KAUFFMAN INDEX OF entrepreneurial activity

State Report 2005

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EXECUTIVE summary

The state report of the Kauffman Index of Entrepreneurial Activity presents rates of business creation by state and for select metropolitan statistical areas (MSAs). While the national report confirms the prevalence of entrepreneurial activity in the United States as a whole, the state report looks at state-level and city-level variation in this important phenomenon. Like the national Kauffman Index, the state report uses data from the 2005 Current Population Surveys (CPS) and encompasses all types of new businesses and all industries. As the CPS sample was designed, in part, to guarantee precise estimates of the unemployment rate at the state level, sample sizes for states are sufficient for creating meaningful measures of entrepreneurial activity. While confidence intervals are fairly large for these measurements, significant differences in entrepreneurial activity among states are clear. The key findings are:

- The rate of entrepreneurial activity for the entire United States in 2005 was 0.29 percent, meaning that an average of 290 adults for every 100,000 adults in the country started a new business each month. In other words, approximately 464,000 people created new businesses per month.
- The five states with the highest rates of entrepreneurial activity were Vermont (550 per 100,000 adults), Colorado (530 per 100,000 adults), Montana (490 per 100,000 adults), Wyoming (480 per 100,000 adults), and Idaho (470 per 100,000 adults).
- The five states with the lowest rates of entrepreneurial activity were Delaware (160 per 100,000 adults), West Virginia (170 per 100,000 adults), Alabama (170 per 100,000 adults), Kentucky (180 per 100,000 adults), and Pennsylvania (180 per 100,000 adults).
- Among the most populous states, Texas had a relatively high rate of entrepreneurial activity (480 per 100,000 adults), while California (320 per 100,000 adults), New York (280 per 100,000 adults), and Florida (280 per 100,000 adults) had rates of entrepreneurial activity in the middle of the distribution.
- Higher rates of entrepreneurial activity were concentrated among the Mountain and Pacific states, while lower rates of entrepreneurial activity were concentrated among the Middle Southern and Midwestern states.
- Analysis of the fifteen largest MSAs in the United States reveals that Atlanta (430 per 100,000 adults), Riverside (430 per 100,000 adults), San Francisco (420 per 100,000 adults), and Houston (400 per 100,000 adults) had the highest rates of entrepreneurial activity.
- The large MSAs with the lowest rates of entrepreneurial activity were Detroit (160 per 100,000 adults), Philadelphia (180 per 100,000 adults), Boston (190 per 100,000 adults), and Seattle (190 per 100,000 adults).

Introduction

The Kauffman Index of Entrepreneurial Activity's state report offers unique insight into variation in entrepreneurial activity by state. This new, state-level measure supplements the national report and allows for comparisons between states and large metropolitan areas. The state report, based on matched monthly data from the 2005 Current Population Survey (CPS), uses the same definition of entrepreneurial activity as the national report. And like the national report, it measures the rate of business creation at the individual owner level. Both the national index and the state index measure the proportion of adult non-business owners who create a new business each month, including employer and non-employer businesses, incorporated and unincorporated businesses, and industries across the spectrum.

The CPS is conducted monthly by the U.S. Bureau of the Census and the Bureau of Labor Statistics. The large sample sizes and oversampling of smaller states in the CPS allow for fairly precise estimates of entrepreneurial activity at the state level. While confidence intervals are somewhat large, significant differences between states emerge.

In order to create the Kauffman Index, all individuals ages 20–64 who do not own a business as their main job are identified in the first survey month. By matching CPS files for the following month, 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. The index is thus defined as the percent of the population of non-business-owning adults who start a business each month. These monthly rates of entrepreneurial activity are averaged to calculate an average monthly estimate for each state for the year. This report presents rates of entrepreneurial activity in 2005 for all fifty states, for the District of Columbia, and for some of the largest metropolitan statistical areas (MSAs). More details about the data sets and measures used are provided in the Appendix.

This state report captures a broader range of entrepreneurial activity than recently-published state rankings based on firm birth data from the Statistics of U.S. Businesses (SUSB). These data, created by the U.S. Bureau of the Census and reported by the Small Business Administration, Office of Advocacy, include only employer firms. As non-employer firms represent approximately three-quarters of all firms,[1] these data may lead to a substantial undercount of entrepreneurial activity. The inclusion of these non-employer startups may be especially important for certain industries and regions, such as the high-technology industry.

[1] According to the Statistics of U.S. Businesses, U.S. Census, 23.6 percent of firms had employees in 2003.

TABLE 1

KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY BY STATE (2005)

State	Index	Confidence Interval Lower	Confidence Interval Upper	Entrepreneurs per 100,000 People	Sample Size
U.S. Total	0.29%	0.28%	0.31%	290	597,198
Alabama	0.17%	0.08%	0.26%	170	7,431
Alaska	0.40%	0.26%	0.55%	400	7,914
Arizona	0.32%	0.19%	0.44%	320	7,849
Arkansas	0.47%	0.29%	0.66%	470	6,819
California	0.32%	0.27%	0.37%	320	46,674
Colorado	0.53%	0.40%	0.67%	530	12,560
Connecticut	0.27%	0.18%	0.36%	270	12,957
District of Columbia	0.24%	0.12%	0.36%	240	6,886
Delaware	0.16%	0.07%	0.24%	160	9,041
Florida	0.28%	0.21%	0.35%	280	24,062
Georgia	0.33%	0.22%	0.44%	330	12,025
Hawaii	0.34%	0.21%	0.46%	340	8,702
Idaho	0.47%	0.31%	0.64%	470	6,941
Illinois	0.26%	0.18%	0.33%	260	18,917
Indiana	0.29%	0.19%	0.40%	290	10,137
Iowa	0.34%	0.22%	0.45%	340	10,997
Kansas	0.25%	0.14%	0.35%	250	8,806
Kentucky	0.18%	0.09%	0.27%	180	8,975
Louisiana	0.32%	0.15%	0.48%	320	5,523
Maine	0.36%	0.25%	0.47%	360	11,661
Maryland	0.42%	0.26%	0.58%	420	12,251
Massachusetts	0.23%	0.14%	0.33%	230	9,920
Michigan	0.23%	0.15%	0.31%	230	15,680
Minnesota	0.31%	0.22%	0.40%	310	14,202
Mississippi	0.39%	0.21%	0.57%	390	5,704
Missouri	0.19%	0.11%	0.28%	190	10,432
Montana	0.49%	0.30%	0.68%	490	5,859
Nebraska	0.23%	0.13%	0.33%	230	9,104
Nevada	0.35%	0.22%	0.47%	350	9,089
New Hampshire	0.28%	0.19%	0.38%	280	12,500
New Jersey	0.30%	0.20%	0.40%	300	12,293
New Mexico	0.45%	0.27%	0.63%	450	5,874
New York	0.28%	0.21%	0.35%	280	25,482
North Carolina	0.23%	0.14%	0.32%	230	12,377
North Dakota	0.32%	0.19%	0.44%	320	7,270
Ohio	0.27%	0.19%	0.35%	270	17,895
Oklahoma	0.41%	0.26%	0.56%	410	6,994
Oregon	0.33%	0.20%	0.46%	330	8,047
Pennsylvania	0.18%	0.12%	0.24%	180	19,104
Rhode Island	0.24%	0.14%	0.33%	240	10,658
South Carolina	0.25%	0.13%	0.36%	250	8,097
South Dakota	0.31%	0.20%	0.43%	310	9,083
Tennessee	0.23%	0.13%	0.33%	230	8,567
Texas	0.35%	0.28%	0.42%	350	28,656
Utah	0.38%	0.24%	0.51%	380	8,181
Vermont	0.55%	0.39%	0.72%	550	8,602
Virginia	0.22%	0.13%	0.30%	220	12,619
Washington	0.23%	0.14%	0.32%	230	10,984
West Virginia	0.17%	0.08%	0.26%	170	7,939
Wisconsin	0.27%	0.17%	0.37%	270	11,558
Wyoming	0.48%	0.31%	0.65%	480	7,300

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 20–64) 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. (4) Approximate 95 percent confidence intervals for the index for each state are reported.

Rates of Entrepreneurial Activity by State

The rate of entrepreneurial activity for the country as a whole is 0.29 percent or 290 per 100,000 adults. There is, however, significant variation by state. Delaware exhibits the lowest rate of entrepreneurial activity with 160 per 100,000 adults starting new businesses each month. Vermont appears to have the highest rate of entrepreneurial activity, with 550 per 100,000 adults creating businesses each month. Table 1 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.

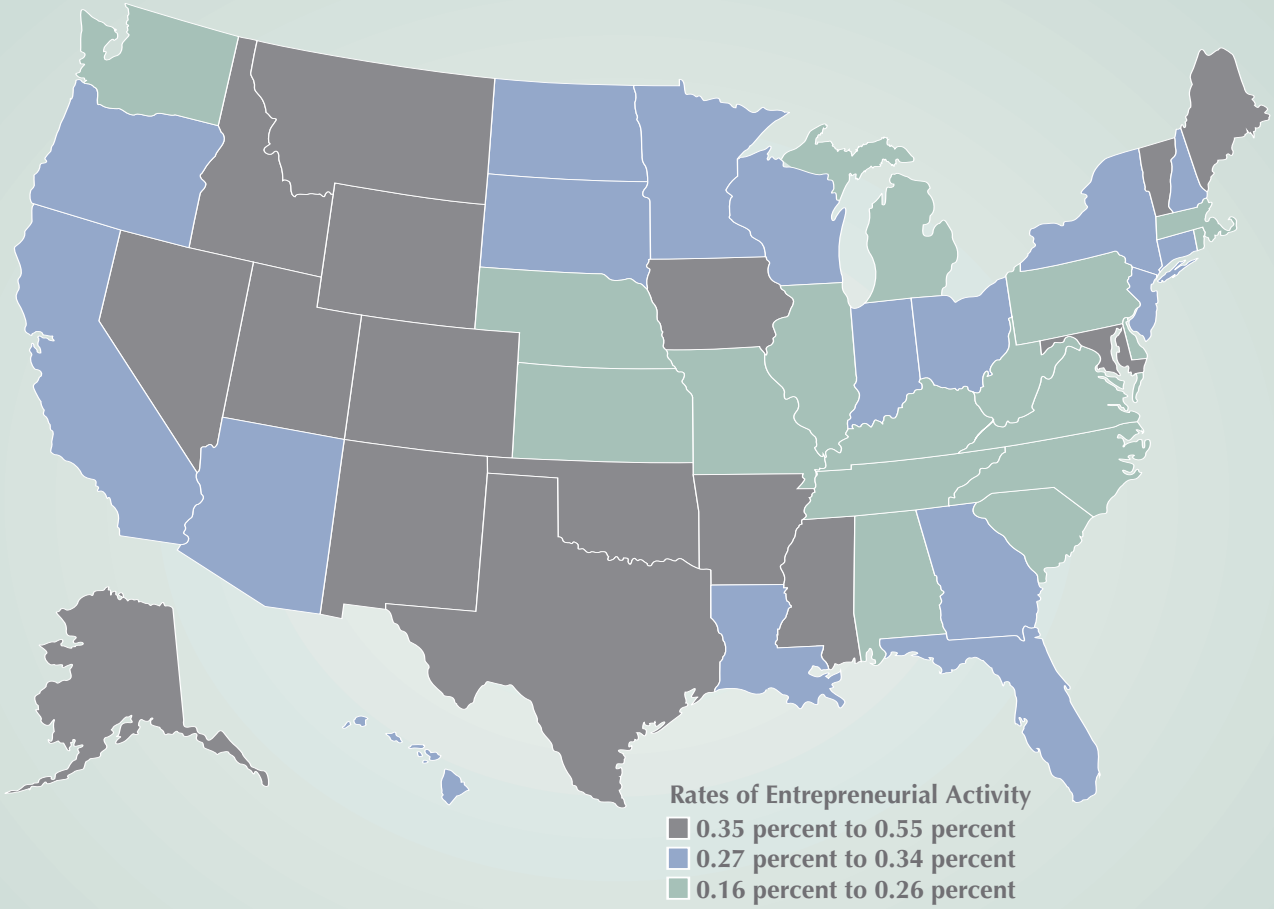
These confidence intervals indicate confidence bands of approximately 0.15 percent around the entrepreneurship rates. While larger states have smaller confidence bands, the smallest states have larger confidence bands of approximately 0.20 percent. Oversampling in the CPS ensures that these small states have sample sizes of more than 5,500 observations, and, therefore, provides a minimum level of precision.

There are strong geographical patterns in these rates of entrepreneurial activity. Entrepreneurial activity appears to be highest in the Mountain and Pacific states and lowest in the Middle Southern and Midwestern states. Figure 1 illustrates variation in levels of entrepreneurial activity across the United States, and Figure 2 ranks states by levels of entrepreneurial activity, with 95 percent confidence intervals for each state. The five states with the highest rates of entrepreneurial activity are Vermont (550 per 100,000 adults), Colorado (530 per 100,000 adults), Montana (490 per 100,000 adults), Wyoming (480 per 100,000 adults), and Idaho (470 per 100,000 adults). The five states with the lowest rates of entrepreneurial activity are Delaware (160 per 100,000 adults), West Virginia (170 per 100,000 adults), Alabama (170 per 100,000 adults), Kentucky (180 per 100,000 adults), and Pennsylvania (180 per 100,000 adults).

Among the most populous states, Texas has a relatively high rate of entrepreneurial activity (350 per 100,000 adults) and is ranked fourteenth for entrepreneurial activity in the United States. California's rate of entrepreneurial activity is just above the median at 320 per 100,000 adults. New York and Florida both have rates of entrepreneurial activity that are ranked just below the median at 280 per 100,000 adults.

FIGURE 1

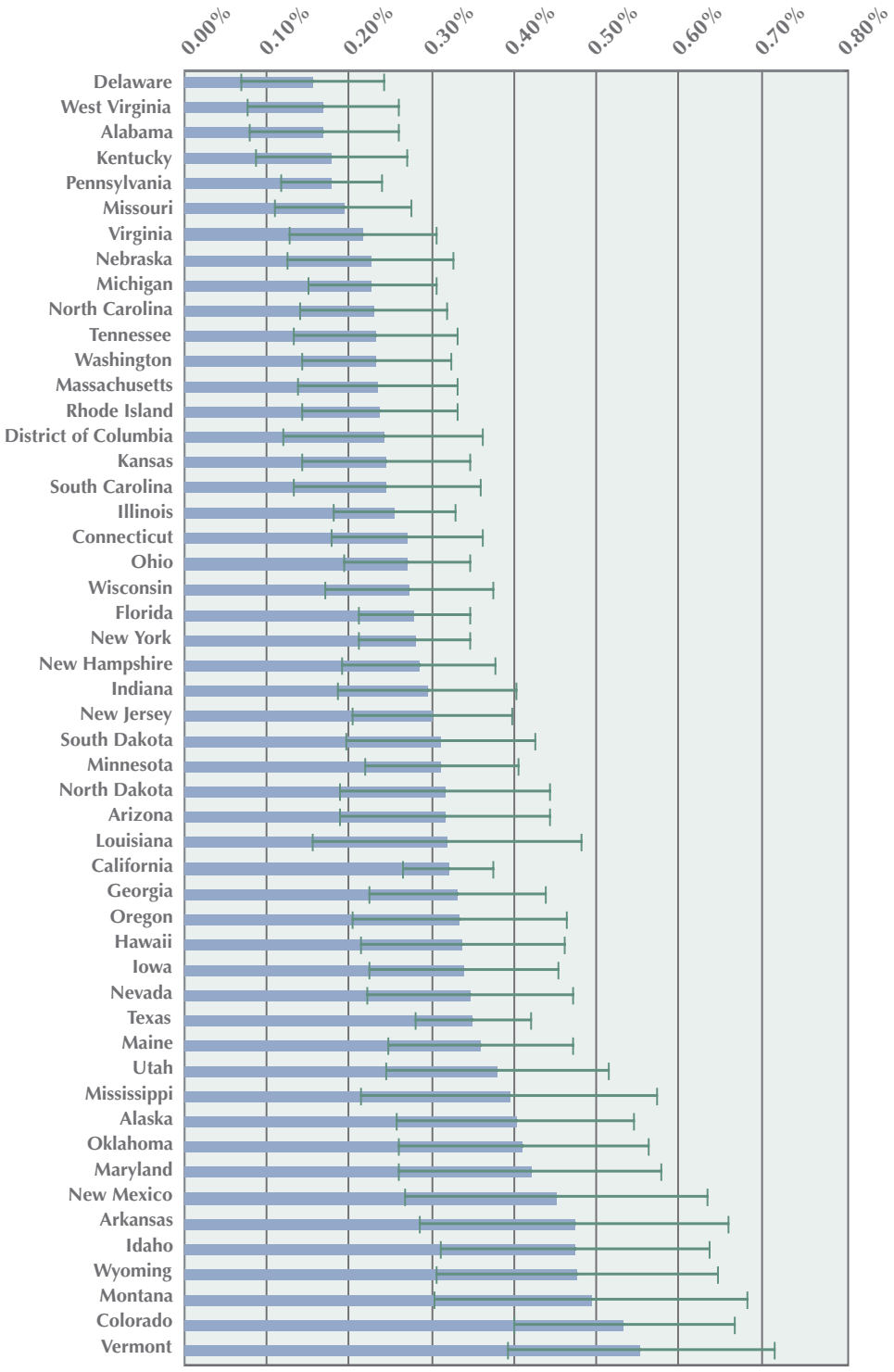
KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY BY STATE (2005)



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

FIGURE 2

KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY BY STATE WITH 95 PERCENT CONFIDENCE INTERVALS (2005)



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

TABLE 2

KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY BY STATE (2004, 2005)

State	2004 Index	2004 Confidence Interval Lower	2004 Confidence Interval Upper	2004 Sample Size	2005 Index	2005 Confidence Interval Lower	2005 Confidence Interval Upper	2005 Sample Size
U.S. Total	0.30%	0.28%	0.31%	602,687	0.29%	0.28%	0.31%	597,198
Alabama	0.30%	0.19%	0.42%	8,574	0.17%	0.08%	0.26%	7,431
Alaska	0.45%	0.31%	0.60%	8,346	0.40%	0.26%	0.55%	7,914
Arizona	0.33%	0.19%	0.47%	8,208	0.32%	0.19%	0.44%	7,849
Arkansas	0.41%	0.25%	0.57%	6,834	0.47%	0.29%	0.66%	6,819
California	0.39%	0.33%	0.45%	42,165	0.32%	0.27%	0.37%	46,674
Colorado	0.35%	0.25%	0.45%	12,699	0.53%	0.40%	0.67%	12,560
Connecticut	0.23%	0.14%	0.31%	11,820	0.27%	0.18%	0.36%	12,957
District of Columbia	0.19%	0.08%	0.29%	6,189	0.24%	0.12%	0.36%	6,886
Delaware	0.15%	0.06%	0.23%	8,363	0.16%	0.07%	0.24%	9,041
Florida	0.30%	0.23%	0.37%	23,566	0.28%	0.21%	0.35%	24,062
Georgia	0.37%	0.25%	0.50%	9,948	0.33%	0.22%	0.44%	12,025
Hawaii	0.24%	0.12%	0.35%	7,921	0.34%	0.21%	0.46%	8,702
Idaho	0.45%	0.28%	0.62%	6,867	0.47%	0.31%	0.64%	6,941
Illinois	0.27%	0.19%	0.34%	2,552	0.26%	0.18%	0.33%	18,917
Indiana	0.23%	0.14%	0.33%	11,242	0.29%	0.19%	0.40%	10,137
Iowa	0.24%	0.14%	0.34%	10,692	0.34%	0.22%	0.45%	10,997
Kansas	0.25%	0.15%	0.35%	9,944	0.25%	0.14%	0.35%	8,806
Kentucky	0.26%	0.15%	0.36%	8,857	0.18%	0.09%	0.27%	8,975
Louisiana	0.26%	0.14%	0.38%	6,552	0.32%	0.15%	0.48%	5,523
Maine	0.40%	0.28%	0.52%	11,120	0.36%	0.25%	0.47%	11,661
Maryland	0.29%	0.19%	0.40%	10,622	0.42%	0.26%	0.58%	12,251
Massachusetts	0.19%	0.11%	0.27%	11,112	0.23%	0.14%	0.33%	9,920
Michigan	0.19%	0.12%	0.26%	17,035	0.23%	0.15%	0.31%	15,680
Minnesota	0.28%	0.19%	0.38%	12,453	0.31%	0.22%	0.40%	14,202
Mississippi	0.38%	0.24%	0.53%	6,367	0.39%	0.21%	0.57%	5,704
Missouri	0.23%	0.14%	0.33%	9,653	0.19%	0.11%	0.28%	10,432
Montana	0.56%	0.37%	0.76%	6,073	0.49%	0.30%	0.68%	5,859
Nebraska	0.34%	0.23%	0.46%	9,809	0.23%	0.13%	0.33%	9,104
Nevada	0.26%	0.15%	0.36%	10,624	0.35%	0.22%	0.47%	9,089
New Hampshire	0.21%	0.13%	0.29%	11,854	0.28%	0.19%	0.38%	12,500
New Jersey	0.24%	0.15%	0.32%	14,296	0.30%	0.20%	0.40%	12,293
New Mexico	0.50%	0.32%	0.68%	6,573	0.45%	0.27%	0.63%	5,874
New York	0.24%	0.19%	0.30%	27,150	0.28%	0.21%	0.35%	25,482
North Carolina	0.26%	0.16%	0.35%	13,177	0.23%	0.14%	0.32%	12,377
North Dakota	0.22%	0.11%	0.33%	8,128	0.32%	0.19%	0.44%	7,270
Ohio	0.25%	0.17%	0.33%	18,593	0.27%	0.19%	0.35%	17,895
Oklahoma	0.47%	0.30%	0.64%	7,043	0.41%	0.26%	0.56%	6,994
Oregon	0.32%	0.20%	0.44%	9,107	0.33%	0.20%	0.46%	8,047
Pennsylvania	0.16%	0.11%	0.22%	21,139	0.18%	0.12%	0.24%	19,104
Rhode Island	0.32%	0.22%	0.43%	11,088	0.24%	0.14%	0.33%	10,658
South Carolina	0.24%	0.13%	0.35%	7,962	0.25%	0.13%	0.36%	8,097
South Dakota	0.30%	0.19%	0.42%	9,051	0.31%	0.20%	0.43%	9,083
Tennessee	0.26%	0.14%	0.37%	8,177	0.23%	0.13%	0.33%	8,567
Texas	0.37%	0.29%	0.44%	27,019	0.35%	0.28%	0.42%	28,656
Utah	0.34%	0.21%	0.47%	8,276	0.38%	0.24%	0.51%	8,181
Vermont	0.42%	0.29%	0.56%	8,957	0.55%	0.39%	0.72%	8,602
Virginia	0.28%	0.18%	0.38%	10,774	0.22%	0.13%	0.30%	12,619
Washington	0.42%	0.29%	0.54%	11,117	0.23%	0.14%	0.32%	10,984
West Virginia	0.20%	0.11%	0.30%	8,765	0.17%	0.08%	0.26%	7,939
Wisconsin	0.34%	0.23%	0.45%	1,228	0.27%	0.17%	0.37%	11,558
Wyoming	0.42%	0.28%	0.56%	8,006	0.48%	0.31%	0.65%	7,300

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 20–64) 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. (4) Approximate 95 percent confidence intervals for the index for each state are reported.

Comparison to 2004 Estimates

Rates of entrepreneurial activity for the entire United States declined slightly from 0.30 percent (300 per 100,000 adults) in 2004 to 0.29 percent (290 per 100,000 adults) in 2005. While state rates of entrepreneurial activity changed somewhat between 2004 and 2005, the overall rankings did not change substantially. States at the top of the 2005 distribution were generally near the top of the 2004 distribution, and the same is generally true at the bottom of the rankings. Table 2 reports estimates of the Kauffman Index by state for 2004 and 2005.

Metropolitan Areas

An index of entrepreneurial activity is also created for the fifteen largest metropolitan areas in the United States (see Table 3). While the CPS oversamples small states to ensure a reasonable level of precision in estimates of the unemployment rate, the survey was not designed to calculate accurate MSA-level unemployment rates. As there is no oversampling of metropolitan areas, only the largest cities have sufficient observations to calculate reasonably accurate rates of entrepreneurial activity. All MSAs reported in Table 3 have at least 4,000 observations.

Of the reported metropolitan areas, Atlanta and Riverside had the highest rates of entrepreneurial activity at 430 per 100,000 adults. San Francisco (420 per 100,000 adults) and Houston (400 per 100,000 adults) also had high rates of entrepreneurial activity. The city with the lowest rate of entrepreneurial activity in this group of large MSAs was Detroit (160 per 100,000 adults). Philadelphia (180 per 100,000 adults), Seattle (190 per 100,000 adults), and Boston (190 per 100,000 adults) also had low rates of entrepreneurial activity.

TABLE 3

KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY FOR THE FIFTEEN LARGEST MSAs (2005)

Metropolitan Statistical Area	Index	Confidence Interval Lower	Confidence Interval Upper	Entrepreneurs per 100,000 Adults	Sample Size
New York-Northern New Jersey-Long Island, NY-NJ-PA	0.33%	0.26%	0.41%	330	24,352
Los Angeles-Long Beach-Santa Ana, CA	0.32%	0.23%	0.41%	320	17,625
Chicago-Naperville-Joliet, IN-IN-WI	0.27%	0.18%	0.37%	270	13,078
Dallas-Fort Worth-Arlington, TX	0.26%	0.14%	0.37%	260	7,638
Philadelphia-Camden-Wilmington, PA-NJ-DE	0.18%	0.08%	0.27%	180	12,873
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.33%	0.18%	0.48%	330	16,139
Miami-Fort Lauderdale-Miami Beach, FL	0.23%	0.12%	0.35%	230	7,109
Houston-Baytown-Sugar Land, TX	0.40%	0.24%	0.56%	400	5,893
Atlanta-Sandy Springs-Marietta, GA	0.43%	0.26%	0.59%	430	6,542
Detroit-Warren-Livonia, MI	0.16%	0.06%	0.25%	160	6,960
Boston-Cambridge-Quincy, MA-NH	0.19%	0.09%	0.30%	190	10,275
San Francisco-Oakland-Fremont, CA	0.42%	0.23%	0.61%	420	5,648
Phoenix-Mesa-Scottsdale, AZ	0.29%	0.15%	0.44%	290	5,405
Riverside-San Bernardino, CA	0.43%	0.23%	0.64%	430	4,480
Seattle-Tacoma-Bellevue, WA	0.19%	0.08%	0.30%	190	5,606

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 20–64) 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. (4) Approximate 95 percent confidence intervals for each MSA are reported.

Summary

The matched basic monthly files from the Current Population Survey (CPS) provide a large, nationally representative panel data set for measuring rates of entrepreneurial activity by state. As the CPS sample was partly designed to guarantee precise state-level estimates of the unemployment rate, sample sizes are sufficiently large for state estimates of entrepreneurial activity. Rates of entrepreneurial activity vary substantially across states. They range from a low of 160 per 100,000 adults in Delaware to a high of 550 per 100,000 adults in Vermont.

Rates of entrepreneurial activity are also high in Colorado (530 per 100,000 adults), Montana (490 per 100,000 adults), Wyoming (480 per 100,000 adults), and Idaho (470 per 100,000 adults). In addition to Delaware, the lowest rates of entrepreneurial activity are found in West Virginia (170 per 100,000 adults), Alabama (170 per 100,000 adults), Kentucky (180 per 100,000 adults), and Pennsylvania (180 per 100,000 adults). Among the most populous states, Texas (480 per 100,000 adults) has a relatively high rate of entrepreneurial activity, while California (320 per 100,000 adults), New York (280 per 100,000 adults), and Florida (280 per 100,000 adults) have rates of entrepreneurial activity in the middle of the distribution.

An analysis of the fifteen largest metropolitan areas in the United States reveals that Atlanta (430 per 100,000 adults), Riverside (430 per 100,000 adults), San Francisco (420 per 100,000 adults), and Houston (400 per 100,000 adults) had the highest rates of entrepreneurial activity. Detroit (160 per 100,000 adults), Philadelphia (180 per 100,000 adults), Boston (190 per 100,000 adults), and Seattle (190 per 100,000 adults) had the lowest rates of entrepreneurial activity.

appendix

DATA

The underlying data sets 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, are representative of the entire U.S. population and contain observations for more than 130,000 adults. By linking the CPS files over time, longitudinal data are created, allowing for the examination of business creations. Combining the 2005 monthly data creates a sample size of roughly 600,000 adults.

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 rotation pattern of the CPS makes it possible to match information on individuals monthly, and, therefore, to create monthly panel data for 75 percent of all respondents in the CPS. 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 all non-unique matches are removed, the underlying CPS data are checked extensively for coding errors and other problems.

Monthly match rates are generally between 94 and 96 percent (see Fairlie 2005). The primary reason for non-matching is household moves. A somewhat non-random sample (mainly geographic movers) is, therefore, 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).

DETAILED DEFINITIONS

The CPS microdata capture all business owners, including those who own incorporated or unincorporated business, 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. The Kauffman Index is thus defined as the percent of the population of non-business owning adults who start a business each month. To identify whether they are business owners in each month, responses to the question concerning their main job (defined as the one with the most hours worked) are used. Individuals who start side businesses will, therefore, not be counted if they are working more hours on a wage/salary job. More information concerning the definition is provided in "Kauffman Index of Entrepreneurial Activity, 1996 to 2005" (Fairlie 2006), including a discussion of the exclusion of allocated observations.

In the Kauffman Index, entrepreneurial activity is counted in the second month only if the individual reports usually working fifteen or more hours per week during the second survey month. This hours restriction 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 initially 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.

The Kauffman Index may also overstate business creation in some respects because of small changes in how individuals report their work status. Individuals may, for example, simply report not being business owners as their main jobs in a particular month because their wage/salary jobs had more hours. 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.

MEASUREMENT AT THE STATE LEVEL

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 is also designed to guarantee precise estimates of average *annual* unemployment rates (Polivka 2000). Sample sizes are drawn to ensure that the coefficient of variation, which is the standard error of the estimate divided by the estimate, is no larger than 8 percent for an annual average unemployment rate of 6 percent.[2] For many states, the sample sizes contained in the CPS are much larger than this threshold. While state-level estimates are not affected by non-random sampling by state in the same way that national estimates are, they are still non-representative because of non-response and post-stratification raking (Polivka 2000). Sampling weights provided by the CPS are used for all state-level estimates. This practice of oversampling smaller states to ensure a reasonable level of precision for annual state unemployment rates is advantageous for analysis of entrepreneurial activity because it guarantees large sample sizes for all states and the District of Columbia.

[2] The ratio of households sampled for each state range from 1in 100 households to 1 in 3,000 households (Polivka 2000).

STANDARD ERRORS AND CONFIDENCE INTERVALS

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 clustering of the CPS (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). Estimates of the national unemployment rate indicate that treating the CPS as a random sample leads to an understatement of the variance of the unemployment rate of 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, therefore, should be considered approximate. The actual confidence intervals may be slightly larger, but the complete correction for the standard errors and confidence intervals involves obtaining confidential replicate weights from the BLS and complicated statistical procedures. Corrections for the possibility of multiple observations per person, which may create the largest bias in standard errors, are corrected for in all reported confidence intervals. It is important to note, however, that the estimates of rates of entrepreneurial activity 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.

COMPARISON TO OTHER MEASURES

Other measures of entrepreneurial activity are readily available from several nationally representative government data sets. For example, the Economic Census: Survey of Minority-Owned and Female-Owned Business Enterprises provides estimates of the number of small businesses every five years, and the CPS and Census of Population provide estimates of the number of self-employed business owners annually and every decade, respectively.

In addition to these nationally-representative government data sets, there have recently been several state-level reports of entrepreneurial activity. The Small Business Administration, Office of Advocacy has reported estimates of employer firm births from the Statistics of U.S. Businesses (SUSB) created by the U.S. Bureau of the Census (see www.sba.gov/advo/research/data.html). Unlike the Kauffman Index, however, these estimates are based on data that include only employer firms, which represent roughly one-quarter of all firms. Furthermore, the SUSB is a business-level measure, while the CPS is a person-level measure. The Advanced Research Technologies, LLC (2005) report to the U.S. Small Business Administration (SBA) and Burton: Center for American Progress (2005) also presented state-level estimates. The Kauffman Index offers more recent data than these other sources, however, and, unlike the others, it provides a dynamic picture of flows into business ownership over time.

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