Although 2011 represented a decline in the rate, Latinos began experiencing a sharp upward trend in entrepreneurship in 2006. African Americans and non-Latino whites also experienced declines in entrepreneurial activity rates from 2010 to 2011, but the declines were smaller.

Reflecting the longer-term trends showing rising entrepreneurship rates and a growing share of the total U.S. population, the Latino share of all new entrepreneurs rose from a little more than 10 percent in 1996 to 22.9 percent in 2011. Figure 3B reports estimates of the share of new entrepreneurs

Figure 3
Kauffman Index of Entrepreneurial Activity by Race
(1996–2011)

White   Black   Latino   Asian

SOURCE: Robert W. Fairlie, University of California,
Santa Cruz, using the Current Population Survey.
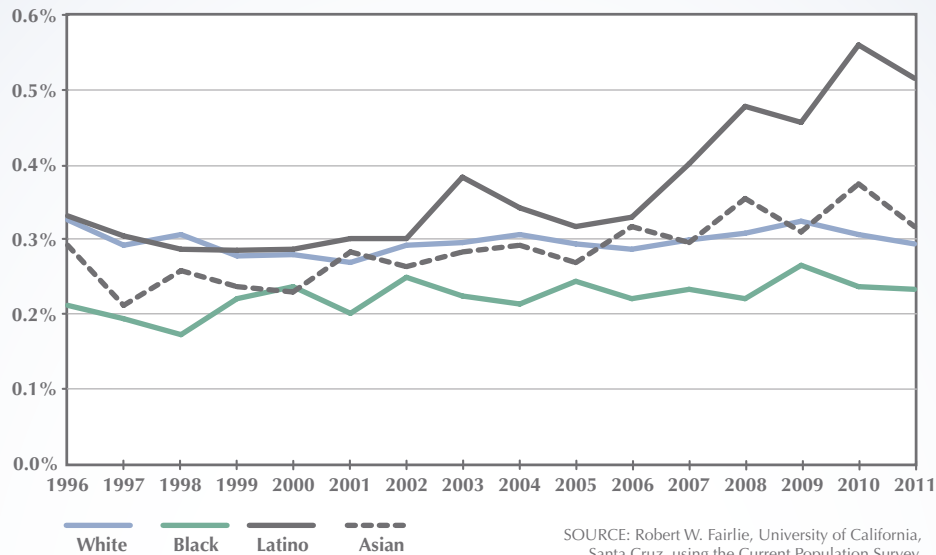
TABLE 2
Kauffman Index of Entrepreneurial Activity by Race
(1996–2011)

Year	WHITE		BLACK		LATINO		ASIAN		TOTAL	
	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size
1996	0.33%	405,007	0.21%	54,799	0.33%	44,033	0.29%	20,489	0.31%	531,007
1997	0.29%	402,519	0.19%	55,300	0.30%	45,537	0.21%	20,711	0.28%	531,129
1998	0.31%	402,681	0.17%	54,669	0.29%	46,940	0.26%	21,099	0.29%	532,296
1999	0.28%	401,712	0.22%	54,241	0.29%	49,074	0.24%	21,256	0.27%	532,990
2000	0.28%	394,524	0.24%	55,249	0.29%	52,428	0.23%	21,897	0.27%	531,423
2001	0.27%	425,149	0.20%	58,250	0.30%	54,155	0.28%	23,895	0.26%	569,458
2002	0.29%	469,626	0.25%	61,083	0.30%	57,514	0.26%	26,373	0.29%	623,157
2003	0.29%	455,554	0.22%	58,797	0.38%	59,676	0.28%	24,011	0.30%	614,557
2004	0.31%	444,321	0.21%	56,587	0.34%	59,170	0.29%	24,227	0.30%	602,687
2005	0.29%	437,420	0.24%	55,069	0.32%	60,828	0.27%	25,690	0.29%	597,198
2006	0.29%	428,021	0.22%	55,532	0.33%	64,204	0.32%	26,578	0.29%	591,606
2007	0.30%	422,369	0.23%	56,529	0.40%	63,900	0.29%	27,128	0.30%	586,248
2008	0.31%	419,454	0.22%	56,311	0.48%	64,470	0.35%	28,097	0.32%	584,385
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

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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.

Visit www.kauffman.org/kiea to download the data files.

Figure 3B

Changes in Composition of New Entrepreneurs by Race (1996, 2011)
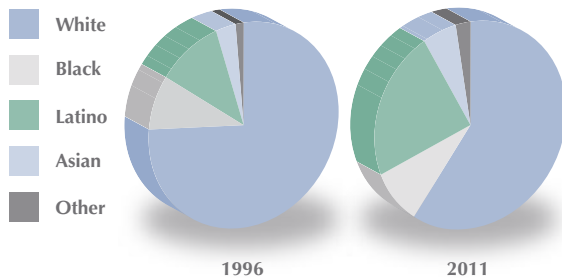
Race	1996	2011
White	76.4%	60.2%
Black	8.4%	9.1%
Latino	10.5%	22.9%
Asian	3.5%	5.3%
Other	1.2%	2.5%

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

by race from 1996 to 2011. The Asian share of new entrepreneurs also rose substantially from 1996 to 2011, but remains relatively small at 5.3 percent. The white share of new entrepreneurs declined over the past sixteen years, whereas the black share increased slightly.

The entrepreneurial activity rate decreased for immigrants in 2011 and declined slightly for the native-born. These trends slightly reduced the large positive gap between immigrant and native-born rates. Figure 4 and Table 3 report estimates of the Kauffman Index by nativity. The entrepreneurial activity rate for immigrants dropped from 0.62 percent in 2010 to 0.55 percent in 2011. The longer-run pattern in entrepreneurship rates for immigrants, however, is an upward trend starting

Figure 4

Kauffman Index of Entrepreneurial Activity by Nativity (1996–2011)
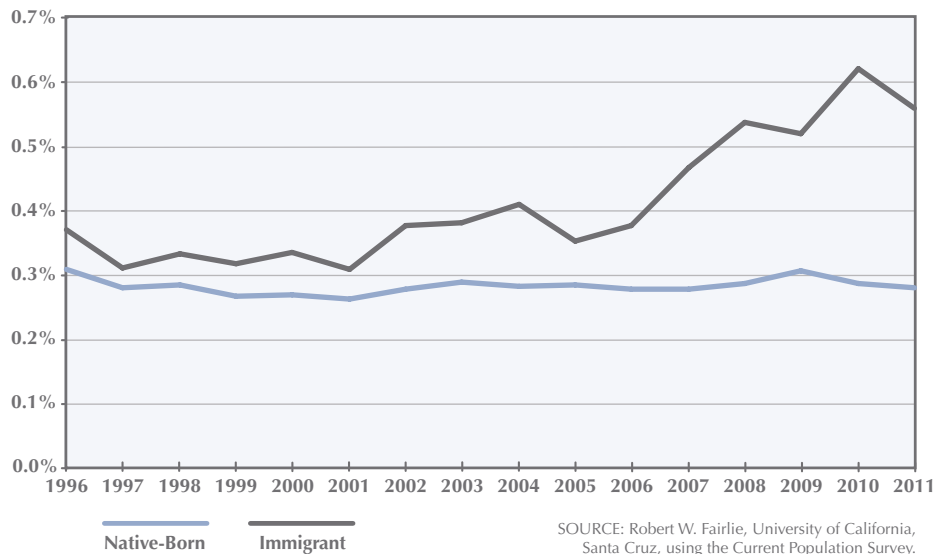
SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

TABLE 3
Kauffman Index of Entrepreneurial Activity
by Nativity (1996–2011)

Year	NATIVE-BORN		IMMIGRANT		TOTAL	
	Index	Sample Size	Index	Sample Size	Index	Sample Size
1996	0.30%	474,984	0.36%	56,023	0.31%	531,007
1997	0.27%	473,208	0.31%	57,921	0.28%	531,129
1998	0.28%	472,458	0.33%	59,838	0.29%	532,296
1999	0.26%	472,107	0.31%	60,883	0.27%	532,990
2000	0.27%	466,150	0.33%	65,273	0.27%	531,423
2001	0.26%	500,292	0.30%	69,166	0.26%	569,458
2002	0.27%	549,356	0.37%	73,801	0.29%	623,157
2003	0.29%	539,914	0.38%	74,643	0.30%	614,557
2004	0.28%	528,881	0.41%	73,806	0.30%	602,687
2005	0.28%	521,967	0.35%	75,231	0.29%	597,198
2006	0.27%	513,386	0.37%	78,220	0.29%	591,606
2007	0.27%	507,985	0.46%	78,263	0.30%	586,248
2008	0.28%	505,911	0.53%	78,474	0.32%	584,385
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

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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.

Visit www.kauffman.org/kiea to download the data files.

Figure 4B
Changes in Composition of New Entrepreneurs by Nativity (1996, 2011)
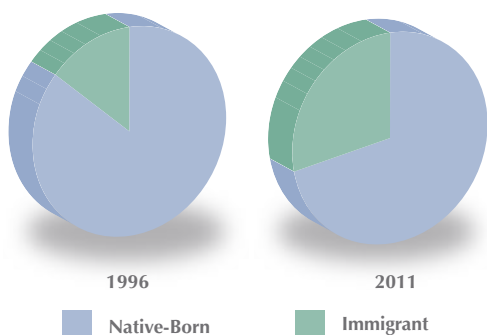
1996   2011

Native-Born   Immigrant

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

Nativity	1996	2011
Native-Born	86.3%	72.0%
Immigrant	13.7%	28.0%

in 2006. The immigrant rate of entrepreneurship increased from 0.35 percent in 2005 to 0.55 percent in 2011. The native-born rate has remained relatively flat over the last sixteen years. The result of these contrasting trends is that immigrants were twice as likely to start businesses each month in 2011 as were the native-born. For immigrants, 550 out of 100,000 people started a business each month, compared with 270 out of 100,000 people for the native-born.

A growing immigrant population and rising entrepreneurship rate contributed to a rise in the share of new entrepreneurs that are immigrant. Figure 4B reports estimates of the share of new entrepreneurs by nativity. The immigrant share of new entrepreneurs is 28.0 percent, up from 13.7 percent in 1996.

Figure 5 and Table 4 report estimates of entrepreneurial activity rates by age group. The youngest age group (ages 20–34) experienced an

Figure 5

Kauffman Index of Entrepreneurial Activity by Age
(1996–2011)

Ages 20–34	Ages 35–44	Ages 45–54	Ages 55–64

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.
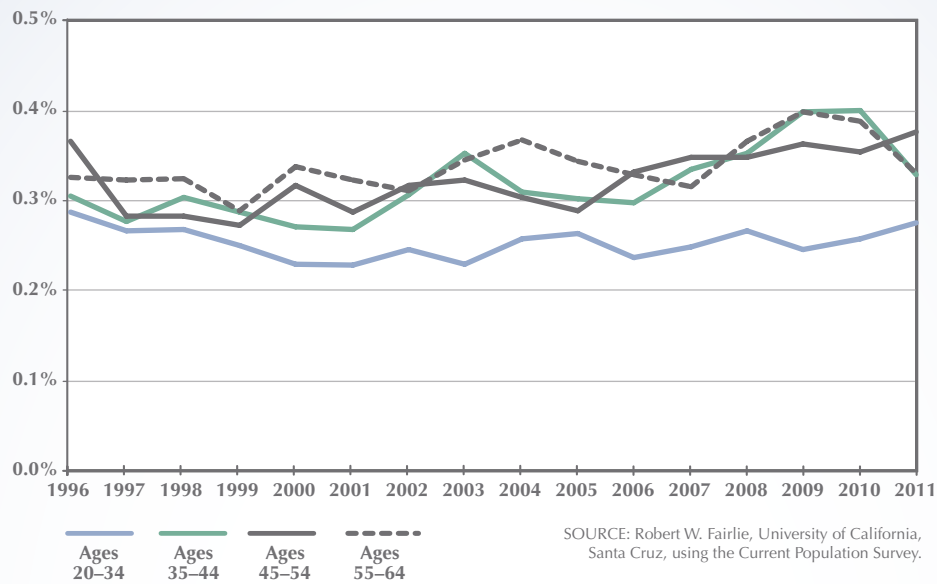
TABLE 4

Kauffman Index of Entrepreneurial Activity by Age
(1996–2011)

11

Year	AGES 20–34 Index	Sample Size	AGES 35–44 Index	Sample Size	AGES 45–54 Index	Sample Size	AGES 55–64 Index	Sample Size	TOTAL Index	Sample Size
1996	0.28%	193,242	0.30%	148,251	0.36%	113,187	0.32%	76,327	0.31%	531,007
1997	0.26%	189,631	0.28%	149,034	0.28%	115,371	0.32%	77,093	0.28%	531,129
1998	0.27%	185,691	0.30%	147,668	0.28%	119,502	0.32%	79,435	0.29%	532,296
1999	0.25%	180,102	0.29%	146,808	0.27%	123,993	0.29%	82,087	0.27%	532,990
2000	0.23%	178,854	0.27%	144,969	0.31%	125,619	0.34%	81,981	0.27%	531,423
2001	0.23%	187,883	0.27%	153,012	0.28%	139,228	0.32%	89,335	0.26%	569,458
2002	0.24%	203,569	0.30%	164,997	0.31%	152,841	0.31%	101,750	0.29%	623,157
2003	0.23%	198,248	0.35%	158,205	0.32%	152,447	0.34%	105,657	0.30%	614,557
2004	0.26%	193,373	0.31%	150,221	0.30%	150,743	0.37%	108,350	0.30%	602,687
2005	0.26%	190,271	0.30%	147,905	0.29%	149,119	0.34%	109,903	0.29%	597,198
2006	0.23%	186,939	0.30%	142,910	0.33%	149,117	0.33%	112,640	0.29%	591,606
2007	0.25%	184,710	0.33%	138,016	0.35%	147,387	0.31%	116,135	0.30%	586,248
2008	0.26%	184,338	0.35%	133,968	0.35%	147,230	0.36%	118,849	0.32%	584,385
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

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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.

Visit www.kauffman.org/kiea to download the data files.

2011 KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY

Figure 5B

Changes in Composition of New Entrepreneurs by Age (1996, 2011)
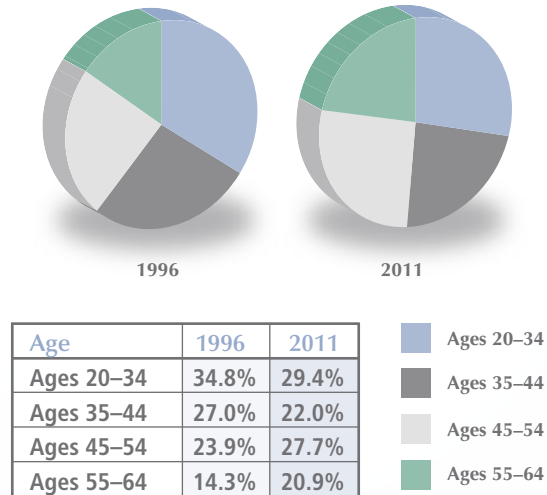
1996   2011

Age	1996	2011
Ages 20–34	34.8%	29.4%
Ages 35–44	27.0%	22.0%
Ages 45–54	23.9%	27.7%
Ages 55–64	14.3%	20.9%

■ Ages 20–34
■ Ages 35–44
■ Ages 45–54
■ Ages 55–64

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

12

increase in business creation rates from 2010 to 2011, rising from 0.26 in 2010 to 0.27 in 2011. From 2010 to 2011, both the 35–44 and 55–64 age groups experienced large drops in rates, and the 45–54 age group experienced an increase in entrepreneurial activity. Over the entire period, business creation was lowest among the youngest group.

Figure 5B reports estimates of the share of new entrepreneurs by age group. An aging population and increasing rate of entrepreneurship among older ages has led to a rising share of new entrepreneurs in the ages 55–64 group. This group represented 14.3 percent of new entrepreneurs in 1996, whereas it represented 20.9 percent of new entrepreneurs in 2011.

Entrepreneurial activity rates decreased in 2011 for the least-educated group, but

longer-term patterns indicate an upward trend. Additionally, entrepreneurship rates are higher for this educational group than for all other education groups, as indicated in Figure 6 and Table 5. These high rates for the least-educated group suggest an increased number of people entering entrepreneurship out of necessity. The largest decrease in entrepreneurship rates occurred for college graduates. The entrepreneurship rate decreased from 0.33 percent in 2010 to 0.29 percent in 2011. Entrepreneurship rates essentially remained the same for the other two educational groups. Although rates are highest for the least-educated group, previous research that controls for other correlated factors such as race, ethnicity, and unemployment status indicates increasing rates of entrepreneurship with higher levels of education.[9]

Figure 6
Kauffman Index of Entrepreneurial Activity
by Education (1996–2011)

Less than High School | High School Graduate | Some College | College Graduate

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.
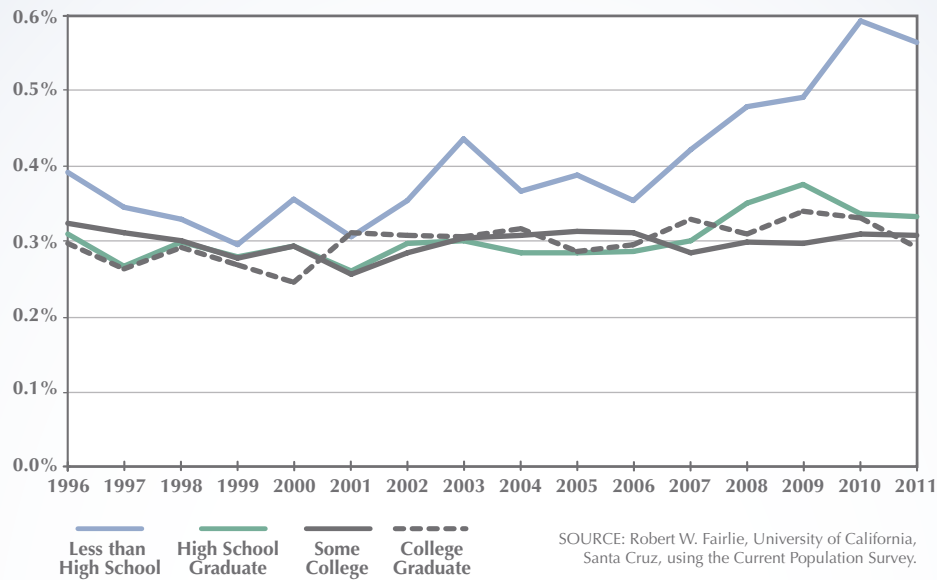
TABLE 5
Kauffman Index of Entrepreneurial Activity
by Education (1996–2011)

Year	LESS THAN HIGH SCHOOL		HIGH SCHOOL GRADUATE		SOME COLLEGE		COLLEGE GRADUATE		TOTAL AGES 25–64	
	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size
1996	0.39%	64,210	0.31%	162,390	0.32%	126,376	0.30%	121,451	0.32%	474,427
1997	0.35%	62,653	0.27%	162,088	0.31%	126,570	0.26%	123,904	0.29%	475,215
1998	0.33%	60,824	0.30%	160,574	0.30%	126,861	0.29%	128,391	0.30%	476,650
1999	0.30%	58,617	0.28%	158,787	0.28%	128,497	0.27%	131,801	0.28%	477,702
2000	0.36%	57,710	0.29%	155,477	0.29%	129,658	0.25%	131,932	0.29%	474,777
2001	0.31%	60,007	0.26%	164,765	0.26%	140,562	0.31%	144,419	0.28%	509,753
2002	0.35%	63,257	0.30%	179,230	0.29%	153,908	0.31%	161,682	0.30%	558,077
2003	0.44%	61,472	0.30%	175,389	0.30%	151,086	0.31%	161,841	0.32%	549,788
2004	0.37%	59,907	0.29%	170,234	0.31%	148,945	0.32%	160,064	0.31%	539,150
2005	0.39%	59,405	0.29%	166,435	0.31%	147,920	0.29%	159,962	0.31%	533,722
2006	0.36%	58,330	0.29%	162,751	0.31%	146,951	0.30%	161,102	0.30%	529,134
2007	0.42%	55,143	0.30%	159,239	0.28%	146,639	0.33%	163,843	0.32%	524,864
2008	0.48%	53,574	0.35%	156,810	0.30%	147,302	0.31%	166,125	0.34%	523,811
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

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey. (2) The entrepreneurship index 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.

Visit www.kauffman.org/kiea to download the data files.

ENTREPRENEURIAL ACTIVITY BY INDUSTRY

Entrepreneurial activity rates differed substantially by major industry groups. Figure 7 and Table 6 report estimates of entrepreneurial activity by major industry. In 2011, entrepreneurial activity rates were highest in construction at 1.68 percent. Entrepreneurial activity rates in services also were high (0.42 percent). Manufacturing had substantially lower rates of entrepreneurial activity than all other industries, with only 0.11 percent of non-business owners starting businesses per month in this industry in 2011.

Figure 7
Kauffman Index of Entrepreneurial Activity by Industry (1996–2011)

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

TABLE 6
Kauffman Index of Entrepreneurial Activity by Industry (1996–2011)

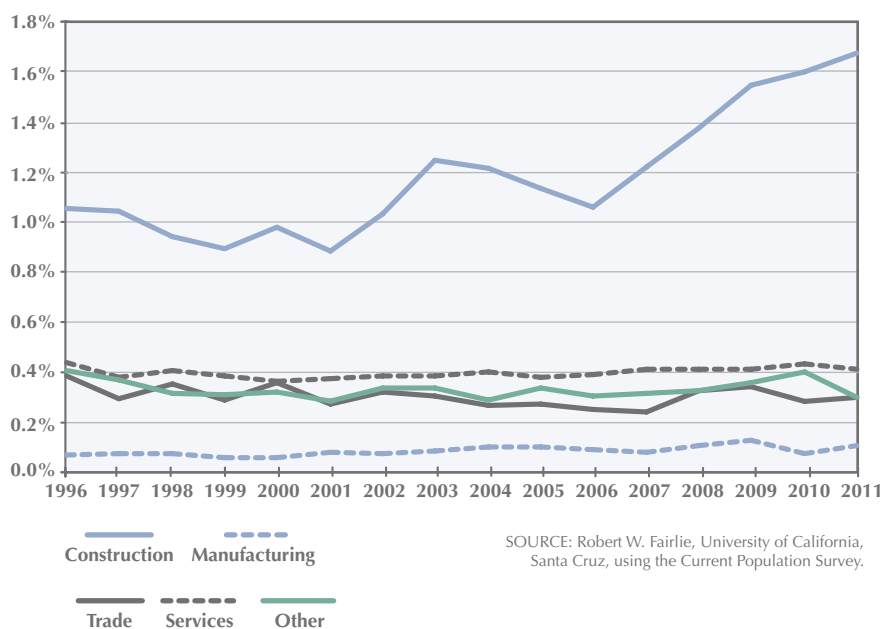| Year	CONSTRUCTION		MANU-FACTURING		TRADE		SERVICES		OTHER	
	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size
1996	1.06%	23,693	0.07%	71,120	0.39%	60,144	0.44%	205,664	0.41%	55,604
1997	1.05%	23,694	0.08%	71,152	0.30%	59,480	0.38%	208,199	0.37%	55,302
1998	0.95%	23,961	0.07%	69,792	0.35%	59,763	0.41%	211,337	0.32%	55,124
1999	0.90%	24,754	0.06%	66,980	0.29%	59,935	0.39%	213,046	0.31%	54,331
2000	0.98%	25,771	0.06%	65,676	0.36%	59,445	0.37%	212,927	0.32%	53,941
2001	0.89%	28,472	0.08%	67,844	0.27%	63,069	0.38%	231,578	0.29%	56,704
2002	1.04%	31,212	0.08%	70,348	0.32%	69,660	0.39%	257,048	0.34%	61,376
2003	1.25%	31,542	0.09%	65,494	0.31%	69,037	0.39%	254,486	0.34%	58,302
2004	1.22%	31,726	0.10%	62,079	0.27%	67,839	0.41%	248,391	0.29%	56,946
2005	1.14%	32,179	0.10%	59,476	0.28%	67,491	0.38%	246,875	0.34%	57,671
2006	1.06%	32,760	0.09%	57,677	0.26%	65,244	0.40%	247,242	0.31%	57,386
2007	1.23%	31,860	0.08%	56,828	0.24%	62,789	0.41%	245,946	0.32%	57,394
2008	1.38%	30,406	0.11%	55,262	0.33%	62,200	0.41%	247,636	0.33%	57,592
2009	1.55%	29,465	0.13%	53,287	0.34%	62,662	0.42%	252,851	0.36%	57,527
2010	1.60%	27,827	0.08%	51,537	0.28%	62,895	0.44%	253,068	0.41%	58,028
2011	1.68%	26,315	0.11%	50,375	0.30%	60,956	0.42%	249,309	0.30%	56,807

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey. (2) The index of entrepreneurial activity 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 per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Visit www.kauffman.org/kiea to download the data files.

TABLE 7
Kauffman Index of Entrepreneurial Activity
by State (2011)

State	Index	Confidence Interval Lower	Upper	Entrepreneurs per 100,000 People	Sample Size
U.S. Total	0.32%	0.30%	0.34%	320	586,146
Alabama	0.26%	0.14%	0.39%	260	6,639
Alaska	0.41%	0.26%	0.57%	410	7,283
Arizona	0.52%	0.35%	0.70%	520	7,161
Arkansas	0.34%	0.19%	0.49%	340	6,111
California	0.44%	0.38%	0.50%	440	49,579
Colorado	0.42%	0.31%	0.54%	420	12,626
Connecticut	0.34%	0.24%	0.44%	340	13,102
Delaware	0.27%	0.16%	0.38%	270	8,924
District of Columbia	0.30%	0.18%	0.42%	300	7,990
Florida	0.38%	0.30%	0.46%	380	21,828
Georgia	0.35%	0.24%	0.46%	350	12,506
Hawaii	0.18%	0.09%	0.27%	180	8,555
Idaho	0.38%	0.22%	0.55%	380	6,462
Illinois	0.20%	0.13%	0.26%	200	18,310
Indiana	0.20%	0.10%	0.30%	200	8,881
Iowa	0.24%	0.15%	0.32%	240	11,501
Kansas	0.27%	0.16%	0.38%	270	8,649
Kentucky	0.37%	0.24%	0.50%	370	8,940
Louisiana	0.34%	0.18%	0.49%	340	5,680
Maine	0.36%	0.25%	0.47%	360	10,679
Maryland	0.29%	0.20%	0.38%	290	14,227
Massachusetts	0.26%	0.15%	0.38%	260	8,904
Michigan	0.22%	0.14%	0.30%	220	13,925
Minnesota	0.23%	0.15%	0.30%	230	14,629
Mississippi	0.26%	0.12%	0.40%	260	5,613
Missouri	0.40%	0.27%	0.53%	400	9,904
Montana	0.33%	0.17%	0.48%	330	5,241
Nebraska	0.28%	0.17%	0.38%	280	9,091
Nevada	0.39%	0.26%	0.52%	390	8,700
New Hampshire	0.27%	0.18%	0.36%	270	12,943
New Jersey	0.27%	0.17%	0.36%	270	12,108
New Mexico	0.25%	0.11%	0.39%	250	4,844
New York	0.37%	0.30%	0.45%	370	25,460
North Carolina	0.28%	0.18%	0.37%	280	11,490
North Dakota	0.28%	0.16%	0.40%	280	7,225
Ohio	0.27%	0.19%	0.35%	270	16,116
Oklahoma	0.21%	0.10%	0.31%	210	6,851
Oregon	0.25%	0.14%	0.37%	250	8,545
Pennsylvania	0.16%	0.10%	0.23%	160	17,686
Rhode Island	0.22%	0.13%	0.31%	220	9,723
South Carolina	0.29%	0.16%	0.41%	290	7,803
South Dakota	0.32%	0.21%	0.44%	320	9,028
Tennessee	0.29%	0.17%	0.42%	290	7,819
Texas	0.44%	0.37%	0.51%	440	31,475
Utah	0.28%	0.16%	0.41%	280	7,029
Vermont	0.39%	0.26%	0.52%	390	8,664
Virginia	0.20%	0.12%	0.29%	200	12,987
Washington	0.23%	0.13%	0.34%	230	10,377
West Virginia	0.15%	0.05%	0.24%	150	6,784
Wisconsin	0.23%	0.14%	0.32%	230	11,638
Wyoming	0.22%	0.12%	0.32%	220	7,911

ENTREPRENEURIAL ACTIVITY BY STATE

There was substantial variation in entrepreneurial activity rates across states in 2011. West Virginia exhibited the lowest entrepreneurial activity rate, with 150 per 100,000 adults starting new businesses each month. Arizona had the highest entrepreneurial activity rate, with 520 per 100,000 adults creating businesses each month. Table 7 reports estimates of the Kauffman Index for all fifty states and the District of Columbia, as well as sample sizes and approximate 95 percent confidence intervals for each state.

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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) Approximate 95 percent confidence intervals are reported for the entrepreneurship index.

Visit www.kauffman.org/kiea to download the data files.

Figure 8

Kauffman Index of Entrepreneurial Activity by State (2011)

16
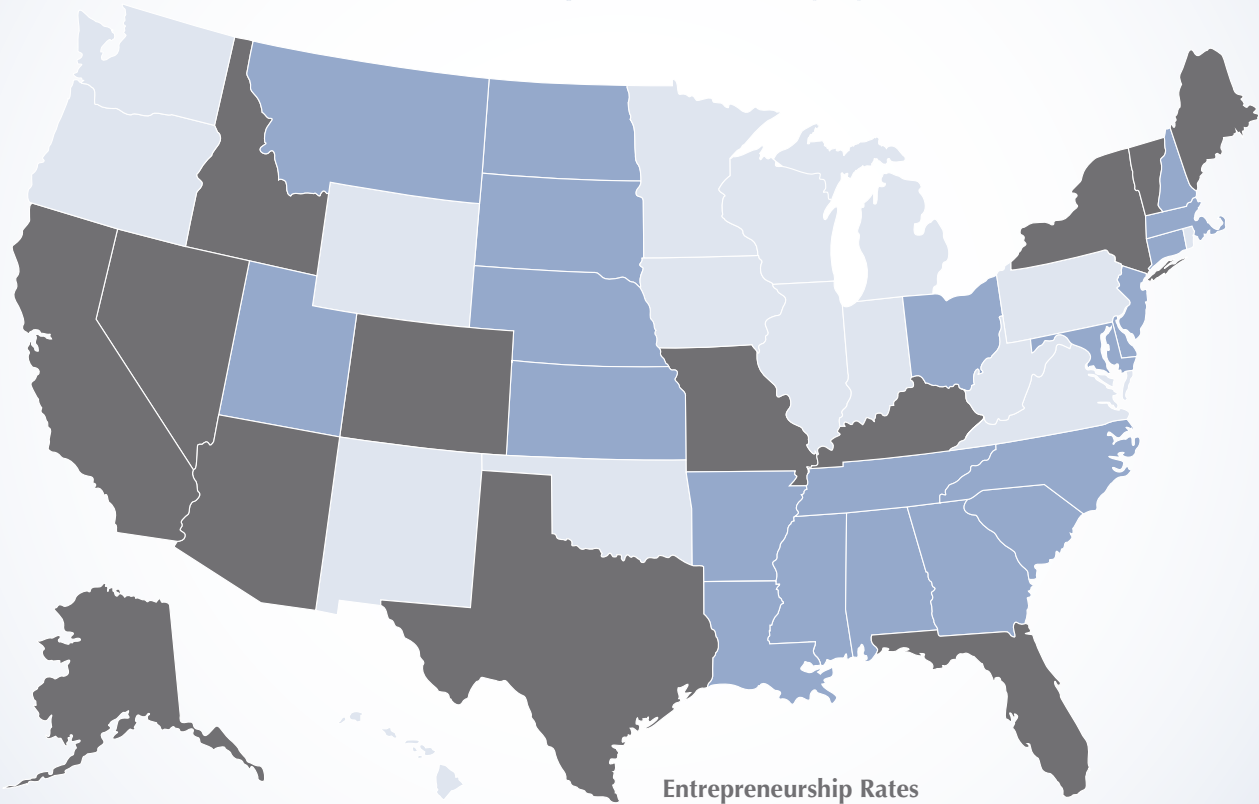
Entrepreneurship Rates

- ■ .354% to .514%
- ■ .251% to .353%
- ■ .016% to .250%

SOURCE: Robert W. Fairlie, University of California,
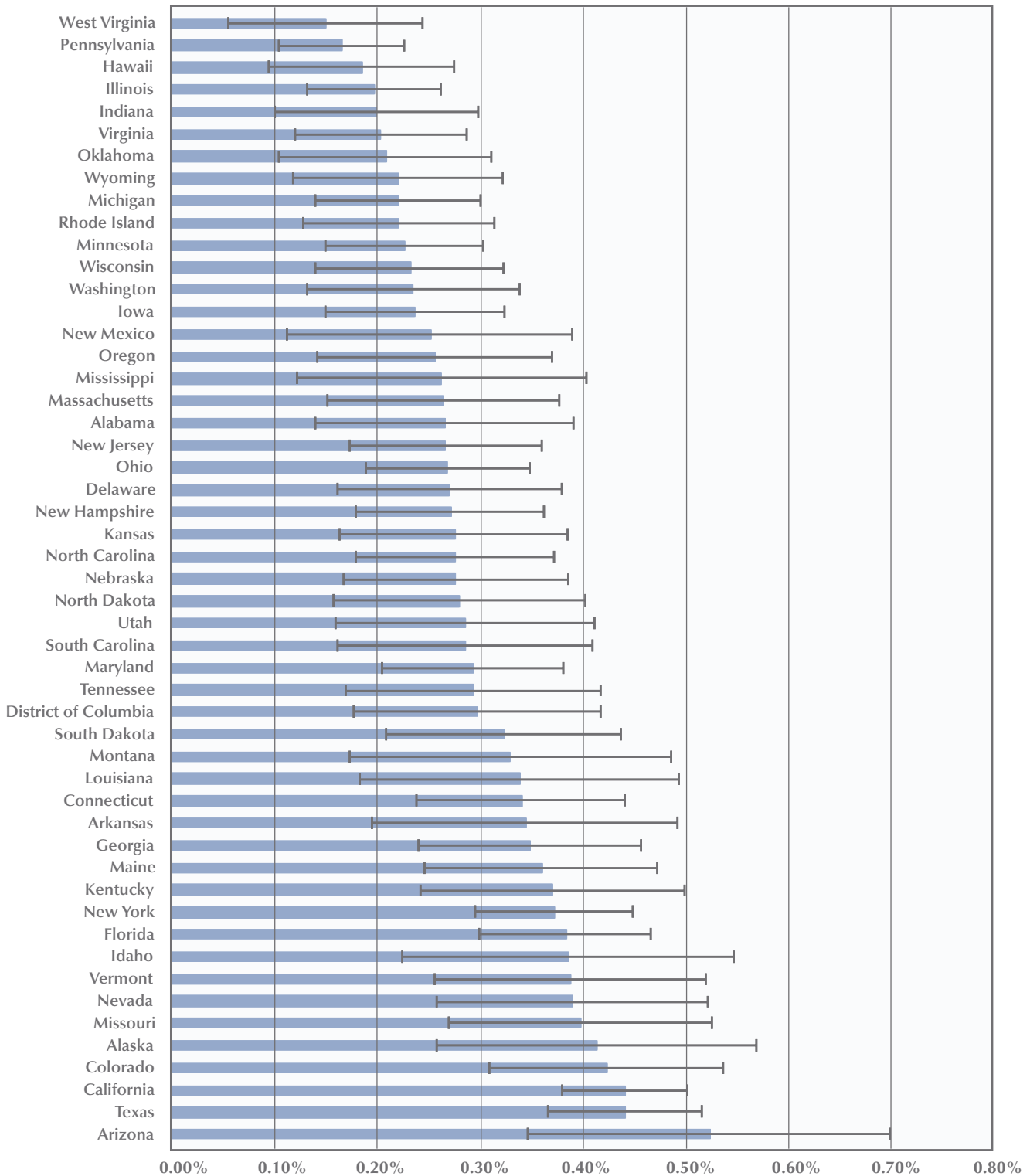Santa Cruz, using the Current Population Survey.

Entrepreneurial activity rates follow strong geographical patterns. Entrepreneurial activity generally is highest in Western and Southern states and lowest in Midwestern and Northeastern states. Figure 8 illustrates variation in entrepreneurial activity levels across the United States, and Figure 9 ranks states by levels of entrepreneurial activity, with 95 percent confidence intervals for each state. The five states with the highest entrepreneurial activity rates were Arizona (520 per 100,000 adults), Texas (440 per 100,000 adults), California (440 per 100,000 adults), Colorado (420 per 100,000 adults), and Alaska (410 per 100,000 adults). The six states with the lowest rates of entrepreneurial activity were West Virginia (150 per 100,000 adults), Pennsylvania

(160 per 100,000 adults), Hawaii (180 per 100,000 adults), Illinois (200 per 100,000 adults), Indiana (200 per 100,000 adults), and Virginia (200 per 100,000 adults).

From 2010 to 2011, entrepreneurial activity rates decreased in all regions of the country except the Northeast, which experienced a slight increase in rates. Estimates of the Kauffman Index by region are reported in Figure 10 and Table 8. The Western region has the highest entrepreneurship rate, and the Midwest has the lowest.

The differential trends in entrepreneurial activity by region from 2010 to 2011 are captured by differential trends in states across regions. Table 9 reports estimates of rates of entrepreneurial activity

Figure 9
Kauffman Index of Entrepreneurial Activity by State with 95 Percent Confidence Intervals, 2011

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

17

Figure 10
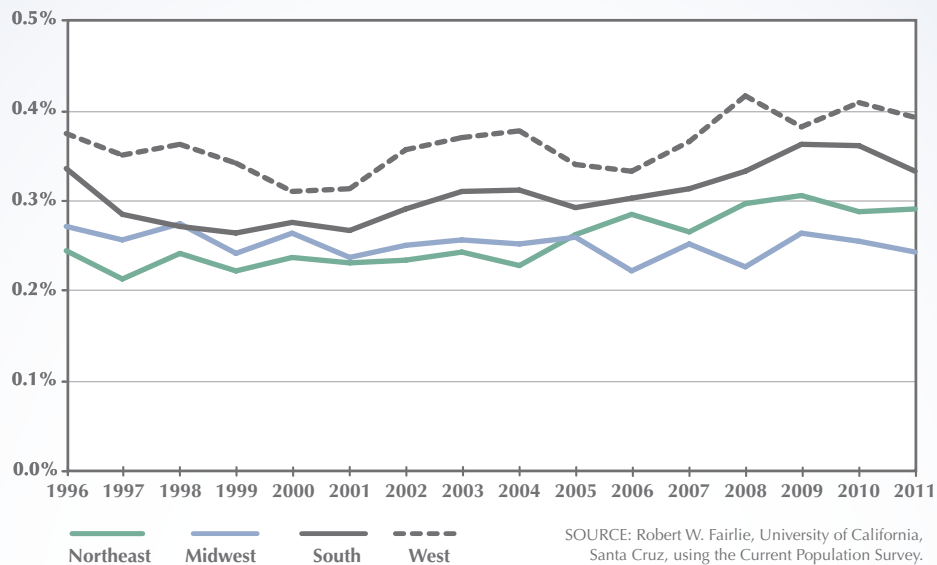## Kauffman Index of Entrepreneurial Activity
by Region (1996–2011)

SOURCE: Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey.

Northeast   Midwest   South   West

TABLE 8
Kauffman Index of Entrepreneurial Activity
by Region (1996–2011)

	NORTHEAST		MIDWEST		SOUTH		WEST		TOTAL	
Year	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size	Index	Sample Size
1996	0.24%	114,486	0.27%	126,402	0.34%	164,415	0.38%	125,704	0.31%	531,007
1997	0.21%	113,819	0.26%	125,603	0.29%	164,277	0.35%	127,430	0.28%	531,129
1998	0.24%	114,246	0.28%	125,411	0.27%	164,190	0.36%	128,449	0.29%	532,296
1999	0.22%	112,804	0.24%	125,372	0.27%	164,416	0.34%	130,398	0.27%	532,990
2000	0.23%	111,319	0.27%	126,975	0.28%	163,720	0.31%	129,409	0.27%	531,423
2001	0.23%	122,399	0.24%	139,538	0.27%	169,480	0.31%	138,041	0.26%	569,458
2002	0.23%	135,033	0.25%	156,223	0.29%	179,221	0.36%	152,680	0.29%	623,157
2003	0.24%	132,855	0.26%	153,953	0.31%	177,302	0.37%	150,447	0.30%	614,557
2004	0.22%	128,536	0.25%	149,380	0.31%	178,789	0.38%	145,982	0.30%	602,687
2005	0.26%	123,177	0.26%	144,081	0.29%	183,966	0.34%	145,974	0.29%	597,198
2006	0.28%	120,283	0.22%	140,195	0.30%	185,136	0.33%	145,992	0.29%	591,606
2007	0.26%	117,828	0.25%	139,827	0.31%	183,035	0.37%	145,558	0.30%	586,248
2008	0.29%	119,172	0.23%	139,301	0.33%	181,221	0.42%	144,691	0.32%	584,385
2009	0.30%	121,081	0.27%	141,705	0.36%	183,661	0.38%	145,252	0.34%	591,699
2010	0.28%	121,555	0.26%	141,571	0.36%	184,805	0.41%	145,340	0.34%	593,271
2011	0.29%	119,269	0.24%	138,897	0.33%	183,667	0.39%	144,313	0.32%	586,146

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, using the Current Population Survey. (2) The index of entrepreneurial activity 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 per week. (3) All observations with allocated labor force status, class of worker, and hours worked variables are excluded.

Visit www.kauffman.org/kiea to download the data files.

TABLE 9
Kauffman Index of Entrepreneurial Activity
by State (2010, 2011)

| State | 2010 | | | | 2011 | | | |
	Index	Confidence Interval Lower	Upper	Sample Size	Index	Confidence Interval Lower	Upper	Sample Size
U.S. Total	0.34%	0.32%	0.35%	593,271	0.32%	0.30%	0.34%	586,146
Alabama	0.25%	0.13%	0.37%	6,786	0.26%	0.14%	0.39%	6,639
Alaska	0.43%	0.28%	0.58%	7,640	0.41%	0.26%	0.57%	7,283
Arizona	0.33%	0.19%	0.46%	7,070	0.52%	0.35%	0.70%	7,161
Arkansas	0.37%	0.21%	0.54%	6,212	0.34%	0.19%	0.49%	6,111
California	0.47%	0.41%	0.54%	49,766	0.44%	0.38%	0.50%	49,579
Colorado	0.45%	0.33%	0.57%	12,665	0.42%	0.31%	0.54%	12,626
Connecticut	0.24%	0.15%	0.32%	13,329	0.34%	0.24%	0.44%	13,102
Delaware	0.22%	0.12%	0.32%	8,735	0.27%	0.16%	0.38%	8,924
District of Columbia	0.31%	0.18%	0.45%	7,553	0.30%	0.18%	0.42%	7,990
Florida	0.40%	0.31%	0.48%	22,438	0.38%	0.30%	0.46%	21,828
Georgia	0.51%	0.38%	0.64%	12,946	0.35%	0.24%	0.46%	12,506
Hawaii	0.24%	0.13%	0.34%	8,657	0.18%	0.09%	0.27%	8,555
Idaho	0.39%	0.23%	0.55%	6,332	0.38%	0.22%	0.55%	6,462
Illinois	0.26%	0.18%	0.33%	18,859	0.20%	0.13%	0.26%	18,310
Indiana	0.19%	0.11%	0.28%	9,176	0.20%	0.10%	0.30%	8,881
Iowa	0.30%	0.19%	0.40%	11,136	0.24%	0.15%	0.32%	11,501
Kansas	0.35%	0.22%	0.48%	8,506	0.27%	0.16%	0.38%	8,649
Kentucky	0.29%	0.17%	0.40%	9,078	0.37%	0.24%	0.50%	8,940
Louisiana	0.46%	0.28%	0.64%	5,519	0.34%	0.18%	0.49%	5,680
Maine	0.29%	0.19%	0.39%	11,457	0.36%	0.25%	0.47%	10,679
Maryland	0.24%	0.16%	0.33%	13,692	0.29%	0.20%	0.38%	14,227
Massachusetts	0.32%	0.20%	0.44%	8,996	0.26%	0.15%	0.38%	8,904
Michigan	0.25%	0.16%	0.33%	14,295	0.22%	0.14%	0.30%	13,925
Minnesota	0.21%	0.14%	0.29%	14,662	0.23%	0.15%	0.30%	14,629
Mississippi	0.44%	0.26%	0.62%	5,644	0.26%	0.12%	0.40%	5,613
Missouri	0.29%	0.19%	0.40%	10,438	0.40%	0.27%	0.53%	9,904
Montana	0.39%	0.22%	0.57%	5,246	0.33%	0.17%	0.48%	5,241
Nebraska	0.30%	0.19%	0.41%	9,135	0.28%	0.17%	0.38%	9,091
Nevada	0.51%	0.36%	0.67%	8,833	0.39%	0.26%	0.52%	8,700
New Hampshire	0.25%	0.16%	0.34%	12,995	0.27%	0.18%	0.36%	12,943
New Jersey	0.25%	0.16%	0.33%	12,428	0.27%	0.17%	0.36%	12,108
New Mexico	0.32%	0.17%	0.48%	5,015	0.25%	0.11%	0.39%	4,844
New York	0.36%	0.29%	0.44%	25,512	0.37%	0.30%	0.45%	25,460
North Carolina	0.35%	0.25%	0.46%	12,020	0.28%	0.18%	0.37%	11,490
North Dakota	0.30%	0.17%	0.42%	7,525	0.28%	0.16%	0.40%	7,225
Ohio	0.30%	0.21%	0.39%	16,919	0.27%	0.19%	0.35%	16,116
Oklahoma	0.32%	0.18%	0.45%	7,194	0.21%	0.10%	0.31%	6,851
Oregon	0.32%	0.20%	0.44%	8,452	0.25%	0.14%	0.37%	8,545
Pennsylvania	0.18%	0.11%	0.24%	17,887	0.16%	0.10%	0.23%	17,686
Rhode Island	0.25%	0.15%	0.35%	10,134	0.22%	0.13%	0.31%	9,723
South Carolina	0.23%	0.13%	0.34%	8,012	0.29%	0.16%	0.41%	7,803
South Dakota	0.19%	0.10%	0.28%	9,102	0.32%	0.21%	0.44%	9,028
Tennessee	0.41%	0.27%	0.55%	8,154	0.29%	0.17%	0.42%	7,819
Texas	0.40%	0.33%	0.47%	30,971	0.44%	0.37%	0.51%	31,475
Utah	0.37%	0.22%	0.51%	7,057	0.28%	0.16%	0.41%	7,029
Vermont	0.45%	0.31%	0.59%	8,817	0.39%	0.26%	0.52%	8,664
Virginia	0.24%	0.15%	0.32%	12,948	0.20%	0.12%	0.29%	12,987
Washington	0.24%	0.14%	0.33%	10,503	0.23%	0.13%	0.34%	10,377
West Virginia	0.17%	0.07%	0.27%	6,903	0.15%	0.05%	0.24%	6,784
Wisconsin	0.18%	0.10%	0.26%	11,818	0.23%	0.14%	0.32%	11,638
Wyoming	0.22%	0.11%	0.32%	8,104	0.22%	0.12%	0.32%	7,911

19

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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) Approximate 95 percent confidence intervals are reported for the entrepreneurship index.

Visit www.kauffman.org/kiea to download the data files.

TABLE 10
Kauffman Index of Entrepreneurial Activity by State
(1999–2001 and 2009–2011)

| State | 1999–2001 Period | | | | 2009–2011 Period | | | |
	Index	Confidence Interval Lower	Upper	Sample Size	Index	Confidence Interval Lower	Upper	Sample Size
U.S. Total	0.27%	0.26%	0.28%	1,626,186	0.33%	0.32%	0.34%	1,771,116
Alabama	0.22%	0.16%	0.28%	24,446	0.24%	0.17%	0.31%	20,129
Alaska	0.51%	0.40%	0.62%	19,590	0.39%	0.31%	0.48%	22,707
Arizona	0.35%	0.27%	0.42%	24,595	0.44%	0.34%	0.53%	21,096
Arkansas	0.34%	0.26%	0.42%	21,167	0.36%	0.27%	0.46%	18,556
California	0.31%	0.28%	0.34%	132,276	0.44%	0.41%	0.48%	148,285
Colorado	0.39%	0.31%	0.47%	25,332	0.42%	0.35%	0.48%	38,073
Connecticut	0.27%	0.19%	0.35%	18,569	0.29%	0.23%	0.34%	39,624
Delaware	0.17%	0.11%	0.23%	17,299	0.26%	0.20%	0.33%	26,524
District of Columbia	0.26%	0.18%	0.35%	15,607	0.31%	0.23%	0.38%	23,112
Florida	0.29%	0.25%	0.33%	73,058	0.41%	0.35%	0.46%	66,545
Georgia	0.25%	0.19%	0.31%	26,861	0.43%	0.36%	0.50%	38,005
Hawaii	0.26%	0.18%	0.34%	16,790	0.23%	0.17%	0.29%	26,043
Idaho	0.42%	0.33%	0.52%	22,885	0.41%	0.31%	0.50%	19,247
Illinois	0.24%	0.20%	0.28%	67,701	0.23%	0.19%	0.28%	55,938
Indiana	0.30%	0.23%	0.38%	23,864	0.22%	0.17%	0.28%	27,380
Iowa	0.33%	0.25%	0.41%	22,114	0.25%	0.20%	0.31%	34,067
Kansas	0.28%	0.21%	0.35%	21,895	0.29%	0.22%	0.35%	25,659
Kentucky	0.22%	0.16%	0.29%	22,612	0.30%	0.23%	0.37%	27,009
Louisiana	0.28%	0.21%	0.36%	20,919	0.41%	0.31%	0.51%	16,873
Maine	0.31%	0.23%	0.39%	19,750	0.33%	0.27%	0.39%	33,437
Maryland	0.28%	0.20%	0.36%	19,467	0.28%	0.22%	0.33%	41,648
Massachusetts	0.14%	0.11%	0.18%	38,083	0.31%	0.24%	0.37%	26,946
Michigan	0.23%	0.19%	0.27%	56,642	0.25%	0.21%	0.30%	42,363
Minnesota	0.22%	0.16%	0.28%	25,259	0.22%	0.18%	0.26%	44,283
Mississippi	0.36%	0.27%	0.45%	18,547	0.29%	0.21%	0.37%	16,814
Missouri	0.21%	0.15%	0.28%	21,047	0.32%	0.26%	0.39%	30,728
Montana	0.41%	0.32%	0.50%	21,171	0.40%	0.30%	0.50%	15,881
Nebraska	0.29%	0.21%	0.36%	21,861	0.26%	0.20%	0.32%	27,504
Nevada	0.19%	0.14%	0.25%	25,079	0.43%	0.34%	0.51%	26,659
New Hampshire	0.24%	0.17%	0.31%	19,154	0.27%	0.21%	0.32%	39,297
New Jersey	0.23%	0.18%	0.27%	48,167	0.28%	0.22%	0.34%	36,823
New Mexico	0.41%	0.31%	0.50%	21,188	0.28%	0.19%	0.36%	14,954
New York	0.28%	0.25%	0.32%	97,590	0.36%	0.32%	0.40%	76,059
North Carolina	0.29%	0.23%	0.34%	41,204	0.29%	0.24%	0.35%	35,379
North Dakota	0.33%	0.25%	0.42%	20,476	0.30%	0.22%	0.38%	21,999
Ohio	0.22%	0.18%	0.27%	61,941	0.28%	0.23%	0.33%	50,216
Oklahoma	0.27%	0.20%	0.34%	23,234	0.33%	0.25%	0.41%	21,178
Oregon	0.39%	0.30%	0.48%	20,951	0.32%	0.25%	0.39%	25,522
Pennsylvania	0.17%	0.14%	0.20%	67,118	0.18%	0.14%	0.22%	53,547
Rhode Island	0.14%	0.08%	0.19%	19,337	0.24%	0.18%	0.29%	29,912
South Carolina	0.19%	0.12%	0.26%	18,524	0.25%	0.18%	0.32%	23,825
South Dakota	0.35%	0.26%	0.43%	21,285	0.31%	0.25%	0.38%	26,901
Tennessee	0.20%	0.15%	0.26%	22,504	0.35%	0.28%	0.43%	24,119
Texas	0.33%	0.29%	0.37%	80,028	0.43%	0.39%	0.48%	92,901
Utah	0.30%	0.22%	0.37%	22,678	0.34%	0.26%	0.42%	21,154
Vermont	0.35%	0.26%	0.45%	16,985	0.40%	0.32%	0.48%	26,260
Virginia	0.19%	0.13%	0.24%	26,955	0.24%	0.19%	0.29%	38,570
Washington	0.30%	0.23%	0.38%	22,598	0.24%	0.18%	0.30%	31,304
West Virginia	0.17%	0.11%	0.22%	23,832	0.22%	0.16%	0.29%	20,946
Wisconsin	0.28%	0.20%	0.35%	25,256	0.24%	0.18%	0.29%	35,135
Wyoming	0.42%	0.33%	0.51%	20,695	0.25%	0.19%	0.32%	23,980

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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) Approximate 95 percent confidence intervals are reported for the entrepreneurship index.

Visit www.kauffman.org/kiea to download the data files.

20

by state from 2010 to 2011. Estimated rates for some smaller states, however, can vary somewhat between the two years because of imprecise estimates instead of actual changes in economic conditions for entrepreneurship.

Trends in state entrepreneurship rates over the past decade are reported in Table 10. To increase sample sizes and precision, the three-year period 2009–2011 is compared to the three-year period 1999–2001, providing a decadal estimate of trends.[10] Nevada experienced the largest positive change in its entrepreneurial activity rate over the past decade, more than doubling its incidence from 0.19 percent to 0.43 percent. Other states experiencing large increases in rates of entrepreneurial activity were Georgia (0.18 percentage points), Massachusetts (0.16 percentage points), Tennessee (0.15 percentage points), California (0.13 percentage points), Louisiana (0.12 percentage points), and Florida (0.12 percentage points). States that experienced large

decreases in entrepreneurial activity rates were Wyoming (-0.17 percentage points) and New Mexico (-0.13 percentage points). All of these changes over time are statistically significant at the 0.05 or 0.10 level of confidence.

ENTREPRENEURIAL ACTIVITY BY METROPOLITAN AREA

An index of entrepreneurial activity also was created for the fifteen largest metropolitan areas in the United States (Table 11).[11] Among these metropolitan areas, Los Angeles had the highest entrepreneurial activity rate at 580 per 100,000 adults. Atlanta (500 per 100,000 adults) and Phoenix (500 per 100,000 adults) also had high rates of entrepreneurial activity. The metropolitan areas with the lowest entrepreneurial activity rate in this group of large MSAs were Chicago (180 per 100,000 adults), Detroit (180 per 100,000 adults), and Philadelphia (200 per 100,000 adults).

TABLE 11

Kauffman Index of Entrepreneurial Activity
for the Fifteen Largest MSAs (2011)

Metropolitan Statistical Area	2011 Index	Confidence Interval		Entrepreneurs per 100,000 People	Sample Size	2009–2011 Index	Sample Size
		Lower	Upper				
New York-Northern New Jersey-Long Island, NY-NJ-PA	0.42%	0.34%	0.50%	420	25,165	0.40%	74,992
Los Angeles-Long Beach-Santa Ana, CA	0.58%	0.46%	0.69%	580	17,895	0.56%	53,879
Chicago-Naperville-Joliet, IL-IN-WI	0.18%	0.11%	0.25%	180	13,093	0.25%	39,740
Dallas-Fort Worth-Arlington, TX	0.37%	0.24%	0.50%	370	8,529	0.32%	25,617
Houston-Baytown-Sugar Land, TX	0.40%	0.25%	0.55%	400	7,181	0.53%	20,462
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.23%	0.15%	0.31%	230	18,652	0.29%	54,013
Philadelphia-Camden-Wilmington, PA-NJ-DE	0.20%	0.10%	0.29%	200	12,775	0.18%	37,735
Atlanta-Sandy Springs-Marietta, GA	0.50%	0.33%	0.67%	500	6,969	0.53%	21,756
Miami-Fort Lauderdale-Miami Beach, FL	0.47%	0.31%	0.64%	470	6,573	0.54%	19,947
Boston-Cambridge-Quincy, MA-NH	0.26%	0.13%	0.39%	260	10,149	0.29%	30,466
San Francisco-Oakland-Fremont, CA	0.37%	0.21%	0.53%	370	5,987	0.47%	17,756
Detroit-Warren-Livonia, MI	0.18%	0.06%	0.30%	180	6,049	0.27%	18,624
Phoenix-Mesa-Scottsdale, AZ	0.50%	0.28%	0.71%	500	4,748	0.46%	14,050
Riverside-San Bernardino, CA	0.43%	0.25%	0.62%	430	5,150	0.37%	14,890
Seattle-Tacoma-Bellevue, WA	0.29%	0.12%	0.45%	290	5,534	0.22%	16,743

Notes: (1) Estimates calculated by Robert W. Fairlie, University of California, Santa Cruz, 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) Approximate 95 percent confidence intervals are reported for the entrepreneurship index.

Visit www.kauffman.org/kiea to download the data files.

Summary

The Kauffman Index measures the monthly business-creation rate at the individual owner level, reporting the percentage of non-business-owning adults who start businesses with more than fifteen hours worked per week. The matched basic monthly files from the Current Population Survey (CPS) provide a uniquely large, nationally representative panel dataset for measuring this entrepreneurial activity. The total adult population sample size for the period from 1996 to 2011 is nearly twelve million. Detailed demographic information available in the CPS and large sample sizes also allow for estimates of separate indices by gender, race, immigrant status, age, and education. Indices for all states and the largest MSAs also are calculated. In 2011, 0.32 percent of the adult population, or 320 out of 100,000 adults, created new businesses each month, representing approximately 543,000 new businesses per month. This total rate of business creation decreased from 0.34 percent in 2010.

In 2011, there are interesting differences in changes in entrepreneurial activity rates for population subgroups. First, Latinos and Asians experienced large decreases in the entrepreneurial activity rate in 2011. But, the Latino entrepreneurship rate of 0.52 percent represents the second-highest rate for this group over the past sixteen years. African Americans and whites experienced smaller declines in entrepreneurial activity rates from 2010 to 2011. A related finding is that the rate of entrepreneurial activity among immigrants decreased sharply in 2011, although the rate of business creation continued to be twice as high as the native-born rate. The oldest age group (ages 55–64) and the ages 35–44 group experienced large declines in entrepreneurial activity rates from 2010 to 2011. Finally, entrepreneurial activity rates increased for those without high school degrees over the past few years, although they experienced a slight drop from 2010 to 2011.

Entrepreneurial activity rates reflect strong regional patterns. Rates of new business creation are highest in the West and South. All regions except the Northeast experienced declining rates in 2011.

Entrepreneurial activity rates varied substantially across states, from a low of 0.15 percent in West Virginia to a high of 0.52 percent in Arizona. Entrepreneurial activity rates also were high in Texas (440 per 100,000 adults), California (440 per 100,000 adults), Colorado (420 per 100,000 adults), and Alaska (410 per 100,000 adults). In addition to West Virginia, the lowest rates of entrepreneurial activity were found in Pennsylvania (160 per 100,000 adults), Hawaii (180 per 100,000 adults), Illinois (200 per 100,000 adults), Indiana (200 per 100,000 adults), and Virginia (200 per 100,000 adults). The states experiencing the largest increases in entrepreneurial activity rates over the past decade were Nevada (0.23 percentage points), Georgia (0.18 percentage points), Massachusetts (0.16 percentage points), Tennessee (0.15 percentage points), California (0.13 percentage points), Louisiana (0.12 percentage points), and Florida (0.12 percentage points). States that experienced the largest decreases in entrepreneurial activity rates were Wyoming (-0.17 percentage points) and New Mexico (-0.13 percentage points).

Analysis of the fifteen largest metropolitan areas in the United States reveals that Los Angeles (0.58 percent) had the highest entrepreneurial activity rate in 2010. Chicago (0.18 percent) and Detroit (0.18 percent) had the lowest entrepreneurial activity rates.

Appendix

DATA

The underlying datasets that are used in this analysis are the basic monthly files to the Current Population Survey (CPS). 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 business creations. 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 CPS household and individual identifiers 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).

The microdata used in this report and a codebook are available for downloading at http://www.kauffman.org/research-and-policy/kiea-data-files.aspx. The dataset includes the entrepreneurial index as well as many additional variables for analysis.

DETAILED DEFINITIONS

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 Kauffman Index, 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, individuals are asked by survey-takers whether they currently have the same main job as reported in the previous month. If the answer is yes, then the interviewer carries forward job information, including business ownership, from the previous month's survey. If the answer is no, then 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 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 Kauffman Index also excludes individuals who owned a business and worked fewer than fifteen hours in the first survey month. Thus, the Kauffman Index 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 Kauffman Index 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 Kauffman Index also may overstate business creation 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.

The main sample used to calculate the Kauffman Index includes only adults between the ages of twenty and sixty-four. For estimates of entrepreneurial activity rates by education level, the population between the ages of twenty-five and sixty-four is used instead to capture completed formal education. Older individuals (ages sixty-five

and older) are removed from the sample because retirement in this age group leads to lower rates of entrepreneurial activity. There were major changes in race and industry coding over the included period. Although every effort was devoted to creating consistent coding, definitions are not perfectly consistent over time.

For the definition of entrepreneurial activity discussed in this report, all observations with allocated labor force status, class of worker, and hours worked variables are excluded. Entrepreneurial activity 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 rates of entrepreneurial activity.

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 over. 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).[12] 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.

STANDARD ERRORS AND CONFIDENCE INTERVALS

The analysis of entrepreneurial activity by state includes confidence intervals that indicate confidence bands of approximately 0.15 percent

around the rates of entrepreneurial activity. 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 entrepreneurial activity rates are not subject to any of these problems. By using the sample weights provided by the CPS, all estimates of rates of entrepreneurial activity are correct.

ADVANTAGES OVER OTHER POSSIBLE MEASURES OF ENTREPRENEURSHIP

The Kauffman Index of Entrepreneurial Activity has several advantages over other possible measures of entrepreneurship that are based on household or business-level data. 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, the index includes all types of business activities (employers, non-employers, unincorporated, and incorporated businesses), but does not include small-scale business activities such as consulting and casual businesses. For example, the County Business Patterns data include only employer firms and the Survey of Business Owners and underlying non-employer data include any business activity with at least $1,000 in annual sales. Third, the panel data created from matching consecutive months of the CPS allow for a dynamic measure of business creation, whereas most datasets only allow for a static measure of business ownership (e.g., ACS). Finally, the CPS data included 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).

COMPARISON TO SELECTED DATASETS

The main difference between the Kauffman Index and possible measures of entrepreneurial

activity from the ACS (and related decennial Census of the Population) is that the index measures flows into business ownership rather than the number of existing business owners at a specific point in time. Cross-sectional datasets, such as the ACS, do not provide information on business creation. Static measures of business ownership based on cross-sectional data do not capture the dynamic nature of entrepreneurial activity that the Kauffman Index illustrates.

The Kauffman Index differs in several major ways from the Survey of Business Owners (SBO) conducted every five years by the U.S. Census Bureau. First, the Kauffman Index is based on household survey data and measures individual business owners. The SBO includes all firms operating during the year that filed tax forms as individual proprietorships, partnerships, or any type of corporation. Second, the Kauffman Index captures business creation, whereas the SBO captures the number of existing businesses at a point in time. Third, the Kauffman Index only includes individuals starting businesses as their main work activity with a substantial hours commitment. The SBO includes all firms with receipts of $1,000 or more, which may include side or "casual" businesses owned by wage/salary workers, the unemployed, or retired workers. Finally, the Kauffman Index includes all new business owners, whereas the SBO excludes agricultural and a few other types of businesses.

The Kauffman Index captures a broader range of entrepreneurial activity than do the national and state-level firm or establishment birth data from the Business Employer Dynamics (BED) or the Statistics of U.S. Businesses (SUSB). The BED data are compiled by the U.S. Bureau of Labor Statistics from existing quarterly state unemployment insurance records through the Quarterly Census of Employment and Wages or ES-202 program. The SUSB data are collected by the U.S. Census Bureau and summarized by the U.S. Small Business Administration (SBA), Office of Advocacy. Both of these datasets include only employer firms. Employer firms represent only approximately roughly one-fourth of all firms, and many firms start with no employees. These data, therefore, are likely to lead to a substantial undercount in the rate of entrepreneurial activity, particularly for certain industries and regions. Finally, the BED and SUSB data are business-level data containing essentially no information on the owner's characteristics, while the CPS is person-level data containing very detailed information on the owner.

The Kauffman Index also differs from the Total Early-stage Entrepreneurial Activity (TEA) index used in the Global Entrepreneurship Monitor. The TEA captures the percentage of the age 18–64 population who are currently nascent entrepreneurs (i.e., individuals who are actively involved in setting up businesses) 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 because they may not be working on the new business for fifteen hours or more per week. Because it is based on panel data, the Kauffman Index also differs from the TEA in that it captures entrepreneurship at the point in time when the business is created.

Endnotes

1. 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.

2. See "Kauffman Index of Entrepreneurial Activity, 1996–2010" (Fairlie 2011) and http://www.kauffman.org/research-and-policy/kauffman-index-of-entrepreneurial-activity.aspx for previous reports.

3. 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. Additionally, because of the broader definition of new business owners used in the Kauffman Index, it is not possible to directly compare the monthly statistics in the Kauffman Index with the quarterly and annual statistics of new employer businesses produced by the U.S. Census Bureau and U.S. Bureau of Labor Statistics.

4. National Bureau of Economic Research. 2010. Business Cycle Expansions and Contractions, http://www.nber.org/cycles.html.

5. Starting in 2009, the annual entrepreneurship rate is calculated using data from December to December. In previous years, annual entrepreneurship rates are calculated using data from January to January. See Fairlie (2010) for more details.

6. Employer firms also were starting with fewer employees. See Reedy and Litan (2011) "Starting Smaller; Staying Smaller: America's Slow Leak in Job Creation" Kauffman Foundation Report for more information on job creation among new employer firms.

7. See Fairlie (2011), "Entrepreneurship, Economic Conditions, and the Great Recession," University of California, Santa Cruz, Working Paper at http://people.ucsc.edu/~rfairlie/papers/ recessionentrep.pdf, for evidence on the effects of economic conditions and the Great Recession on entrepreneurship.

8. In other works from the Foundation, such as "Starting Smaller; Staying Smaller: America's Slow Leak in Job Creation," these differing trends among new employer businesses are discussed at more length.

9. For evidence of the relationship between education and entrepreneurship from a multivariate analysis that controls for other factors, see Fairlie (2007), "Entrepreneurship in Silicon Valley during the Boom and Bust," University of California, Santa Cruz, Working Paper at http://people.ucsc.edu/~rfairlie/papers/siliconvalley.pdf.

10. Annual estimates of state-level entrepreneurship rates are available for downloading at www.kauffman.org/kauffmanindex.

11. As there is no oversampling of metropolitan areas in the CPS, only the largest metropolitan areas have sufficient observations to calculate reasonably accurate rates of entrepreneurial activity. All MSAs reported in Table 11 have at least 4,600 observations.

12. The ratio of households sampled for each state range from one in 100 households to one in 3,000 households (Polivka 2000).

28